Volleyball Coaching Manual

Life Ready Through Sport

LA84™ Foundation

The LA84 Foundation is the organization created to manage Southern California's share of the surplus from the 1984 Olympic Games. Located in the historic Britt House since 1985, the LA84 Foundation has committed more than $156 million to create, support, and expand existing youth sports programs, and develop the Paul Ziffren Sports Resource Center. The Sports Resource Center is a state-of-the-art learning and cultural center for sports which contains sports books, films, videos, photographs, and memorabilia. To date, more than two million boys and girls, and more than 1,000 youth sports organizations throughout Southern California have benefited from our endowment.

The goal of the LA84 Foundation is be an innovator in youth sports and coaching, and to increase opportunities for achieving athletic excellence at every level. The Foundation grants financial assistance to organizations providing youth sports opportunities, initiates and operates its own youth sports programs including Run For Fun, Summer Swim, Learn & Play Olympic Sports, and offers free coaching education workshops through the LA84 Foundation Coaching Program. For additional information regarding the LA84 Foundation please visit our web site at **www.LA84Foundation.org**.

LA84 FOUNDATION VOLLEYBALL COACHING MANUAL

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CHAPTER 1

A Philosophy for Coaching High School Athletes

High school coaching may be the most special and important profession anyone can choose. This is because the young men and women who participate in high school sports are often influenced tremendously by their athletic experience. As a coach, you have an opportunity to cultivate both their emotional and physical development. The path to coaching success begins with defining a philosophy to guide your efforts.

The High School Coach, Someone Special

ATHLETES MEET SPORTS THROUGH THE COACH

It is the *coach* who frames the sport experience for the athlete. A study released in 1990 of 10,000 high school athletes concluded that the quality of coaching has the greatest influence on whether participation in high school sports becomes a positive experience for the young athlete.

The sport of volleyball offers opportunities for athletic success to a wide variety of personalities, body types and natural athletic talent. With its opportunities for individual skill as well as team competition, few other sports can provide so much for so many. There are opportunities to develop physically, emotionally and socially. There are opportunities to discover hidden talents, learn about oneself, and develop a new sense of competence and self-worth. There are opportunities to be part of a team. There are lessons about life and reality. There is the motivation to pursue goals and objectives that most teenagers dismiss as being impossible. All these possibilities are woven into the unique fabric of sport. The responsibility of making them an intimate part of every athlete's volleyball experience rests squarely on the shoulders of the coach.

THE ROLE OF THE COACH

What exactly is the high school coach's role: recruiter, expert teacher, trainer, strategist, personnel manager, administrator, promoter, communications expert, diplomat, spokesperson, psychologist, impartial judge, disciplinarian, caring friend, counselor, parent substitute? A high school coach assumes all of these diverse roles. For the coach, the greatest reward should not be the outcome of winning, but rather the process of training and competition that positively affects the personal development of young athletes. Great coaches use sport as a vehicle to enrich the lives and futures of their athletes.

IT MATTERS WHETHER YOU WIN OR LOSE

While society often perceives winning as the most prized outcome of sport, *a single focus on winning by the coach can subordinate every other worthy outcome of an athlete's participation in sports.* There is nothing wrong with wanting to win. Given the choice, coaches would be unanimous in choosing winning over the alternative. There is a difference between being focused and being obsessed. The means of developing a team is more important than the win-loss record. Winning is not the only important outcome of sport.

Factors That Determine Who Wins and Who Loses

Coaches should recognize that four factors primarily determine whether an athlete or team is successful in a given competition:

1. How well the athlete and/or team performs in a particular competition

Every individual and team is capable of a certain level of performance. How well the athletes exploit that capability in competition is the chief factor in winning. Anything less than one's best can open the door to defeat. How well all the athletes work together will affect the outcome. Their level of play as a team will greatly affect the outcome.

2. Preparation

How the team has prepared in practice will have the greatest affect on the outcome of a competition. What each player has learned from practice will affect his or her play. The way a team has learned to play together will determine what will happen at a match. The level of fitness and skill that has been taught and trained to the athletes is critical.

3. Scheduling

As obvious as it may seem, the next greatest factor in winning is the *quality of the competition*. Inferior competitors can and sometimes do upset superior ones. The powerful role that scheduling plays in winning and losing cannot be disputed.

Once the schedule is set and the opponent is known, the most significant factor becomes *performance*. When athletes or teams perform to the best of their capability against weaker opponents, victory usually results. This is not certain, for winning is often elusive. It is the uncertainty and mystery of the outcome that gives sport much of its intrigue and magic.

Winning is a challenge. At best, however, only 50 percent of the participants can be winners in any sport competition. Only one team emerges victorious. So, does everyone else then become losers? Is there no opportunity for achievement, fulfillment and fun without winning? Is winning really the ultimate goal of sport or is there a more important objective and a more attainable goal?

4. Talent Pool

Obviously having taller, stronger, talented athletes on any team will help a team's outcome. More talented athletes will learn quickly and develop faster than those with less ability. Even more important is the athletes' willingness to learn and discipline to train.

WINNING VERSUS SUCCESS

The opportunity for success is available to everyone if it is defined as performing to one's capability, rather than focusing solely on the outcome (score) of a given competition. Teaching athletes to focus on success, rather than the score, nurtures the actors that ultimately lead to winning. John Wooden was famous for never discussing winning with his players. Instead he taught them to strive for excellence in their play.

Success = Ability + Preparation + Effort + Will

Ability – Everyone has ability, but it isn't distributed equally or predictably. This applies to coaches as well as athletes. Often ability is a gift of birth, but that doesn't guarantee any success. The challenge isn't to have ability, but to develop and use the ability we are given.

Preparation – We gain greater use of our abilities by investing in preparation. Only through the persistent and disciplined process of preparation can raw talent be transformed into greater capability. In volleyball we call this preparation *training*. Through proper training, athletes become faster, stronger, jump higher, more skilled, knowledgeable, confident and mentally tough. Although developing greater capability is important, it is still no guarantee of competitive success.

Effort – Developed ability realizes its value when expressed through the challenge of competition. That expression is accomplished when physical and mental effort summons every ounce of one's capability. Still, athletes often find themselves at the end of the match exhausted, having given all they think possible, but needing to find even more. In sport we call this... crunch time!

Will – Crunch time is real, both in sport and life. It is that moment when you think you have given all you have, only to find out even more is required. Many athletic contests are won or lost at this moment. Some athletes are able to draw on an inner strength to summon greater effort than they know themselves to have. This is the use of one's will, the power to go back to one's personal reservoir again and again as needed. *Athletes and teams are successful when they train hard to develop their ability, give their best effort in competition, and show the will to push themselves beyond self-imposed limits*. Too often coaches and athletes miss experiencing the pride and satisfaction of success because they are too focused on winning.

BUILDING SUCCESS

Unlike winning, success can be experienced by every athlete every day. However, it doesn't come easily or immediately. Success requires that athletes be coached to develop some specific, personal attitudes. Robert Goodwin, soccer coach at St. Lawrence University, has identified six such attitudes:

1. The desire to strive for excellence.
2. The realization that nothing of value can be achieved without hard work and dedication.
3. The desire to display self-confidence.
4. The desire to show one's ability in competition.
5. The desire to cooperate as part of a team.
6. The desire to have fun.

THE DESIRE TO HAVE FUN

The desire to have fun deserves special attention. Sports should be fun for both athletes and coaches. *The opportunity to have fun is consistently identified by students as the #1 incentive to participate in high school sports*. The fun we refer to is not the fool around fun we see in our locker rooms, on the bus, or at team parties. It is the pride, satisfaction and fulfillment a youngster experiences from improving his or her strength, speed and skill after hours of training and practice. It is the thrill and exhilaration of setting a new personal best in competition. This is the fun that all athletes and coaches seek. It is the fun of feeling good about oneself. When athletes experience this kind of fun, they become consumed with the desire to feel more ... preferably as soon as possible. Developing this desire to have fun may be the most important attitude coaches can teach. ***When athletes are filled with the desire to have fun, they are likely to:***

- Strive with all their hearts for excellence.
- Dedicate themselves to persistent and consistent hard training.
- Show the self-confidence to make the tough decisions and sacrifices it takes to train and compete at their best.
- Be excited to show their ability in competition, free of fear or self-doubt.
- Gain personal strength from respecting, helping and caring about their teammates.

SO, WHAT ABOUT WINNING?

Where should winning fit into your coaching philosophy? As noted earlier, nearly

every coach would prefer to win every contest. Realistically, it is important for coaches to admit that it does not matter much whether or not our teams win all their matches. What *does* matter is that we win the battle to enhance the lives of our athletes through their volleyball experience. For coaches, this is the most important win of all. This is the true measure of coaching success.

SHAPING YOUR ENVIRONMENT

Most of us believe that sports teach participants high ideals and admirable personal qualities such as pride, courage, confidence and respect. Unfortunately, this is not always true. None of these ideals and attributes are inherent in sport. It is the coach who frames the experience of participating in sports within the environment he creates for his or her program. For every athlete who has experienced pride through sport, others have experienced relentless criticism and ridicule from their coaches. For every athlete who has gained courage from competition, others have been gripped by the fear of intense scrutiny and high expectations from their coaches. All too often, athletes develop attitudes of disrespect, hate and vengeance for their opponents, officials, teammates and coaches. Sport is fertile ground for learning. Coaches, both good and bad, are effective teachers. Lessons learned are learned well. Consciously or unconsciously, the coach designs and controls his or her sport environment. Every coach is encouraged to invest significant time and effort in engineering an environment that nurtures pride, confidence, courage, respect, responsibility, trust, caring, leadership and other attributes he or she believes to be important. These must be reflected and constantly reinforced in the attitude, words, actions and behavior of the coach.

SOME THOUGHTS ON BEING A GREAT COMMUNICATOR

Without question, the key to being a successful coach is the ability to communicate effectively. Communication is a two-way process between the sender and receiver. It takes on many forms, some overt and others subtle. Coaches communicate with their athletes by what they *say*, what they *write*, what they *do*, and how they *behave*. To communicate effectively, coaches must also listen to their athletes.

Guidelines to Improve Your Communication Skills

- **Understand that the burden of responsibility for any communication belongs to the *sender*, not the receiver.**

  If it is important enough for you to say or write to your athletes, it must be

repeated, reinforced, and reviewed to be sure the message is understood. Communication must be an ongoing process.

- **Communicate with those *under* you as you would with those *above* you.**

  Some coaches are unaware that often they communicate with younger and/or lesser athletes in a condescending or demeaning fashion. Ask yourself if your choice of words, tone, and style of delivery reflects the attitude and respect you would like to receive in communication from your athletic director and principal.

- **Communicate with your athletes regularly, consistently and thoroughly.**

  Make communication easier by having at least one team meeting a week so your athletes come to anticipate and expect certain messages. Avoid just talking *at* your athletes. Ask for their questions and input.

- **Instruct constructively.**

  Too often athletes are only told what they are doing wrong. It is more important, and far more effective, to tell them how to do it right by:

  - Reinforcing the positive.
  - Praising what your athletes do right; preparing them to be receptive to your next instruction.
  - Explaining the mistake and how to correct it. Be specific and keep it short. Athletes can only process a limited amount of information at one time. Be patient and careful not to show any frustration.
  - Reinforcing the positive. Sandwich further instruction between two positive comments to take the sting out of continued correction.
  - Remember to give 10 positive comments for every negative one, as young athletes tend to hear and remember only the negative ones.

UNDERSTANDING MOTIVATION

Motivation is something that arises from inside an individual. Motivation cannot be given to someone. It has to be fed, nurtured and tapped. The word motivation is derived from the word *motive*, which is the desire to fulfill a need. The primary need we all have is the need to feel worthy. Our sense of self-worth is enhanced most by feelings of competence, accomplishment and acceptance. Simply put, we feel better about ourselves when we feel we are good at something. We will work hard to improve in areas where we believe we have the potential for success. The more effort we put into the process of improving, the more our feelings of increased competence enhance our feeling of self-worth.

Accomplishments and recognition along the way reinforce our worthiness. We also measure our self-worth by the acceptance we get from others, especially the sense of

belonging to a group of our peers. The need to feel worthy is the single most powerful element of motivation. It should be easy to see why sports are a perfect vehicle for boosting an individual's sense of self-esteem. However, since few can be champions, there is a danger of athletes equating self-worth with the ability to win matches. The message for the coach is this: While you cannot make every one of your athletes feel gifted, you can make them all feel more competent. While you cannot make every one of your athletes feel a sense of great accomplishment, you can see that each feels some sense of achievement. What you *can* guarantee is that every one of your athletes feels important and accepted. Let them know it is OK to make a mistake. If you allow athletes the security of having your time, energy, interest, belief and trust, you will be amazed at the great things they will dare to do.

ADVICE TO HELP YOU SURVIVE AND PROSPER IN COACHING

- **Put your family first.** Coaching is so time-intensive that the only way you can be assured of having time with your family is to make time *for them* before you make time for anyone else.
- **Expect success.** Visualize what you want to accomplish. Winners know what will happen ... losers fear what might happen.
- **Take the lead.** Showcase the volleyball program in your school and community. Fight for equitable funding. Take a cue from football and basketball and give volleyball a chance to be a spectator sport by presenting your home games as entertainment.
- **Project yourself.** Put your "stamp" on each of your athletes, assistant coaches, and on every phase of your program.
- **Surround yourself with good people.** You cannot coach a large group of athletes by yourself. To succeed in volleyball, you must recruit and train assistant coaches who will adopt your philosophy, share your commitment, and join your quest for success. An assistant coach with a bad attitude can sabotage your entire program.
- **Know who your friends are.** Anyone in a leadership role is subject to the positive or negative influence of others. Identify those who can positively influence your coaching career and make them your friends.
- **Cultivate an advocate.** Know that you have at least one influential and valued friend that you can trust and depend on in any situation.
- **Be true to your values.** It can be easy to compromise yourself in the quest to win. Say what you believe. Do what you say. Nothing is harder to earn and easier to lose than a good reputation.

— by Dr. Rick McQuire,
Head Track & Field Coach, University of Missouri;
from the LA84 Foundation/CIF Track & Field Coaching Manual

COACHES' CODE OF ETHICS

(From the American Volleyball Coaches Association Code of Ethics)
I,_____ (Print Name and Title), as a coach of volleyball am committed to sound educational processes, establishing traditions and promoting values for my volleyball community. I am dedicated to advancing the welfare of those who seek my assistance, and to the maintenance of high standards of professional conduct and competence. I am accountable for all of my actions and to this Code of Ethics, and my acceptance of this fiduciary responsibility is expressed in all of my personal and professional relationships in that coaching may involve my direction of youth, adolescent or adult teams. I will follow these principles in all environments and abide by them completely when coaching.

Signature: _____
School: _____
Date: _____

High School Sports as an Extended Classroom

Our schools have interscholastic sports programs because they provide students with unique learning experiences that are not offered in other parts of the school curriculum. Through participation in interscholastic sports, athletes improve their strength, speed and endurance, and acquire the complex skills and poise needed to perform at their best in athletic competition. Few educators have the opportunity to affect the lives of their students more than a coach. The best coaches use their practices and competitions as *extended classrooms*, and strive to inspire athletes to reach for their best both athletically and academically. High school students are young adults who look to their coaches for leadership, knowledge, instruction and direction. Many lessons can be taught and learned through participation in competitive interscholastic sports – such as how to set goals, how to compete, how to take risks, how to deal with success and failure, and how to maintain emotional self-control. Important values and attitudes such as sacrifice, dedication, accountability, and self-confidence can be learned along with such virtues as good sportsmanship, teamwork, camaraderie and respect for opponents, mental toughness, and persistence in the face of adversity. Those experiences and character traits will lead young athletes toward successful, fulfilling lives long after their high school athletic careers are over. The benefits that can be derived from participating in sports do not result from participation alone,

however. Research indicates it is *the quality of adult leadership that determines whether youngsters have a good or bad experience in competitive sports*.

An effective high school coach will be an inspirational leader, a knowledgeable teacher, and an appropriate role model. More than just a teacher of skills and strategies, the high school coach is a significant adult force in the life of a student-athlete. You will have a great impact on the psychological growth and personal development of the athletes you coach. What you say to your athletes, and how you go about saying it, will have a great impact on your athletes' experiences in sport.

Developing a Coaching Philosophy

DETERMINING YOUR COACHING OBJECTIVES

The two most important considerations in developing a personal coaching philosophy are your coaching objectives and your coaching style. Your coaching objectives could include improving your win/loss record, winning your league title, being one of the top teams in the California Interscholastic Federation (CIF), showing significant individual and team improvement, making your program fun for your athletes, or teaching your athletes to compete well. High school coaches often believe their first responsibility is to produce winning teams. However, winning should not be the single measure of success for you or your athletes. An overemphasis on winning can cause negative responses in young athletes – such as anxiety, fear of failure, reduced self-esteem, and a loss of motivation. This is not to say that winning is not an important objective. Winning is important! But for high school sports to bring out *the* best in young athletes, *coaches must keep winning in proper perspective*.

Your coaching success should be defined and measured in a variety of ways other than your state ranking, win/loss record, or place in your league. The number of athletes you attract to your program, your athletes' enthusiasm for volleyball, the improvement your team shows through the course of the season both on the court and in the classroom, and the amount of parental/community/school interest and support you generate for your program are equally important measures of success. Winning the majority of your matches does not necessarily mean you are a good leader and role model for your athletes. As a coach, your actions speak louder than your words, especially during competition. You must each respect the rules, your opponents, and the judgment and integrity of officials by the example of your behavior.

DEVELOPING AN EFFECTIVE COACHING STYLE

This brings us to the second part of your coaching philosophy: coaching style. Your coaching style reflects how you choose to lead and interact with your student-athletes. It affects how you motivate and discipline, and what role, if any, you permit your athletes to have in making decisions that affect them. There are authoritarian, cooperative and passive coaching styles. Your style of coaching must fit your personality, but every coaching style is a somewhat different combination of these three approaches. We encourage you to take some time to examine your coaching philosophy and consider the coaching style you wish to use to achieve your objectives.

Here are some suggestions:

- Remember that your athletes should be the center of attention. Sports were not created to glorify coaches.
- The simple objective of coaching is to help athletes shorten the trial-and-error process of learning, and ease the trial-and-terror experiences of competing.
- When coaching, focus on the skills needed, a method to teach and demonstrate them, and drills to practice and master them.
- Integrity, credibility and technical knowledge are the most important qualities of a good coach — in that order.
- Every athlete deserves to be addressed by his or her name and treated with dignity.
- Your coaching style must not isolate you from your athletes. You must have a forum for open communication or you will never be in touch with your athletes. Be willing to listen to them, hear criticism, and respond by acting rather than reacting.
- You cannot talk about winning without talking about losing. Is losing a game when everyone plays well considered a failure? How do you want your team to behave after a tough loss? How do you expect your athletes to bounce back after performing poorly?
- Regardless of your coaching style, you need to command your athletes' attention and respect. And you need to communicate and motivate, and praise and discipline effectively in your role as a high school coach.

TLC: TEACH, LEARN, COMPETE

As a high school coach, every decision you make should be in the best interests of your athletes' physical, psychological and social development. The philosophy advocated by the LA84 Foundation is "TLC": teaching, learning and competing.

Teaching represents what a coach provides student-athletes by way of instruction. The lessons a coach must teach include technical skills, positive attitudes about competition, the process of training, and effective tactics and strategies. A coach must also teach athletes emotional self-discipline, responsibility, self-esteem, and how to maintain poise by focusing on the things they can control. No less important are social values such as appropriate behavior, fair play, good sportsmanship, and the importance of working together to accomplish team goals and objectives.

Learning is your athletes' acceptance of what you teach. Learning is greatly influenced by the atmosphere a coach creates in helping athletes reach for their best. Effective learning requires communication, motivation, feedback, cooperation, and purposeful training. A positive approach to practice and training that emphasizes skill development, fitness, teamwork, and fun will help to ensure that athletes' learning experiences are positive.

Competition is the essence of sport. Competitive skills are essential to prosper in a society where we compete for grades, spouses, jobs and promotions to achieve success, happiness and security. Volleyball is a sport in which athletes demonstrate both their physical and competitive skills. Coaches should portray the adventure of athletic competition as an opportunity for success rather than failure. Coaches must help athletes learn as much as possible from their competitive experiences, analyze what they do well and what they don't do well, and resume training with a new agenda and a renewed determination to improve. Coaches should emphasize that success in sports should be measured by each athlete's personal performance goals. Just because every volleyball match has only one winner doesn't mean everyone on the other team is a loser. Competition should serve as a reference point for athletes to measure progress. Sometimes the pressures of competition can result in athletes setting goals that are unattainable. Goals that are too high guarantee failure even when the athlete performs well. Coaches should help athletes set realistic goals.

MOTIVATING AND COMMUNICATING WITH YOUNG ATHLETES

Sport psychologists have learned that two of the most important needs of young athletes are the need to *have fun* and the need to *feel worthy*. Certainly, it is easy to see when athletes have fun. They appear to be challenged, excited, stimulated and focused. They express feelings of enjoyment, satisfaction and enthusiasm.

Athletes also have a need to feel competent, worthy and positive about themselves.

Sports can be threatening to young athletes when they equate achievement with self-worth. As youngsters, we learn quickly that others judge our worth largely by our ability to achieve. To win is to be a success and to lose is to be a failure. This attitude causes tremendous anxiety in many young athletes.

Social evaluation and expectations of others are other major causes of anxiety. Athletes become anxious when they are uncertain about whether or not they can meet the expectations of their coaches, parents, peers or even themselves. The more uncertainty athletes have, and the more important they perceive the outcome to be, the greater their feelings of anxiety. The very nature of sports involves an extensive evaluation of the skills of the participants. Any situation involving social evaluation of abilities that a youngster considers important can be threatening if he or she anticipates failing or receiving negative evaluations. Most youngsters place great value on athletic competence, and are particularly sensitive to appraisal of their abilities by others. Mistakes and errors, which are a natural part of the learning process, can be misinterpreted as failure or incompetence.

These competitive pressures can result in youngsters setting unrealistic standards of near-perfect execution, which virtually assures they will fail. As a coach, you must help your athletes satisfy their need for fun by structuring their sport experience so it challenges and excites without being threatening. Motivated athletes have a strong desire to master skills and demonstrate their competence. Similarly, you can help athletes satisfy their need to feel worthy by creating situations where everyone can experience some degree of success. The continual process of achieving incremental goals that are challenging, yet attainable, provides motivation. When athletes experience a taste of success, it reinforces their feelings of mastery, competence, pride and self-worth. This in turn stimulates their desire to pursue new levels of personal achievement.

HELPING ATHLETES REACH FOR THEIR BEST

The ability to teach, communicate and motivate athletes is the *art* of coaching. Teach your athletes to focus on things they can control: their own performance and readiness to compete. When athletes allow themselves to worry about their opponents, they misdirect their focus to things they cannot control and limit their ability to compete well. Athletes who tend to worry about performance must be taught to focus on *what* they want to do (performing a skill or tactic), instead of how they are going to do. Athletes should also recognize that winning is sometimes sabotaged by external

factors beyond their control, such as an oncoming cold, bad weather, or outright bad luck. Over time these things even out, and they will be the beneficiaries of such occurrences as often as they are the victims.

Let your athletes know it is all right to make mistakes. Many young athletes fear making mistakes because they have been ridiculed or punished for making mistakes in the past. Coaches must create a supportive atmosphere in which athletes view making and correcting mistakes as a natural part of the learning process. Some athletes become so frustrated and angry with themselves when they make a mistake during competition that they lose their composure and perform far below their abilities. Teach your athletes that one of the things that separate champions from average athletes is the ability to let go of a mistake quickly and refocus on what needs to be done next.

Communicating is the most important thing you do. This fact cannot be overstated. Effective communication involves the explicit expression of instructions, expectations, goals, ideas and feelings. Doing so enhances mutual understanding and is the first step in meeting the athlete's and coach's needs. Communication is a two-way street: both coach and athlete must listen and speak up to make it work. As a coach, you must be credible in the eyes of your athletes in order to communicate with them. Your credibility is the perception of the trustworthiness of what you say and do. To establish and maintain it with your athletes, you must be knowledgeable about volleyball, enthusiastic about coaching well, and consistent and positive in the way you deal with them. A positive coaching attitude projects your desire to understand your athletes, accept them for who they are, and treat them with respect and affection. It requires careful listening, clear speaking, and the ability to give feedback and constructive criticism in an impersonal and instructive manner. A positive approach is characterized by the liberal use of praise, encouragement, and positive reinforcement. Constant criticism, sarcasm, or yelling at your athletes will increase their anxiety over making mistakes, decrease their sense of self-worth, and discourage them from continued participation.

Another important component of a positive approach is empathy. It is not the same as sympathy. Empathy is being aware of the feelings and emotions of your athletes. Coaches who are empathetic listen to their athletes and try to understand what is going on in their lives outside of athletics.

Praise must be sincere. When coaches are not sincere, they risk losing the respect of their athletes. It means little for athletes to hear "good job" when in fact they know they have not done a good job. If the athlete or team has not performed well, the coach should be honest and acknowledge the fact. However, athletes always should be complimented for things they do well. Remember to praise deserving efforts, not just final outcomes.

Attitude is the key to success. Let your athletes know that champions expect to do well. They believe they will succeed and they recognize the important role that hard work and sacrifice plays in the quest for athletic excellence. Champions focus on goals and how to achieve them. They don't surrender their goals easily. They identify their areas of weakness and work hard to eliminate them.

Athletes should be taught that the most important kind of success resides in their personal improvement, giving maximum effort, being willing to take risks, and striving to do their best. If you can impress on your athletes that they are never losers when they give their best effort, you endow them with a precious gift that will see them through many of life's most difficult endeavors.

FINAL THOUGHTS

All of the athletes you coach are unique and special. They range from 13-year-old boys and girls to 18-year-old young men and women. They come to your program with different abilities, skill levels and personalities. They all have different backgrounds, attitudes, expectations and needs. One of the greatest challenges in coaching a sport like volleyball, which involves working with a large number of athletes, is being sensitive to individual differences and striving to make each athlete feel valued and important.

Finally, whether you are a full-time faculty member or a non-classroom coach, try to make yourself a part of your high school community, get to know your principal, front-office staff, and fellow coaches. Attend and ask to be part of any pep rallies or assembly programs during your season. Support other teams and programs. Write to your athletes' teachers and tell them about the objectives you have for your program. Invite them to attend your games and let them know you are concerned about your athletes' performance in the classroom as well as on the field. The coach who gets involved in school is sure to receive greater support for the volleyball program from

his or her fellow coaches, faculty, support staff and school administration. Your athletes will benefit both academically and athletically.

THE UNITED STATES OLYMPIC COMMITTEE COACHING CREED FOR YOUTH SPORTS

1. Establish the well-being of your athletes as your No. 1 goal.
2. Use your sport to teach young athletes that victory and athletic achievement are meaningful only if achieved in a fair and sportsmanlike manner.
3. Teach young athletes by example to respect their opponents, the rules of the sport, and the role and judgment of officials.
4. Develop the competitive spirit of your athletes by encouraging them to "play to win." But remember young athletes should derive primary satisfaction from the experience of playing, improving, and attaining personal goals which should not be limited to winning.
5. Be reasonable when scheduling practices and competitions. Young athletes need some time to be able to enjoy other worthwhile activities and interests.
6. Be sure your equipment and facilities meet safety standards appropriate for the age and ability level of your athletes.
7. Never yell at your athletes for losing or making a mistake. Young athletes should be able to participate in sports without fear of failure or ridicule.
8. Remember that young athletes thrive on enthusiasm and encouragement. Be positive and generous with your praise.
9. Avoid over-playing your most talented athletes. All your athletes need playing time, or experience in competition, to be able to develop.
10. Always follow a physician's advice when deciding when injured athletes are ready to resume practice and competition.
11. Get to know your athletes' parents and encourage them to become supportive volunteers for your program. Educate parents and volunteers to understand that programs that involve a high level of psychological stress and over zealous parental supervision to win can threaten the physical and emotional well-being of young athletes.

CALIFORNIA STATE DEPARTMENT OF EDUCATION COACHES' CODE OF ETHICAL CONDUCT

A. Show respect for athletes, officials and other coaches.

B. Respect the integrity and judgment of your officials.

C. Establish standards, and be a model for fair play, sportsmanship and proper conduct.

D. Establish athlete safety and welfare as your highest priority.

E. Provide proper supervision of your athletes at all times.

F. Use discretion when providing constructive criticism, and when disciplining your athletes.

G. Be consistent in requiring your athletes to adhere to the rules and standards of your sport.

H. Always instruct your athletes in the safe use of equipment.

I. Do not exert undue influence on your student-athletes' decisions on which college or university they should attend.

J. Avoid influencing student-athletes to take easier course work in order to be eligible to participate in high school athletics.

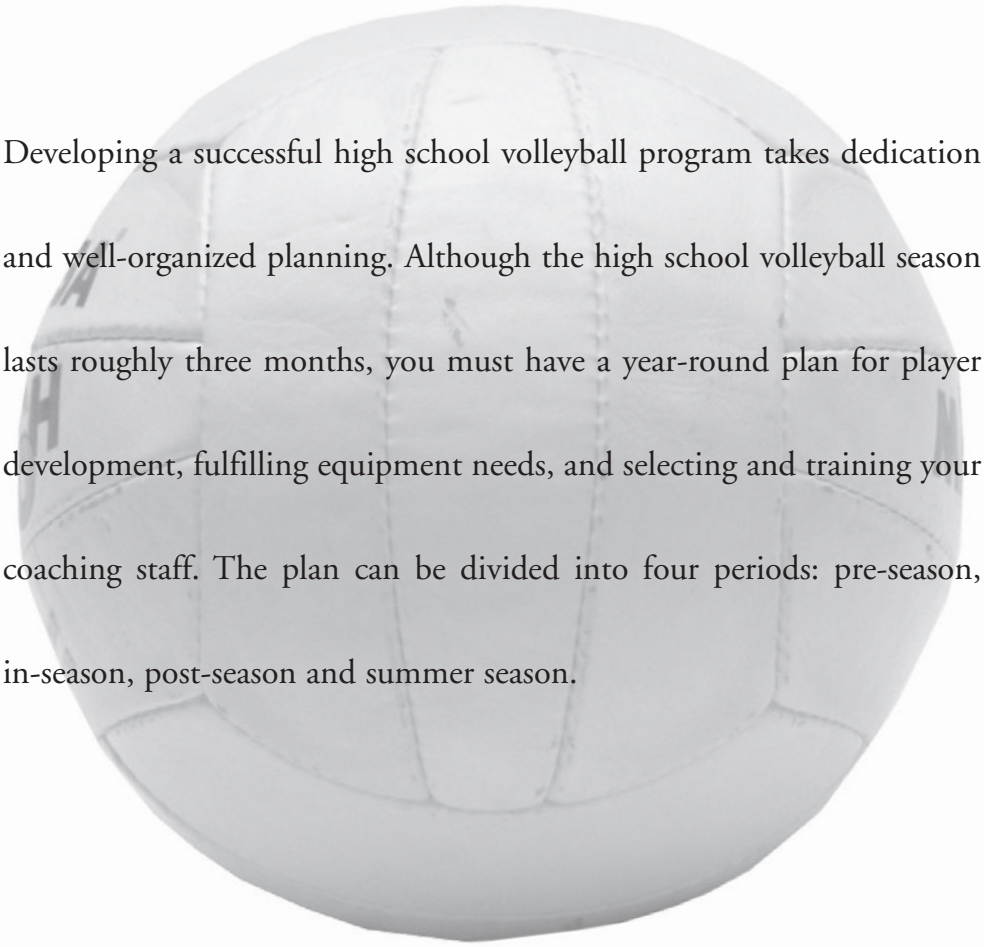
K. Do not encourage or permit your athletes to use performance-enhancing drugs.

L. Do not recruit student-athletes from other schools.

M. Enforce the rules of behavior and procedures for crowd control established by your conference and local board of education.

CHAPTER 2

Managing a Volleyball Program



Developing a successful high school volleyball program takes dedication and well-organized planning. Although the high school volleyball season lasts roughly three months, you must have a year-round plan for player development, fulfilling equipment needs, and selecting and training your coaching staff. The plan can be divided into four periods: pre-season, in-season, post-season and summer season.

The Responsibilities of a Head Coach

PRE-SEASON

- Encourage your prospective team members to enroll in a pre-season volleyball class. Follow school procedures for adding and dropping students from the class. If no preseason or summer school class exists, see you administrator about adding one.
- Monitor the academic eligibility of all team members. Send out weekly progress reports to your athletes' teachers.
- Develop a fitness program that includes work with and without the ball. Use this time to condition your athletes. Make the program fun and include much variety. Remind your players to bring both volleyball and running shoes to school every day. If you include training that will take your athletes off campus, be sure to obtain permission from your school administration. Monitor your athletes closely.
- Meet with your coaching staff to discuss your overall coaching philosophy, season goals, coaching and administrative responsibilities, team and school policies, safety guidelines, and emergency medical procedures.
- Discuss tryout procedures with your coaching staff. Review the previous year's team roster to determine the number of players you expect to return and the positions that need to be filled. Schedule dates for tryouts. Most programs have tryouts in the summer or right before the season. Boys are allowed ten days before the season for new players only. Check with your athletic director to make sure the dates you have selected are not in conflict with "dead periods," other athletic events, etc. Remember to adhere to the federtion rules governing the number of allowable tryout days.
- Review and confirm your game and bus schedules with your athletic director. Be sure all contracts have been signed and sent.
- Hold a pre-season meeting with your players and their parents to explain team policies, solicit volunteer help, and preview the season. Introduce your coaching staff, preview your tournament and game schedule, explain transportation policies, team rules, and state your goals for the season. Make yourself and your staff available to answer any questions. Also, this is a good time to hand out uniforms and discuss player contracts.
- Select team captains and assign them specific leadership roles.

IN-SEASON

- Have a written plan and a purpose for each and every practice.
- Follow school procedures for taking attendance during last period P.E. volleyball class.
- Meet with your coaching staff at least once a week to handle administrative matters, go over game and bus schedules, and discuss player development and any special academic concerns.

- Meet with the administrator in charge of sports to discuss administration, bus schedules, tournaments and administrative concerns.
- At home games, greet the visiting coach, team, and referees and direct them to the lockerroom or restrooms closest to the gymnasium. Provide water for referees
- Pay close attention to your players when visiting other schools. Do not allow them to wander around the campus. Have rules for your athletes for walking around another school's campus
- Carry player emergency information cards to all practices and games.
- Make sure that proper attendance procedures are followed for early release time for away matches. Take attendance before leaving for games.
- Know whom to contact if the bus for an away game does not arrive on time. Keep the telephone number for the bus company or their contact person, in your wallet!
- Make checklists for home and away games. In the bustle that often presides before games, a checklist serves as a silent assistant. Checklist items should include all necessary equipment and supplies as well as tasks to be performed. Before departing on a road trip, verify that all the needed equipment is on the bus with the team. After the match, make sure all of the equipment is back on the bus.
- Establish a schedule and routine for your players to follow for all home games.
- Keep individual and team statistics and share them with your players.
- Assemble a brief scouting report for every game, especially playoff games. Review the report with your team at practice sessions before each game.
- Prepare written evaluations at mid-season for all players. Discuss your evaluations with each athlete.
- Carry the referee assignments and telephone numbers, CIF Volleyball Rule Book, your league rules and regulations, as well as the CIF Play-Off Bulletin with you to all games.

POST-SEASON

- Collect and inventory all equipment and uniforms.
- Hold athletes financially responsible for school equipment not returned according to athletic department policy.
- Place uniform and equipment repair and purchase orders.
- Complete the documentation required to provide school athletic letters and awards to your players.
- Plan an end-of-the-season awards banquet or help your booster club do so. Spotlight your players differently. Give information on your players' awards to the school and local paper.
- Encourage your players to play off-season sports.

- Follow school procedures for transferring students into other physical education classes if there is no post-season athletic class.
- Prepare a schedule for the next season. Try to schedule some night games if possible. Night games will allow more parents and fans to attend. Base your schedule choices on league requirements and on the anticipated strength of your next year's squad. Establish or maintain traditional rivalries, and add variety by looking into new tournaments for the upcoming year.
- Hold a wrap-up meeting with your coaching staff to evaluate your season, critique your program, and implement new objectives and procedures for next season.
- Prepare a training program for your post-season volleyball class. Include a wide variety of games and cross-training activities.
- Investigate club volleyball programs in your area and provide information to your athletes. If none are available, consider starting your own club program.
- Investigate summer camps and recommend specific ones to your players.

SUMMER

- Schedule a number of training sessions during the summer. Summertime is a good time to work on ball skills, cardiovascular conditioning and strength training.
- Participate in leagues and tournaments. If your schedule or school policy doesn't allow summer play, encourage your athletes to play beach and grass volleyball.
- Coordinate your training sessions with your players' club volleyball and other summer activities. If your school's traditional dead period is at the end of the summer, consider petitioning to change it to when your club players are at the Davis tournament or Junior Olympics.
- Provide club volleyball tryout information to athletes and their families and explain the value of club ball.

The High School Coach's Legal Liability

The litigious nature of our society and the risks inherent in sports participation leave you, the coach, with more liability exposure than any other individual in your school.

Today's coaching liability lawsuits focus on these eight areas:

1. Failure to provide adequate advance warning of the risk of injury involved in participating in school sports activities.
2. Failure to have or to enforce rules and procedures for safe participation.
3. Failure to provide proper supervision of an activity.

4. Failure to provide and maintain a safe playing area.
5. Failure to use proper coaching methods and provide adequate physical conditioning.
6. Failure to provide safe transport to and from sites of competition.
7. Failure to provide proper instruction for the use of athletic equipment.
8. Failure to provide proper medical care to injured athletes.

To protect the safety of your athletes and minimize your legal liability we recommend the following steps:

- Advise all team members and their parents, in writing, of the potential risk of injury inherent in sports participation. Have them sign a consent and waiver/release form.
- Establish written training safety rules and procedures with your coaching staff. Distribute them in writing to all team members.
- Enforce your safety rules and procedures.
- Develop a medical emergency plan for all training sessions and games. Always provide close supervision for any potentially dangerous training activities such as weight training or off-campus runs.
- Instruct your athletes in the proper use of all equipment.
- Be aware of the medical history and special health problems of every athlete you coach (diabetes, asthma, allergy to bee stings, etc.).
- Immediately inform your school administrators in writing when you feel your equipment and facilities are unsafe or inadequate.
- Join the California Coaches Association and you will be covered under the National High School Federation liability insurance. ($1 million of liability insurance coverage at the annual cost of the coaches' association fee.)

Sexual Abuse in Youth Sports

The problem of sexual abuse of young athletes by adult coaches has gained increased attention in recent years. Many youth sports organizations have taken steps to combat the problem. The LA84 Foundation encourages all coaches to be aware of the issue and learn what steps to take if you suspect a problem in your youth sports organization. The Foundation also requires that all of it grantees have a written policy addressing their commitment to keeping their athletes safe from sexual abuse. For assistance in developing a policy, or to become more knowledgeable about protecting the safety of young athletes please see the Foundation's Resource Guide On Preventing Child Sexual Abuse in Youth Sports (http://la84foundation.org/1gm/ResourceGuide_frmst.htm).

Developing a Pre-Season Plan

Effective pre-season planning lays the groundwork for a successful season. Administratively, you will need to ensure that all your equipment needs have been addressed verify your schedule of games and tournaments, finalize transportation arrangements, and obtain athlete information and class schedules. Be sure to know the CIF rules regarding tryouts. On the court, focus on player development, fitness training, skill work and team tryouts. Develop a training plan that best suits your coaching philosophy, incorporates your goals for the season, and falls within the federation (CIF), district and school guidelines. A detailed pre-season plan is a hallmark of a coach who approaches his or her sport with a professional attitude. Set a good example for your players by being well organized and prompt. Your pre-season plan, though detailed, should remain flexible. Pay close attention to the physical and emotional well being of your players. Alter your plan according to the needs of your players. You may need to increase or decrease the intensity of fitness training or allow them to scrimmage on a scheduled fitness day. *Training should be purposeful and fun*.

Pre-season training is made much easier if you have a scheduled class period in which to work with your players. In Southern California, most schools have a athletic period (often sixth) class that permits athletes and coaches to conduct pre-season training, although no practice is allowed after school. If your school does not have a volleyball class, we suggest that you ask the administration to add one. This class period will allow you to work with your players and evaluate their progress before the actual practice season begins.

Organizing Tryouts

Unfortunately, volleyball popularity, the constraints of the game, and school budgets often force coaches to limit the size of their teams. Cutting a number of players from those who show up to play is a necessity in many programs. Almost any fellow coach will tell you that making cuts is the most difficult part of coaching. An extended organized workout is the best and fairest way to evaluate players.

The CIF-Southern Section allows in May a 15-day workout period for the student-athletes at your school. (Consider petitioning to change this to the time when your club players are away at tournaments.) All student-athletes (new or incoming freshmen) coming to school can workout during summer workouts until the three-week

dead period. Contact with a junior high school student-athlete is prohibited until after the eighth grade graduation. Use this time for your tryout evaluation. Only first-year players are permitted to participate in tryout sessions. Returning players are not permitted by the CIF to participate in pre-season tryouts. Tryouts for returning players must be held once official after-school practice begins.

Before scheduling pre-season tryouts, determine how many players you plan to have on each team. Identify prospective newcomers before tryouts begin. Send out a mailing to all incoming freshman. Some girls will be participating in more than one sport/organization. You will need to give them an opportunity to try out for the team once their seasons end. Do your best to determine how many athletes from other sports you expect to join the team. Establish written guidelines for evaluating players and discuss these guidelines with your coaching staff.

Create an evaluation sheet for each player. Athletes deserve to have their efforts evaluated formally. If you are forced to cut an athlete from the squad, these evaluations will help you explain your decision to the athlete and his or her parents. If you need to make cuts, you owe each athlete the service of an individual meeting to explain your decision. Review each athlete's player-evaluation form for your own reference. Remember to be sensitive and encouraging as you are dealing with kids. Be understanding and prepared to answer their questions in a concise and tactful manner. Should any athlete be angry or disagree with your selection, schedule a meeting with the athlete and have your athletic director present. Encourage cut athletes to continue playing volleyball and remain interested in the team. Let them know of other opportunities to play volleyball in club, summer camps, or recreational league teams.

TEAM SIZE

As a general rule, carry more players on your junior varsity and freshman teams than your varsity. Although some of them will get very little playing time in games, you will be able to tram a larger number of players. No coach can predict exactly how younger players will develop. A large player pool lets you hold on to the proverbial "late bloomer." The number of players you carry on the varsity team can vary widely. Most varsity teams carry nine to 12 players. Although most young athletes want to be part of the varsity team, in most cases you will serve your athletes and program better by letting borderline players get experience and playing time on the junior varsity.

Organizing Your Coaching Staff

Your coaching staff is a vital part of your volleyball program. Select assistant and lower level coaches who share your coaching philosophy. Although individual coaching styles will differ somewhat, your assistant coaches need to coach according to your philosophy. Fundamental differences between coaches often create serious problems for teams. Discuss your coaching objectives and philosophy with all prospective coaches. Enthusiasm, commitment and effective communication skills are as important as volleyball knowledge. Former players can be a good source for assistant coaches. Keep in mind that young coaches may need special attention and guidance regarding professional coaching behavior. Once you have selected a coaching staff, be sure to follow the hiring policies of your school and district. All coaches, whether paid or volunteer, must register with your school's personnel office (fingerprints, TB test, etc.). It is a good idea to have all your coaches CPR and First Aid Certified.

Organizing Daily Practice

Just as your coaching style reflects your overall coaching philosophy, the nature of your practice sessions will also reflect it. Some coaches emphasize individual skill development while others prefer to concentrate on team play. Some coaches prefer short, intense practices with little rest time while others prefer longer practices with time to reflect and discuss. Some coaches prefer well-planned and regimented practices, while others prefer general guidelines that can be altered if needed. Remember to keep your players hydrated!

PRACTICE CONSIDERATIONS

The following points will to help you formulate a philosophy for practice sessions:

- Gauge practices according to players' abilities and needs.
- While players and teams have similarities, they also are unique combinations of volleyball skills, experience, physical qualities and personalities. When you design practices, exercises and drills, consider the strengths and weaknesses of each player and your team as a whole. Choose activities that allows your players to improve their weaknesses and exploit their strengths in competition. Overemphasizing weaknesses can weaken confidence and motivation, while overemphasizing strengths leaves your team unprepared for the multiple challenges of competition.
- Plan drills that are designed to achieve specific goals. Develop drills from simple tasks and skills, to more complex ones.
- Practice sessions can be quite stressful if you are not well organized. No matter how prepared you are, you cannot pay individual attention to each player at any

one time. Part of coaching well is teaching in such a way that your players learn to help coach each other. Instruct them to watch for correct and incorrect techniques, movements and decisions when in pairs or groups. Make sure this is done in a constructive manner. The feedback your players give each other is invaluable in developing team unity and helps players develop a greater understanding of the game of volleyball.

MAKE PRACTICES FUN

Practice sessions become fun when they capture and hold players' attention in an enjoyable manner. Sometimes fun is spontaneous and frivolous, while other times fun results from challenges being met. Hard work can be fun. Find exercises and drills that your players enjoy. Use these exercises to lighten the load of hard work or to establish positive team attitude. When drilling, do enough to improve technique, but don't drill to the point of boredom. When you drill players to exhaustion, they stop concentrating on the technical goal and simply try to endure. Technique development is extremely important, but drills will fail to accomplish that goal if they bore players.

KEEP YOUR TALKING TO A MINIMUM

Practice is a time for athletes to be active rather than passive. Once players lace up their shoes, they want to go! Have your chalk talk before going to the court or at the conclusion of practice. Short, concise instructions are better than long explanations and rehashed information.

Sometimes you will encounter moments in practice when a situation requires or deserves specific instructions and elaboration. These moments often are quite valuable. Because players are actually experiencing or directly observing the event, you can use these moments to reinforce earlier instructions.

SIMULATE GAME CONDITIONS

The game of volleyball requires accurate and quick decision-making. The ability to recognize situations, understand all aspects of play, and make appropriate decisions separate very good players from average players. Recognition skills are best learned in game settings. Create practice situations that emphasize skill and tactics likely to be encountered during a game. Practicing in a game-like setting will help your players learn to recognize when certain skills or tactics are appropriate. For example, try changing the size of the court by using other lines crossing the court. (Many high

school gyms have many types of courts marked.) Also try using less players and changing the number of contacts allowed. Practicing in game settings teaches athletes how to adjust to changing areas of play and use the appropriate skills. Teaching athletes when to transition, serve, pass, set, attack, cover, play defense is best done in a game-like setting. These settings can involve a small number of players, but need to closely approximate the demands of competition.

BE CREATIVE

Remember, your job is to develop players and prepare them for competition. Be willing to create or adapt drills to meet unique needs of your team. Skilled players will master drills fairly quickly, so add some new twists to challenge these players.

REVIEW SKILLS AND TECHNIQUES

As you introduce new skills and techniques, you also need to review fundamental ones. Drills are a good vehicle for addressing your players' technical flaws and showing them how to improve. Don't let players depend solely on you to improve their skills. If your players feel your only job at practice is to improve their individual volleyball skills, you will have little time to work on team play. Review techniques and show players how to improve, but make them responsible for their own skill development. Give them drills that they can do on their own, to improve their skills.

COMPONENTS OF A PRACTICE SESSION

Practice sessions generally include the following components:

- Warm-up (Increase heart rate and body temperature, stretching, etc.)
- Review and practice previously taught skills (Individual and team)
- Introduction and practice of new skills
- Simulation of game situations
- Fitness training (This can be included in skills drills)
- Cool-down

Each practice should begin with a warm-up routine and should end with a cool-down. A thorough warm-up gradually prepares the body for vigorous, intense activity. For example, have players pass, set, throw, jog, various footwork, and stretch for 10-15 minutes prior to practice, gradually increasing their exercise intensity. Cooling down is a warm-up in reverse. Because players have worked hard during practice, they need to bring their activity gradually to recovery level. Cooling down also helps prevent

muscle soreness by flushing waste products out of the muscles. It should also allow the heart rate to lower. As a general rule introduce new skills early in a practice session when your players are fresh and attentive. Trying to teach a new skill when players are winded or fatigued often is a waste of time. Practice new skills for several days before incorporating them into more complex drills and game scenarios.

PREPARING FOR A PRACTICE

Practices are the ideal place to teach, make mistakes, gain confidence, improve fitness, practice game strategy and tactics, and prepare for the next contest.

Have a Plan

A successful practice plan creates an environment that helps you accomplish your goals. First and foremost you must know what you want to accomplish. With your goals in mind, design your practices specifically to fulfill those goals. Be sure to determine the time you need for each phase of practice, but be willing to make time adjustments depending on specific circumstances. Some days your athletes will respond quickly to your instruction, some days not. That's part of coaching. Nonetheless, always keep your practice session objectives in mind.

Just as individual practice sessions should be planned, so too should your season. Take time to review weekly, tournament, and league play goals and objectives for your team. Remember, you should write out these goals before the start of the season. Each practice session is one block of a performance pyramid. The better each block fits with the others, the stronger and higher the pyramid will be.

Setting Up Equipment

Before each day's practice begins determine the sequence of drills and where you will set up equipment. If possible, set up your court and equipment before the start of practice. Setting up can waste valuable practice time. Set up equipment early and assign different groups of players the tasks of bringing out balls, setting up the court, and other equipment. You may want to designate captains to help organize players for drills. Specific equipment needs include both volleyballs and tennis balls, ball carts, hitting boxes, and cones. It is very important that you have enough balls to run a drill continuously without stopping to shag. The more time each player has to touch a ball, the more time each player has to improve!

Special Game Considerations

Competing successfully is often as much a matter of organization as it is brilliant play or game strategy and tactics. Preparing athletes to compete at their best is your responsibility. Poor organization on your part can leave you and your athletes physically and mentally unprepared to compete. One late school bus can ruin days, weeks, or months of hard training.

Here are some things you should do by game day:

- Make sure to reaffirm departure times and directions for away games. Always allow for heavy traffic or mechanical difficulties. You and your team should be ready to board the bus and leave promptly at the scheduled time. Meet with your team before boarding the bus so you can give last minute reminders, check equipment, and make sure everyone is present. Know whom to contact in case the bus doesn't arrive at your school on time! In the age of technology, it is a good idea to carry a cellular telephone on the road. It makes communicating much easier in case of problems. Ideally, you should arrive at your opponents' gym roughly 75 minutes before game time.
- Have an away-game checklist detailing all items (balls, ice, first-aid kits, etc.) and tasks to accomplish on the day of the game. Keep a file of all your athletes' insurance information and parents' telephone numbers.
- On long trips, try to include a food stop on the way home. Due to economic restraints many school districts have limited these stops. Plan to arrive early so players can stretch and relax.
- Have a policy regarding radios, iPods, MP3 players, etc. and cell phones.
- Once you arrive, don't let the bus leave until you are certain that you are in the right spot.
- Carry the national federation rulebook, and the CIF Sections volleyball rules and any rulebook your league may have.
- Try to assemble a brief scouting report for every game.
- Prepare a schedule for arrival at games and pre-game warm-ups.
- Keep statistics and share them with your players. Emphasize that each statistic adds to the team's success.

PLANNING FOR A HOME GAME

- The court should be swept, nets up at the proper height, pads on the poles, baskets up, score system ready, bleachers out, benches set up and towels available to dry the floor and balls. Speak with your athletic director to find out if the school's custodians can assist you.

- Pick up the paychecks for the officials from the appropriate person on campus prior to the game.
- Establish a time and place for your players to meet prior to warm-up.
- Make arrangements for players to have ankles taped or other injuries tended prior to the team meeting.
- Check the game balls to be sure that they are filled to proper pressure.
- Have an emergency plan in case of injury. Keep a file of all your athletes' insurance information and parents' telephone numbers. Be sure that you or an administrator at the game has all emergency telephone numbers handy. Be sure that you have access to a phone.
- Ice and a first aid kit should be placed next to both benches.
- Make arrangements to have an athletic trainer or physician at the game, if possible.
- Greet the opposing team and coach upon their arrival. Inform them where the locker rooms and gym are located.
- Greet the referees and show them to their locker rooms. Have water available for them.
- Make arrangements for all the equipment, bleachers, benches, etc. to be put away after the game.

Preparing a Team Handbook

One time-honored device for organizing your volleyball program is a team handbook. A handbook conveys the personality of your program and most of the important administrative information your athletes need to know. It also is a resource for your athletes – full of information, motivating images and quotes, team history, and pages on which they should record practice notes and thoughts about their play. The team handbook becomes the written document of your program.

BASIC CONTENTS OF A TEAM HANDBOOK

- A brief summary of your school's volleyball history
- A short statement of your coaching philosophy, along with your goals for the season and your pre-season assessment of the team
- School-mandated participation requirements, such as parental permission, physical examinations, insurance coverage, and academic eligibility
- Team rules
- A detailed list that details the equipment to be issued by the school and what your athletes must provide themselves

- Criteria for team awards and a varsity letter
- Team competition schedule
- Office and home phone numbers of you and your assistants

ADDITIONAL HANDBOOK INFORMATION

- Varsity, junior varsity, and frosh-soph school records
- Action photos from the previous season
- A pre-season overview of league competitors
- Directions to away games for parents and fans

Recruiting a Volleyball Team

At the end of each school year, make a final effort to publicize your program and recruit new members to the team. A crop of new athletes injects new blood into your program. Occasionally, a new player will contribute immediately to your team's competitive success. Advertise your volleyball program by placing attractive posters around the campus. Place notices in school and local newspapers. Have an invitation to new athletes prominently displayed on a volleyball team bulletin board, along with photographs and information about your team.

Your athletes will enjoy and appreciate the recognition, and other students will be drawn to your program. Design a sales pitch intriguing enough to entice new players to the volleyball team. You might discuss the rewards and satisfaction of competing and training, being a part of a team, getting in shape for another sport, the fun of socializing, acquiring long-lasting friendships, or the outstanding health benefits of training. Don't underestimate the powerful attraction of being part of a team. Many high school students are quietly seeking a group to which they can belong. Volleyball can provide them with that opportunity. Your returning team members are the best recruiters for your team. They can give prospective athletes a good sense of what it is like to play volleyball at your school and be a member of the team. Also, ask your athletes to recommend talented athletes from the local junior high schools. If you are not a physical education teacher, ask the P.E. staff at your school to help you recruit volleyball players.

Building a Volleyball Tradition at Your School

Successful sports programs have strong traditions. Usually we think of a "winning tradition," but winning is only part of the formula. In fact, winning is most often the result of strong tradition. Many volleyball programs have traditions that span years and decades regardless of win-loss records.

HEAD COACH

As the head coach, you are the keeper and transmitter of tradition. Your commitment creates the environment from which tradition emerges. The simplest tradition focuses on winning. Of course, not every school has the ability to build powerhouse-winning teams. Nonetheless, every program can have traditions that sustain an atmosphere of success. Encourage your athletes to create a team and/or school identity. Nurture the unique personality of each year's group of athletes. There are innumerable ways in which coaches build team identity. Feedback, recognition, reputation, reward, distinction, commitment, consistency, fairness, equality and common sacrifice are among the most important concepts that govern any cohesive group. The responsibility and art of coaching is to interpret these qualities into distinct actions and policies for your team.

TEAM

The foundation of tradition is the athletes' sense of belonging to a team. Dedication to common effort and goals is the basis of team cohesion and identification. Building team feeling starts with the coach. Communicating your commitment to the success of every athlete is the first, and most important, step in forming team identity. Treating your athletes equally is another requirement of team building. While that doesn't mean that every athlete must be *treated* identically, it does mean that every athlete must be *valued* equally regardless of talent. Head coaches who devote almost all their energy and attention to the top athletes communicate a subtle message of value to the rest of the squad. That message will be reflected in a weak sense of team unity. You can help create strong team identity by encouraging, and sometimes demanding that every athlete have stock in the performance of teammates. Don't let your varsity players ignore the efforts of the junior varsity and freshmen teams. Your athletes should spend some time together during daily training and competition. Teammates need to know each other to have any sense of common identity. Have a group activity in which the different levels (J.V., Varsity and Frosh teams) have to interact.

Weekly team meetings also reinforce team identity and tradition. Acknowledging effort and achievement before the team promotes common support and cohesion. Approval from peers bonds team members together. Nicknames, T-shirts, pins, buttons, patches, candy, etc., are all small tokens that recognize effort and accomplishment on behalf of the team. Encouraging off-campus interaction is another way to promote team spirit among your athletes. Provide social opportunities that bring teammates together. Often, athletes of vastly different abilities may find a bond of different origin that only serves to cement their relationship as teammates.

COMPETITION

Competition defines tradition. The strengths and weaknesses of your program are revealed most clearly in competition. It's relatively easy to build tradition if you win a lot of games. To that extent, your recruiting and technical coaching ability contribute to your program's tradition. But programs with strong tradition and identity thrive in competition regardless of whether they win or lose.

HISTORY

Part of tradition is history. Although the historical memory of most high school students is about 15 minutes, you need to impart a sense of continuity within your program. If you are fortunate to have a rich history of volleyball success, use it to motivate your athletes. Past examples and exploits provide real stories to inspire your athletes. If you have a program without much history, challenge your athletes with the task of establishing a legacy for future teams. Team history can be made of more than competitive victories. Stories of individuals, remarkable efforts, adventures, and mishaps are fodder for future team tales and tradition.

RECOGNITION

Tradition is also about the recognition of past achievements, current efforts, and future goals. A program with strong tradition recognizes great past performances, recognizes today's athletes, and looks forward to future achievements. Prominently display your team records, league and CIF performances, photos, and any articles about current or former athletes on a team bulletin board. When your team plays well, make sure that everyone in your school community knows about it. Use a team bulletin board, team newsletters, school bulletins, the student newspaper, local newspapers, and school public address announcements to acknowledge your team's efforts. Make sure that any trophies or awards are publicly displayed.

Get to know the newspaper reporters that cover the local high school sports beat. Don't let personality conflicts with local reporters get in the way of covering your athletes and team's success. If you live in a small television market, you may even be able to garner some television exposure for your team.

Keeping a Winning Tradition

Competitive success over a long period of time depends on many factors, many of which a coach cannot control. You shouldn't spend too much time worrying about changing school population, demographics and mere luck. Just keep doing all the things that will build your program. While you should have a basic philosophy of training, you must adapt it to each new group of players. Make each team unique and set goals appropriate to the talents of the athletes. Not every group can match the accomplishments of past teams. Realistic goals and a winning tradition will lead you to success. Beware of becoming an elitist coach, one who only tends to the varsity. The best coaches stay on top by continually building from the bottom. Make room on your team for novice players in your program. On a highly competitive team, these athletes are often overlooked or cut.

Here are some things to help your program maintain its winning ways:

- With a successful and visible program, convince the counselors to promote your sport when they are scheduling people into classes.
- If counselors go to the Junior Highs, have them promote your teams.
- Rely on the leadership of the upperclassmen as models of discipline and commitment for the rest of the team.
- Have a single consistent set of rules for the entire squad.
- Telephone prospective players and recruit from P.E. classes.
- Put pictures of the teams on a highly visible school bulletin board, or in the gym. Include their names and accomplishments.
- Plan special trips to compete outside your area. Overnight trips are fun for your athletes and motivate them to work hard in order to make the traveling squad.
- Develop contacts with local newspapers in order to get publicity for your team.

EVALUATION

To make sure that you are on track with your coaching philosophy, goals, etc., step back from time to time and evaluate what you are doing.

Throughout each season (pre-season, season, post-season, off-season) we recommend you consider the following 15 questions:

1. What are our goals? (Make these specific, challenging, realistic, attainable and measurable.)
2. Are we improving and making progress towards our goals?
3. Are we organized? Are our training sessions well-planned?
4. Is our training productive?
5. Is our program fun?
6. Do we look and act like a team?
7. Are our coaches always appropriate role models?
8. Are we in touch with our athletes? Do we listen?
9. Do we treat all our athletes respectfully, calling them by their names?
10. Are we fair, firm and consistent in dealing with our athletes?
11. Are we teaching our athletes to be self-disciplined and responsible?
12. Are we protecting the safety and well being of our athletes?
    - Good equipment and facilities
    - Safe training practices
    - Proper supervision
    - Prepared for emergencies
13. Are we promoting volleyball at our school?
14. Do our home games make volleyball a spectator sport?
    - Efficiently managed
    - Well-officiated
    - Quick-paced
    - Informative P.A. announcing
15. Do we work as hard as other coaches in our school?

Fundraising and Financial Management

FUNDRAISING ACTIVITIES

Today's high school coach must be able to raise funds and manage expenses in order to build and maintain a successful volleyball program. In an era of declining state, district, and school support for high school athletic programs, it often falls upon your shoulders to raise money for new uniforms, equipment, and entry fees. Financial management begins with planning, and the first step in that process is identifying your programs needs and determining what meeting those needs will cost. Make a list

of needs and wishes for your program regardless of cost. Divide those needs into three categories: immediate, short-range and long-range. Then estimate the cost of each need. Next discuss the needs of your volleyball program with your athletic director. Ideally, your program will receive some funding from the school's athletic budget. If school funding is not available, the responsibility for funding falls on your shoulders.

In any case, ask your athletic director for your school's fundraising guidelines. Each school, district and state has rules and regulations that govern school trust accounts and booster clubs. You can avoid potential problems by being aware of these regulations, most of which concern proper authorization and paperwork. Booster clubs often help with fundraising. If possible, try to work with them but remain in control to make sure you are following fundraising guidelines. Don't use your own money to pay for the needs of your volleyball program expecting to be reimbursed later with income from fundraising. Many fundraisers are unsuccessful and often raise far less money than anticipated.

Ideas for Fundraising Activities

Activities:

- Alumni match (Make sure this falls within the allowed number of contests for the season.)
- Pizza night (Restaurant gives you a percentage of what it sells.)
- Block party
- School dance
- Donation jars at local businesses
- Summer Soccer night series at your school
- Bingo night
- Pancake breakfast
- Car washes
- Matching-fund drives with local service clubs
- "Las Vegas Night" with your booster club
- Auctions
- Food concessions at school games and other activities
- Attend a game show taping (The show producers will pay a fee for groups.)

Product Sales:

- Candy

- Supermarket scrip
- Pizza certificates
- Craft items
- T-shirts
- Advertising on your team T-shirts
- Baked goods
- School calendars listing sport schedules
- Mistletoe/Christmas decorations
- Forest Service firewood
- Coupon books
- Entertainment passes
- School spirit items

Some Fundraising Activities Prohibited in California Schools

Check with your athletic director and administrator as many common fundraising activities are not allowed in Claifornia. ***Note: The California Association of School Business Officials (CASBO) produces a manual with information regarding the use of money in California school systems. It lists disallowed fundraising activities.***

Here are some considerations when selecting fundraising activities to help you to pay for your immediate and short-term needs:

- Is it legal? Does it fit within your school's fundraising guidelines?
- What kind of fundraiser will be most attractive to your student body and community?
- Will your team support the fundraising activity enthusiastically?
- Will your parents and/or booster club support it?
- Is it likely to provide you with the required funds? Is there likely to be any money remaining to pay for your long-range needs?
- If your team is going to sell a product, what is the profit margin? Are there hidden costs, such as promotion, shipping, art, printing, etc.? Do you have to pay for the product in advance? Can you pay only for what you sell? Can you be billed after the fundraiser is over?
- How much time will the fundraiser require? Can it be done in one day, or will it require several weeks? Is the effort worth the amount you might raise? Could you

raise the same or a larger amount of money with another endeavor requiring less time?

- Are other groups or athletic teams conducting the same type of fundraiser? Are you offering something interesting to the campus and community?
- When is the best time for the fundraiser – pre-season, in-season or during summer? When will your athletes and their parents be most helpful?
- Can you solicit incentives for your top sellers or workers from local businesses, such as free pizzas or movie passes?

The final thing you must consider is keeping records of costs and income. Whenever possible, have someone other than you, such as the school finance secretary or booster club president, handle income and record keeping. Determining how money will be received and deposited, and how bills will be paid, is one of the most important parts of planning your fundraising.

When starting your fundraiser, you must be the best salesperson on your team! You must convince your team to support the activity and work hard to ensure its success. Let the team help select and plan the activity. Discuss and organize the fundraiser with your team in a classroom rather than during practice. Create many small jobs and assign them to your athletes as a team project. Make sure your team, not their parents are involved! Motivate by offering incentives, posting records, showing progress and making daily announcements acknowledging your top workers and most successful sellers. Remember that the success of a fundraiser always depends on your planning, your enthusiasm, and your motivation.

MANAGING YOUR BUDGET

Stretching your volleyball budget and minimizing the amount of fundraising you have to do are the hallmarks of good financial management.

A volleyball program has three primary expenses:

1. Equipment
2. Transportation
3. Entry fees

How you budget and pay for these items depend on your individual school. Most schools place transportation and entry fees in budget categories separate from equipment.

Equipment

Equipment for volleyball usually consists of uniforms: jerseys, shorts, warm-up suits, shoes, kneepads, as well as balls, ball carts, standards, antennae, referee stands, training equipment, coaches' tools and nets. For openers, consider whether the uniforms you intend to purchase will be available for future reordering. Select a uniform manufacturer that has a consistent design and color selection if you want to be able to replace and add to your basic uniform inventory over several years.

Buying from the same manufacturer will let you start a replace-and-repair program for team uniforms, rather than having to purchase new designs or slightly different colors every year. It will also save art design and screen charges, which can range from $30 to $150 with every order. Be sure to find out the correct size for numbers and shade of school colors. Numbered uniforms allow you to keep an accurate record of the equipment you issue to each athlete. Numbers also make it easy for your players to identify their uniforms, especially warm-ups, from a pile of team uniforms. Inspect uniforms at the end of each season to see what needs replacing or repairing. Keep a uniform inventory list so you always know the number of uniforms in each size and style. Many schools have a uniform repair budget that can save the expense of replacing a damaged piece of apparel. When issuing uniforms at the start of the season, let your athletes know that they will have to pay for each piece of lost or damaged school-issued equipment.

Your program should have a ball for every player. Multiply the cost for one good ball by the number of players on your team and you have a hefty sum. Take good care of your volleyballs. Make sure to mark the balls with some identifying mark or initials. Having to replace a dozen lost or stolen balls in mid-season can ruin your budget. You may want to assign responsibility for keeping track of the balls to your captains. Have them count the balls at the end of every practice.

Transportation

If the responsibility of ordering transportation to away games falls on your shoulders, there are several ways to stretch the budget. First, scheduling games close to home minimizes transportation costs while making it easier for fans, friends and parents to come. If you have access to school or district vans, use them if you can't fill an entire bus. Overnight trips are usually only scheduled for varsity squads, which can use school or district vans rather than more expensive commercial buses.

Entry Fees

Every volleyball coach must plan for tournament entry fees. Most tournament organizers levy severe fee penalties for entry fees received past the deadline. If your school business office cannot cut a check in time to meet an entry deadline, send your own check, and get reimbursed, rather than pay a late fee. (Not paying your entry fee on time is also the best way not to be invited back to a tournament the next year.)

Organizing Parents for Support

Every high school sports program needs support that goes beyond the team budget. Fortunately, coaches are blessed with a built-in support group: the parents of athletes. Involve parents in your volleyball program. Both you and the sport need them. You can organize a parents' group either formally, as a team booster club, or informally, as a loosely constructed group of interested parents. However, before you try to organize parents, you need to figure how they can help you best.

Here are several activities that need parent volunteers:

- Fundraising
- Helping at home games
- Organizing the team awards banquet
- Providing transportation to games, training and activities
- Hosting team meals before important games
- Recruiting volunteer help for games
- Hosting tournaments

Once you have defined your program's needs, organizing parent help will be much simpler. Look for outgoing people who are eager to help. Parental loyalty will usually bring committed volunteers your way if you open the door first. If you decide to organize a formal booster club, check first with your athletic director to see if there are any restrictions and guidelines. Then form an organizing committee to develop formal by-laws of the group. After by-laws have been established, elect officers. Remember, however, that as the head coach, you need to be aware of all activities and remain in control of your team at all times.

A word about fundraising. If your team's parents do most of the planning, preparation and work, you should expect that they will want some control of how the money is spent. Regardless of whether you organize parent support formally or informally,

there are a number of things that you can do to encourage parents' involvement with your team. One easy way to garner support is through a newsletter for parents. This gives you direct communication with parents without having the message filtered or forgotten by your athletes. A newsletter can relay information about games, trips, college visits and recruiting, team gatherings, and other school activities. It can also help organize a booster club.

Early in the season ask for a volunteer to host a team parents' meeting. If no one's home is available, hold the meeting at school. This is a good time to introduce yourself to parents, explain your program and coaching philosophy, define seasonal goals for the team, set out team rules and expectations, and discuss fundraising. More importantly, though, a parents' meeting is an opportunity for you to learn more about the athletes you coach while gathering support for the team. Encourage parents to ask questions.

One good way to build parent support is to have interested parents form a caravan to games. Parents can arrange to leave school together at a predetermined time, perhaps meeting for breakfast or coffee beforehand. Of course, fans arriving *en mass* wearing school colors, hats, shirts or jackets always inspires the team. Team meals are opportunities to involve parents. Instead of heading off to the nearest pizza parlor, see if you can enlist a group of several families to host a pasta dinner. Team lunches on game days can be organized by parents and brought to school. These are good team building opportunities and may provided athletes with nutritious fuel before a match. A combined team-parent gathering lets parents and athletes get to know one another.

Discuss with the parents appropriate things to yell and cheer. Teach them volleyball terms and the basics of the game. Some parents may not understand how the game is played! Let them know that they are also a part of your program. How they yell at the referee reflects on their team. Explain that they are expected to have good sportsmanship, just like the athletes on the floor. Any frustrations they might have with a coaching decision should be discussed directly with the coach at an appropriate time, not in the stands with other parents. Tell them that dissension in the parents breeds dissension in the team.

Enlist parents to help you put on the team awards night. Even if your school has a spring sports banquet, you might put together a team-only gathering, at which you can acknowledge the contributions of each athlete individually.

Some coaches avoid soliciting help because they fear parents will disrupt their programs. Many coaches have horror stories to that effect. If organized properly with a clear set of expectations and rules, parents can be assets to your program. It is your responsibility as coach to provide the guidance and leadership that best elicits the strong support most parents are willing to offer.

Planning and Organizing a Team Trip

Taking an athletic team on an overnight trip can be one of the most enjoyable events of the season or it can become a frustrating nightmare. As with most things, planning and organization determine the quality of the experience. Team trips are most enjoyable when you prepare in advance for both expected and unexpected situations. It is always a good idea to have a written set of procedures for any contingency. Checklists of "What to Do" or "What to Bring" help prevent you from overlooking details that might be forgotten in a busy moment or emergency.

When considering an overnight trip, ask yourself the following questions:

- What is the purpose of the trip?
- Does it help fulfill my coaching objectives for the season?
- How does the trip help meet the team and individual goals?
- Does this trip serve the overall purpose of the program?

Some athletes become quite distressed if their daily routines are disrupted before a competition. If a team's first overnight trip precedes a major championship game, the combination of competition stress and the disruptions of traveling might be very unsettling to some athletes. For that reason, you may want to organize a team trip in early or mid-season to accustom your athletes to overnight travel before competition. That way, your athletes can establish schedules and habits that help them get the rest and relaxation they need to compete well. Hotel beds, roommates, all night cable television, and the absence of parents may be completely new experiences for some of your athletes. The novelty of team travel often distracts athletes from the primary purpose of competition. A team trip helps athletes see travel as part of being a competitive athlete.

Overnight trips and camps also allow you to see your athletes outside of training and competition. How does each individual socialize with the group? How do different groups and ages interact? A team trip can tell you much about the personality of your team, knowledge that provides you with an excellent opportunity to unite your team.

BEFORE TRAVELING

Questions to Ask

Ask yourself the following questions to develop a planning checklist for an overnight trip or team camp:

- What are the dates of travel?
- What times are we leaving and returning?
- From where are we leaving and returning?
- What kind of transportation will we use? If taking a bus, have we accounted for a bus driver and his or her accommodations?
- Do drivers/parents/spectators have maps to the game?
- Have we distributed to parents printed information containing important telephone numbers?
- Do we have a medical release form for each athlete? Do we have medical insurance information?
- Do we know the location of emergency medical facilities in the area to which we are traveling?
- Do we have team rosters, checks, reservations, room assignments, time schedules, meal money, cell phone and credit cards?
- Have we packed an extra uniform?
- Have we developed a complete itinerary for the trip? (Always allow 30 minutes extra travel time.)
- Is there adequate supervision for the number of athletes?
- Are there restaurants that can accommodate a group the size of our team? Have we made reservations?
- Where will we hold team meetings?
- What special responsibilities will be delegated to assistants?

A Guide to College Recruiting

Many high school athletes continue their athletic careers into college. Many schools will recruit some aggressively while others will have to initiate all contact with coaches at the schools of their choice. In either case, athletes, parents and coaches should be aware of the rules that govern contact between high school athletes and college sports programs and coaches. This includes National Collegiate Athletic Association (NCAA) member schools, National Association of Intercollegiate Athletics (NAIA) member schools, and junior colleges.

BASIC NCAA RECRUITING RULES

The NCAA has an elaborate set of rules that govern the recruiting of prospective student-athletes (PSAs). These rules are sometimes complicated and confusing. Although college coaches are tested on the rules each year, there is no formal instruction for college-bound student-athletes and their parents. Prospective athletes, parents and coaches, however, should familiarize themselves with these rules. Infringing on the NCAA rules, whether intentional or accidental, can jeopardize the future eligibility of PSAs. The following is an outline of the basic rules governing contact between NCAA member schools and PSAs. For the latest information and rules, check the website: www.ncaaclearinghouse.net. The "Guide for the College-Bound Student Athlete" is an online pamphlet that covers the NCAA Divisions I, II and III. Important Note: The word *player* applies to both athletes and their parents or legal guardians. As far as NCAA rules are concerned, athletes and parents are one and the same.

Freshman Year (9th grade)

A PSA becomes subject to NCAA rules beginning the first day of classes in the freshman year of high school.

What a PSA may do:

- Write at any time to colleges and coaches in which they may be interested.
- Telephone colleges and coaches in which they are interested. However, colleges and coaches may not return telephone calls. This is considered an improper recruiting contact.
- Visit a college campus and speak with coaches at their own initiation and expense. PSAs may not receive any compensation for the visit or expenses.
- Attend a college match anytime and talk with the coach of the home team. PSAs may not speak with the coach of the visiting team.

What college coaches may do:

- Watch a PSA compete a maximum of four times during the freshman academic year. A two-day tournament with several games, or one game on one day, both count as one evaluation.

What college coaches <u>may not</u> do:

- Write to freshmen (even if the athletes have written them first).
- Send recruiting materials
- Telephone freshmen or return a call.
- Meet with freshmen unless the PSAs attend a home game or visit the campus at their own initiation.

Sophomore Year (10th Grade)

What PSAs may do:

- Write at any time to colleges and coaches in which they may be interested.
- Telephone colleges and coaches in which they are interested. However, colleges and coaches may not return these telephone calls. This is considered an improper recruiting contact.
- Visit a college campus and speak with coaches at their own initiation and expense. The PSA may not receive any compensation for the visit or expenses.
- Attend a college match anytime and talk with the coach of the home team. PSAs may not speak with the coach of the visiting team.

What college coaches may do:

- Evaluate a PSA a maximum of four times during the sophomore academic year.
- Send brochures for camps and questionnaires.

What college coaches may not do:

- Write to sophomore athletes.
- Call sophomore athletes.
- Send recruiting materials.
- Meet with sophomore athletes at anytime, unless the PSAs attend a home game or visit the campus at their own initiation.

Junior Year (11th Grade)

What PSAs may do:

- Write at any time to colleges and coaches in which they may be interested. PSAs may now receive return correspondence from college coaches.
- Telephone colleges and coaches in which they are interested. However, colleges and coaches may not return telephone calls. This is considered an improper recruiting contact.
- Visit a college campus and speak with coaches at their own initiation and expense. PSAs may not receive any compensation for the visit or expenses.
- Attend a college match at anytime and talk with the coach of the home team. PSAs may not speak with the coach of the visiting team.

What college coaches may do:

- Evaluate a prospective student-athlete no more than four times during the junior year.

- Correspond unlimited times after September 1st of the prospective student-athlete's junior year.
- Send recruiting materials after September 1st.

What college coaches may not do:

- Telephone a junior athlete.
- Meet with juniors at anytime, unless the PSAs attend a home game or visit the campus at their own initiation.

Senior Year (12th Grade)

What PSAs may do:

- Write colleges and coaches and receive return correspondence.
- Telephone colleges and coaches in which they are interested.
- Visit a college campus at any time. PSAs are allowed an unlimited number of unofficial visits. Athletes are allowed a total of five *official visits*, but only one official visit per school. On an official visit the PSA may be compensated for travel and meal expenses: the visit may last no longer than 48 hours.
- Attend college games and talk to the coach of the home team.
- Offer a verbal commitment to a college.
- Sign a National Letter of Intent (NLOI) and accept an athletic scholarship from a college.

What college coaches may do:

- Evaluate a PSA four times during the senior academic year.
- Correspond with senior PSAs as often as desired.
- After July 1st, following the student-athlete's junior year, a coach may call the PSA no more than one time per week.
- Have a maximum of three in-person, off-campus meetings with a senior PSA and/or parents.
- Invite a PSA for an official campus visit.
- Offer an athletic scholarship and have a PSA sign an NLOI.

HELPING ATHLETES THROUGH THE RECRUITING PROCESS

- Have your school purchase copies of the NCAA pamphlet "NCAA Guide for the College-Bound Student-Athlete" or download copies from the internet. (www.ncaaclearinghouse.net.)
- Have a meeting with your players and their parents to explain the recruiting process and NCAA rules. Hand out the NCAA pamphlets. Invite a college coach to speak if you do not feel knowledgeable of the rules.

- Provide an outline with a time line for your athletes to write schools. Encourage them to write any and all schools that they are interested in. Help them make videotapes of themselves to send out to colleges. (see below: "Guidelines For Creating A Successful Recruiting Tape.")
- Be an advocate for your athletes by providing college coaches with recommendations, game videos, and fair assessments of your athletes. Alert college coaches to your promising underclassmen.
- For female volleyball players there are over 300 Division I schools as well as hundreds of Division II and III schools, NAIA schools and countless Junior Colleges all over the United States. Division III schools are not permitted to give athletic aid but many students may qualify for academic aid. Also many Junior Colleges outside of California give athletic aid. Encourage your student-athletes to research schools they're interested in and look all over the nation. There are many programs for collegiate women and many Division II and III programs for men. Men's Division I remains very small with about 25 total teams.
- Prepare a view book with player profiles of your team for college coaches. Include their academic information and year of graduation, along with the relevant athletic information.
- Make sure your college-bound athletes register with the NCAA Clearinghouse.

GUIDELINES FOR CREATING A SUCCESSFUL RECRUITING TAPE

Include the following on each student-athlete's tape:

- Short introduction of the student speaking into the camera or list the following information on the screen: This information should contain the student's GPA, SAT/ACT scores, possible major, athletic accomplishments, club and high school team names, jersey color(s) and number(s), approach jump and block jump and any other interests or special qualities, email address, address and telephone number.
- Skills section with the athlete wearing their playing jersey:
  Each skill should be shown about 5 times only! Include defense, passing, setting (if applicable), blocking, hitting (slide and regular quick and high balls), serving.
- Game film that includes the athlete hitting, setting, blocking, passing, etc as well as actual game film that shows the athlete doing supportive movements (covering, talking, celebrating, opening lanes, quickly resetting on defense, etc.) The game film should be real and not hard for the viewer to see the athlete. Before the game film starts, let the viewer know where the athlete is on the floor.

DO NOT lower the net to make the video or "fudge" about the athlete's jump or height.

Label the tape and include an unofficial transcript (with a PSAT or ACT/SAT score if available) with it when you send it to schools. Have the athlete write a letter with a short introduction, highlighting any really special characteristics. Do not expect schools to

return the tape. Follow up with an email or letter ten days to two weeks later. Include a playing schedule and a request for information on the school you have written.

The NCAA Clearinghouse

The NCAA Clearinghouse assesses the academic standing of all college-bound high school student-athletes who wish to compete in NCAA athletics. The Clearinghouse ascertains and authenticates the academic status of PSAs. Most high school athletic departments should have the registration information. If yours does not, contact the NCAA to obtain the necessary information. Registration of PSAs is very important. No athlete is allowed to compete in college unless the NCAA Clearinghouse has approved him or her. You can get more information by calling the NCAA at 800-638-3731, or www.NCAA.org, or www.NCAAclearinghouse.net.

NCAA Academic Requirements

The NCAA has criteria that PSAs must meet to be eligible for competition. For a PSA entering college on or after August 2006 the requirements are:
(The writing component of the SAT or ACT will not be used to determine qualifier status.)
• 2.0 GPA, and 1010 SAT or 86 ACT score or
• 2.5 GPA, 820 SAT or 68 ACT score
. . . plus 14 CORE courses (16 core courses after 2008) (English, Science, Math, Social Science, Language)
Every year the NCAA rules change, so your athletes should obtain an NCAA college-bound student-athlete handbook from the high school or the NCAA.

FINANCIAL AID

Financing a college education is a considerable undertaking, and often determines a student-athlete's choice of colleges. Few athletes receive full athletic scholarships, and many colleges offer no athletic scholarships. Financial aid usually is available to student-athletes who demonstrate financial need. Make sure that your athletes obtain the appropriate financial aid applications, and meet the application deadlines. Encourage them to investigate other scholarships based on academic, ethnic or cultural criteria.

COLLEGE VOLLEYBALL FOR THE NONSCHOLARSHIP ATHLETE

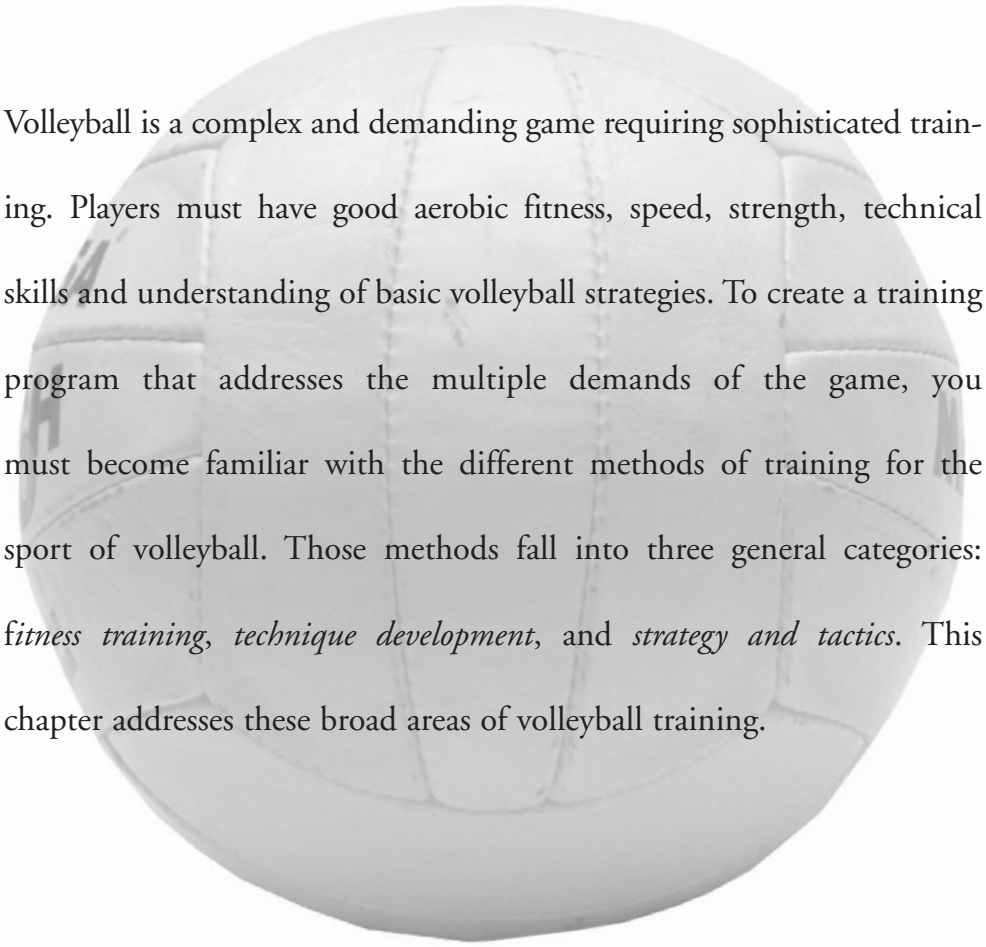
The percentage of college athletes, at all levels, that receive athletic scholarships is quite small. And most of those athletes who do receive scholarships receive only

partial funding. At NCAA Division III level there are no athletic scholarships awarded at all. High school coaches should make their athletes aware of this fact. Many young players are ignorant of the realities of collegiate athletics, mistakenly believing that a full college athletic scholarship awaits them. You have the responsibility of helping your athletes think realistically about the facts of college athletics. Only the very best players nationally and statewide can hope to receive such scholarships. For those who are recruited and offered athletic scholarships, the great majority will receive only partial funding. Lastly, those who receive athletic scholarships often mistakenly believe that their scholarships are guaranteed for their entire college career. Per NCAA rules, all athletic scholarships are evaluated annually. Each university athletic program determines if the offer of an athletic scholarship will be made to their student-athletes for the next scholastic year. A school must choose to renew the scholarship!

Because so few high school players are offered college scholarships, many high school players believe they are not good enough to play college volleyball if they have not been recruited. This is not true. Although the very best college volleyball programs do heavily recruit almost all of their players, there are plentiful opportunities for athletes to play college volleyball, even if they have not been heavily recruited. Most good high school players can find a college program suited to their abilities. If you have a player who wants to continue playing volleyball, you should help identify college programs suited to him or her. Consider junior college programs, too. In the state of California there are almost 80 junior college volleyball programs for women. In other states, many junior colleges give athletic scholarships. An expressed interest in playing college volleyball also can help your student-athletes gain admission to academically competitive schools. Extra-curricular participation is usually an important consideration at these schools. Moreover, college coaches often have some influence in the admission process. Although athletes may not be in the running for an athletic scholarship, interest in playing college volleyball may help them gain admission to the school of their choice.

CHAPTER 3

Methods of Volleyball Training



Volleyball is a complex and demanding game requiring sophisticated training. Players must have good aerobic fitness, speed, strength, technical skills and understanding of basic volleyball strategies. To create a training program that addresses the multiple demands of the game, you must become familiar with the different methods of training for the sport of volleyball. Those methods fall into three general categories: f*itness training*, *technique development*, and *strategy and tactics*. This chapter addresses these broad areas of volleyball training.

Understanding Methods of Volleyball Training

Your training program must include physical conditioning, skill development, and technical and tactical instruction for players of all positions. In order to get the most out of the time you spend in the gym with your athletes, you need to combine the different methods of training. Note: Many volleyball coaches refer to the term *methods of training* as *methods of coaching*. While the latter term is certainly acceptable, we find *methods of training* to be a more accurate description. Methods of training describe those activities (physical drills and exercises) athletes and coaches use to train for volleyball. Strictly speaking, methods of coaching refers to ways in which coaches set up their team, run their offense and defense, communicate and teach the game of volleyball to their athletes.

FITNESS TRAINING

Fitness training can be divided into *three categories*: general physical/cardiovascular conditioning (aerobic conditioning), speed training, strength and power training. Any good volleyball training program will incorporate these *three types of training*.

General Endurance

General endurance or cardiovascular conditioning is established through aerobic exercise. Aerobic conditioning is low intensity activity that raises the heart rate while still allowing the body to meet its oxygen needs.

Speed

Speed can be defined several different ways. Several types of speed are demonstrated in volleyball. There are three different types of volleyball speed: first-step quickness, transition quickness, and technical speed.

- First-step quickness is the ability to react and move with a quick first step to the ball. Reaction training can greatly improve an athlete's reaction time and first-step quickness. Great improvements in this type of speed can occur with lots of repetitions and improved technique.
- Transition quickness is the ability to move along and to the net, move forward or backward to the ball while staying low to the ground, change directions, if necessary, or be explosive to the ball. It also refers to the ability to change from being on offense to defense.
- Technical speed is the combination of physical speed with volleyball skills. It is the speed with which a player is able to swing at the ball, make decisions, take

advantage of defensive situations, and create offensive opportunities. Players with good technical speed are able to play balls traveling at varying heights, angles and velocity.

Strength and Power

Strength and power often make the difference when it comes to hitting and serving with power and authority, as well as jumping and being low on defense. At the end of matches, those players with a good strength base will still be able to play well. More importantly, balanced muscular strength optimizes performance and prevents injury. Strength can be developed through weight training and calisthenics. Power uses basic muscular strength. It is developed through plyometric exercises.

TECHNIQUE TRAINING

The development of volleyball technique requires a tremendous amount of practice. Players must learn to pass, set, serve with accuracy, attack with power and block effectively. When developing technique, it is important that players encounter a variety of situations in which they must play the ball. Drills that emphasize technique can be broken down into two categories: fundamental skills drills and game situation drills.

Fundamental Drills

Fundamental drills are the most basic skills. They are done with minimal movement. Fundamental drills are used to teach and improve basic skills techniques. Teach by the whole-part-whole method. When teaching new technique skills, first demonstrate the entire skill. This lets athletes create an accurate visual picture of what they are trying to accomplish. Then, break the skill into parts. Use drills to teach the components of a skill. When your athletes have mastered the drills sufficiently, have them integrate the drill components into a game-like situation using the technique.

Game Situation Drills

Introduce game situation drills after players have developed a *feel* for the skill. Use this type of drill to add complexity to the skill you are working on. Show how what they have learn relates to the game. Give them the opportunity to be successful in game situation drills. Apply artificial pressure to the team. Set the situation (match point for example) and have the team practice under the "pressure" of this situation. This type of drilling will carry over to their actual games and matches.

STRATEGY AND TACTICS

Strategy is a plan for accomplishing goals. Most often, strategy refers to a plan devised for a game. In other words, how do you plan to win? Tactics, on the other hand, are the tools by which a strategy is executed. Game strategy and tactics are affected by your team's strengths and weaknesses and your opponent's strengths and weaknesses. There are two levels at which tactics are applied: individual and team.

Individual Tactics: One versus One

The teaching of individual tactics is intended to develop a player's ability to attack or defend when faced with a one versus one situation. Part of your game strategy might be to stop a hitter on the opponent's team. You may set up your lineup so that your best blocker is lined up on the opponent's best hitter. In reverse, you might want one of your hitters lined up on the opponent's smallest blocker.

Team Tactics

When teaching team tactics, focus on team defense and offense. Players must be taught the responsibilities of the positions they play and understand how their roles change when on offense or defense. Coach players to always keep an eye on the ball and the whereabouts of teammates and opponents. Team tactical drills will help isolate specific areas of team play that need improvement.

Warm-Up, Mobility and Flexibility

Many volleyball coaches and players pay insufficient attention to processes of warming up, cooling down, and training to increase flexibility. Players and coaches often do not approach these elements of training and competition seriously or systematically. Ignoring these elements predisposes your athletes to injury and reduces their effectiveness in training and competition. The warm-up process includes *general* and *specific* portions. The general warm-up usually consists of jogging or easy running, volleyball-related footwork and stretching. Begin with easy activity, and gradually increase intensity. Follow this with stretching and mobility exercises. Progress to partner ball control drills such as shuttle passing and setting drills, pepper, etc. By now your players should have broken a sweat and are loose. Begin group drills such as figure eight passing/digging. Keep in mind that body temperature returns to normal about 15 minutes after activity is stopped. Make sure your athletes who come off of the bench during matches stay warmed up and ready to play. This will decrease their risk of injury and help them to play better when they go in the match.

The warm-up should prepare athletes to play *psychologically* as well as physically. A warm-up routine that is familiar, structured and fun helps athletes focus on the task at hand. A thorough warm-up, complete with team drills, lets athletes know they are ready to play and gives them confidence and concentration. The team component of the match warm-up should not be ignored. A warm-up that incorporates team drills helps create the technical and psychological synergy that leads to good team play.

ORGANIZING A TEAM WARM-UP

A complete workout includes warm-up running, stretching, drills, the primary training unit, and a cool-down. The secondary training units optimize performance and reduce the risk of injury. High school athletes often are not disciplined about the secondary elements of training. You cannot expect them to warm-up properly, stretch thoroughly, and, especially, cool down without supervision. You or your assistants or team captains must be responsible for the overseeing of all training. With limited training time, you cannot afford to spend more than 20 minutes preparing for the main workout. Only direct supervision will assure that warm-up and stretching will be a well-executed, quick-paced prelude to the focus of the training session.

THE RUNNING WARM-UP

The purpose of the warm-up is to prepare athletes physically and mentally for training and competition. There are two main components to the warm-up: easy running (or some gentle aerobic activity) and mobility exercises (loosening and stretching). A **running warm-up** should begin with about 8 minutes of easy jogging, including various types of footwork, then increasing tempo that includes surges of slightly faster running. Athletes quickly become bored doing the same workout every day, so vary the warm-up for each training session.

The objective of the warm-up jog and footwork is to awaken the aerobic energy system, raise core body temperatures, and loosen the muscles in preparation for stretching. The warm-up run should be sufficiently vigorous that your athletes perspire freely when finished. A warm-up or sweat suit will accelerate the process of warming up and prevent your athletes from cooling too much while stretching.

Running Warm-Up Examples

- Jogging around the gym, including running backwards, sideways, carioca footwork, etc.

- 8-12 minutes of jogging with sprints along the sidelines, and easy jogging along the end lines for the last two-four minutes.

MOBILITY EXERCISES

Mobility exercises prepare athletes for hard training by limbering the muscles throughout the entire range of motion. Usually, mobility training uses both static and mobile stretching. **Mobile stretching** develops range of motion by combining stretching with movement: ankle rotations, knee circles, hip/low back rotations, upper body with arms out twisting, and arm swings. Keep in mind, however, that *mobile stretching should not use forceful movement to stretch the muscles*. Rather, movements should be slow and gentle, not ballistic.

FLEXIBILITY TRAINING

Flexibility training is designed to maximize range of motion, increase muscle elasticity, achieve functional muscle balance, speed recovery, and, most important, prevent injury. Flexibility training is not simply a prelude to a hard workout; it is an important component of an athlete's physiological development. Many great athletes have lost seasons and careers by neglecting flexibility.

As a rule, train for mobility before the main workout, and for flexibility after. However, hard speed training often demands that you complete a thorough stretching regimen first. Athletes should begin stretching only after they are warmed up. Include exercises that enhance balance, flexibility and mobility. **Balance** is the equal function of opposing muscle groups (e.g., the quadriceps and hamstring muscles of the thigh). **Flexibility** refers to muscle elasticity. **Mobility** refers to range of motion.

Convince your players that stretching will make them better athletes and prevent injuries. Explain that stretching helps the muscle lengthen fully and contract more efficiently, thus making it stronger. A loose muscle relaxes more between contractions than a tight one, allowing faster and more powerful contractions. Long muscles enable the body's levers to move through a wide range of motion.

To develop muscle balance, include exercises that stretch major opposing muscle groups of the limbs and torso. Flexibility is developed best through slow, controlled stretching, often called **static stretching**.

A muscle should be stretched to slight tension, held for a predetermined count, and

then released slowly. Sustain each stretch for 20-30 seconds, letting the muscle relax under the applied tension. Each repeat of the stretch should allow a slightly greater range of movement than the previous one. Athletes should breathe deeply throughout each exercise, trying to exhale slowly while stretching the muscle.

Large muscle groups should be stretched before smaller muscles. Always stretch opposing muscle groups to ensure balanced flexibility. Take special care when stretching injured muscles. Newly formed scar tissue does not stretch like muscle and may be torn if over-stretched. Stretch slowly and gently. Chronic strains result from poor elasticity in the injured tissue. Ideally, *flexibility training should follow the running part of the warm-up and after the cool-down from the main workout*. Elevated muscle temperature permits the muscles to be stretched beyond the normal range of motion without straining the tissue. Permanent gains in flexibility will result from consistent post-run stretching.

COOL-DOWN

Every training session should be ended with a 5-10 minute cool-down of slow jogging or similar movement and walking. The purpose of the cool-down is gradually to return heart rate, respiration rate, and temperature to normal. A thorough cool-down also disperses most of the lactic acid that accumulates in the muscles during a hard workout. Not cooling down properly after intense exercise leads to stiff and painfully sore muscles the next day. Rapid body temperature cooling and pooled muscle lactate will only make the following day's workout more difficult and less productive.

Warm-Up Script

1. **Running Warm-Up**
2. **Flexibility Stretches**

Sitting on the ground, legs extended with shoes off:

- Lateral Stretch (Fig. 3-1)
- Standing Quad (Fig. 3-2)
- Standing Calf (Fig. 3-3)
- Stride Stretch (Fig. 3-4)
- I-T Band Stretch (Fig. 3-5)
- Groin Stretch (Fig. 3-6)
- Spinal Twist (Fig. 3-7)
- Banjo Stretch (Fig. 3-8)
- Triceps Stretch (Fig. 3-9)
- Front Shoulder Turn Away (Fig. 3-10)
- Shoulders, Upper Back, Chest Stretch (Fig. 3-11)
- Side Neck Pull (Fig. 3-12)
- Wrist Stretches (Fig. 3-13)

LATERAL STRETCH

Position

The athlete is standing with his knees relaxed and his feet shoulder width apart. One arm is extended overhead with the elbow bent. The opposite arm is relaxed, and to the side.

Action

The athlete leans gently to the side with the extended arm overhead leading the movement. The athlete slowly slides the hand of the other arm down the lateral side of the thigh, toward the calf.

Muscles

The stretch should be "felt" on both sides of the trunk (latissimus, dorsi, obliques).

Precautions

Do not rotate the trunk to attempt to stretch farther.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

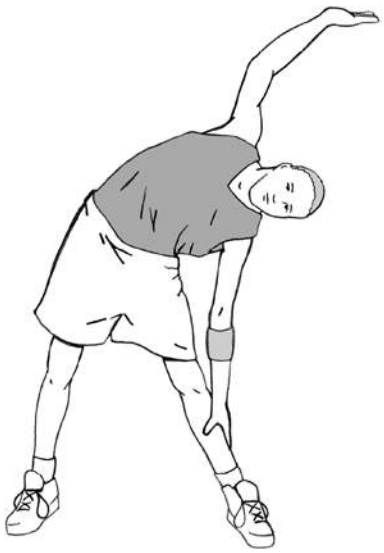


Fig. 3-1 Lateral Stretch

STANDING QUAD STRETCH

Position

The athlete is standing comfortably with one hand on an object to stabilize himself.

Action

The athlete then lifts one leg by bending at the knee. The hand on the same side reaches to grasp the ankle. The athlete then gently pulls the heel up to the buttocks.

Muscles

The athlete should "feel" the stretch in the quadriceps, on the front of the thigh.

Precautions

Tighten the abdominal muscles so the back does not arch. Keep the trunk upright; do not tip forward.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-2a Standing Quad Stretch

Fig. 3-2b WRONG – Twisting Knee

STANDING CALF STRETCH (TWO POSITIONS)

Position

The athlete is facing an object she can rest her hands against. The feet are approximately shoulder width apart.

Action

The athlete should step forward on one foot. The other leg should extend backward. The back leg should be kept straight. The athlete should then lean forward until she "feels" the stretch in the back of the lower leg. The second position requires that the athlete shift weight onto the back leg, causing the back leg to bend and the front leg to be straight.

Muscles

The first stretch should be "felt" in the gastrocnemius (calf). The second stretch should be "felt" in the underlying muscle, the soleus.

Precautions

Keep toes pointing straight ahead. Keep heels on the floor.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

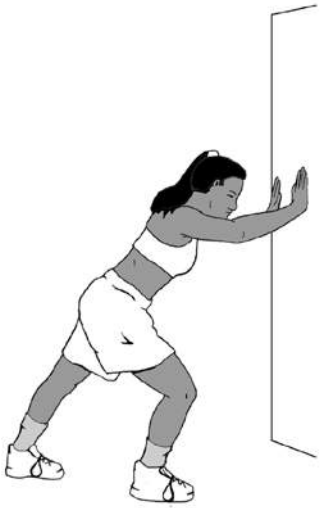


Fig. 3-3a Standing Calf Stretch, Rear Leg Straight

Fig. 3-3b Standing Calf Stretch, Rear Leg Bent

STRIDE STRETCH

Position

The athlete is standing near an object for aid in balance.

Action

The athlete should take one step forward. The forward knee should form a 90-degree angle. The back leg should be extended backward. The trunk should be erect, not leaning forward or backward. The weight is then lowered slowly until the stretch is "felt."

Muscles

The muscles in the groin and the front of the thigh (quadriceps) are being stretched. There is also some secondary stretching of the hamstring muscles on the back of the forward leg.

Precautions

The knee on the forward leg should not extend out beyond the toe. Keep the trunk erect. Control the weight, shift downward.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

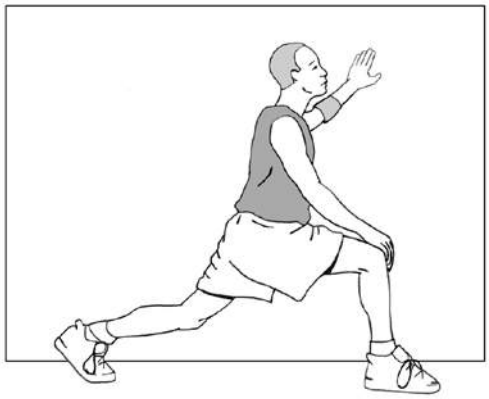


Fig. 3-4a Stride Stretch

Fig. 3-4b WRONG – Leaning Back

I-T BAND (ILIOTIBIAL) STRETCH

Position

While standing, the athlete crosses one foot over the other. The arms are at the sides.

Action

The athlete bends from the waist, extending the arms and trying to touch the floor. If the right leg is crossed over the left, she should try to touch the floor on the right side of her foot. The position should then be reversed with the left foot crossed over the right. The wider the stance, the greater the stretch.

Muscles

The stretch should be "felt" on the outside of the back leg. I-T band runs from the hip to the knee.

Precautions

Do not allow the knees to hyperextend. Don't lock them.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-5a I-T Band Stretch, Start

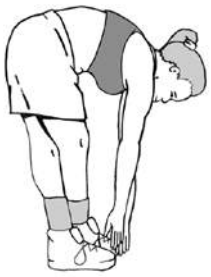


Fig. 3-5b I-T Band Stretch, Finish

GROIN STRETCH

Position

The athlete should sit with the soles of her feet touching. The knees should be comfortably bent.

Action

The athlete should reach forward and grasp her shins or ankles. Slowly draw the lower legs into the body. Once the athlete reaches a point of resistance, gentle pressure should be applied with the forearms on the inner thigh. This pressure should be a gentle downward motion.

Muscles

The athlete should "feel" the stretch in the groin (adductor) muscles.

Precautions

Excessive force will cause major soreness in the groin area, which will be slow to heal.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-6 Groin Stretch

SPINAL TWIST

Position

The athlete is seated with her legs extended in front of her. The back is straight.

Action

The athlete bends the right knee, crossing that leg over the left and placing the foot of the right leg flat on the floor next to the left knee. She then rotates the trunk to the right. The athlete should look over her right shoulder. The action should then be reversed, crossing the left leg over the right leg.

Muscles

The athlete should "feel" the stretch in the muscles along the spine. The stretch may also be "felt" in the muscles around the hip (gluteals).

Precautions

Do not overstretch. The trunk-twisting motion should be smooth.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-7 Spinal Twist

BANJO HIP STRETCH

Position

The athlete is sitting with her legs straight. It is easier initially if the athlete has something to lean back on for stability.

Action

The athlete, keeping the thigh in line with the trunk, wraps one arm around the thigh, drawing it to the chest. The other hand grasps the ankle and pulls it across the body to the opposite shoulder.

Muscles

The stretch occurs in the hip and back of the upper thigh (glutes and hamstrings).

Precautions

Keep the thigh in line with the trunk. When bringing the ankle across the body, keep the lower leg parallel to the ground.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

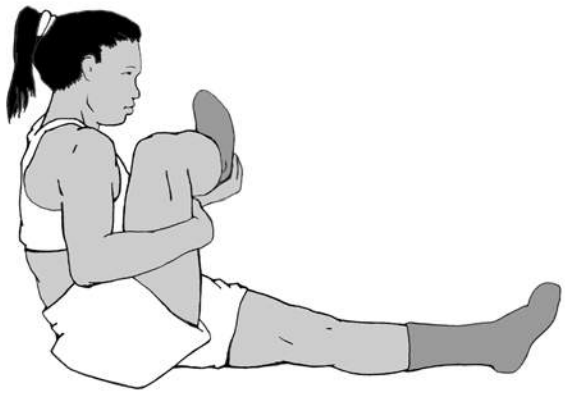


Fig. 3-8 Banjo Hip Stretch

TRICEPS STRETCH

Position

The athlete is standing with feet shoulder width apart. One arm is extended upward from the shoulder and bent at the elbow so the hand is touching the back. The other hand is assisting the bent arm to hold its position by grasping the elbow just below the bend.

Action

The hand grasping the elbow gently pushes backward causing the hand that was touching the back to move further down the back.

Muscles

This stretch should be "felt" in the triceps at the back of the upper arm.

Precautions

Do not arch back. Keep arm in line with the ear, not forward.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-9a Triceps Stretch, Rear View

Fig. 3-9b Triceps Stretch, Front View

FRONT SHOULDER TURN AWAY

Position

The athlete is standing parallel to a wall, tree, fence or similar support.

Action

The athlete extends her arm, level with the shoulder. Then the athlete slowly turns away from the wall, keeping her hand firmly in place on the wall.

Muscles

The stretch should be "felt" in the front of the shoulder girdle. The muscles being stretched are the anterior deltoid, the pectoralis, and, secondarily, the flexors and extensors of the wrist.

Precautions

The shoulder should be kept in alignment with the hand on the wall.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

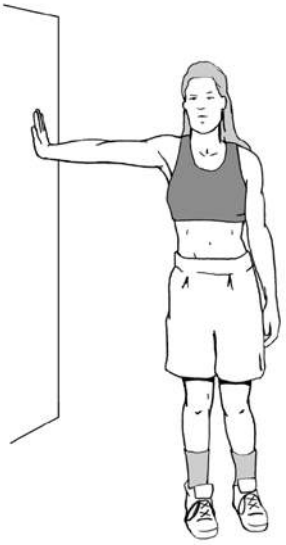


Fig. 3-10a Front Shoulder Turn Away, Start

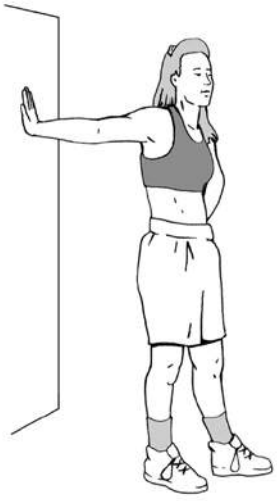


Fig. 3-10a Front Shoulder Turn Away, Finish

SHOULDERS, UPPER BACK, CHEST STRETCH

Position

The athlete is standing with legs shoulder width apart.

Action

The athlete should flex the knees slightly to prevent hyperextension. The fingers should be interlaced in front of the body at shoulder height. The athlete should then hold the arms forward rounding the upper back. The athlete should then hold the arms upward, squeezing the biceps to the ears. After stretching in the first two positions, the athlete should place the arms behind the trunk, interlace the fingers and slowly raise the arms behind the back.

Muscles

The forward position stretches the upper back muscles (rhomboids), and overhead position stretches the deltoid and teres minor. The back position stretches the anterior shoulder (deltoid and pectoralis).

Precautions

Do not arch the back. Keep the trunk upright for all positions. Keep the chin tucked, not jutting forward.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

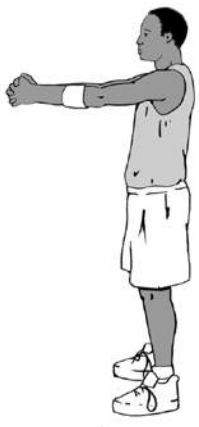


Fig. 3-11 Position 1

Fig. 3-11 Position 2

Fig. 3-11 Position 3

SIDE NECK PULL

Position

The athlete is standing with both arms at her side or with one arm behind her back. In the second position, the elbow is bent and the arm is close to the body. The opposite hand grasps the wrist of the arm already behind the body.

Action

The athlete gently pulls on the wrist of the back arm while tilting the head to the same side. After completing this movement, she does the same motion with the other arm.

Muscles

The muscles being stretched are in the neck and posterior shoulder (cervical and trapezius).

Precautions

Do not rotate the head during the stretch.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-12a Version 1

Fig. 3-12b Version 2

Fig. 3-12c Version 2, Rear View

WRIST STRETCHES

Position

The athlete is standing or sitting with the hands together.

Action

The thumb of one hand presses on the top of the other hand to cause flexion. Then the palm of one hand presses on the palm of the other hand, causing extension.

Muscles

The stretch should be "felt" in the extensors and flexors, on the front and back of the lower arm.

Precautions

Do not overstretch.

Repetition

Four repetitions on each side. Hold for a count of 10. Muscles that have recovered from an injury may require additional stretching.

Fig. 3-13a Wrist Stretch, Rear

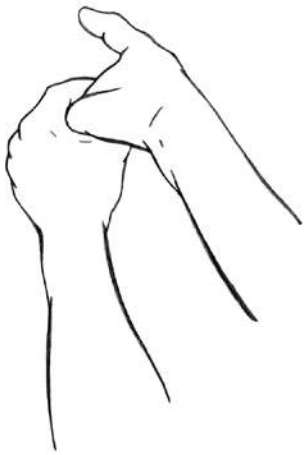


Fig. 3-13b Wrist Stretch, Front

3. Mobility Stretches

Standing, hands on knees, rotate knees clockwise, then counterclockwise. Then rotate each ankle in circles. Rotate at the waist. Next, swing arms in forward circles, then backwards, then in opposite directions.

4. Rhythm Drills

- Easy Skipping
- High Knees (Fig. 3-14)
- High Skipping (Fig. 3-15)
- Jogging Butt Kicks
- Skipping Kicks (Fig. 3-16)

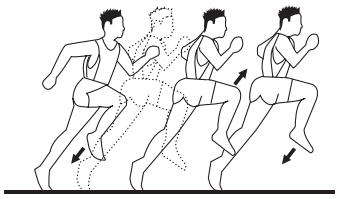


Fig. 3-14 High Knees

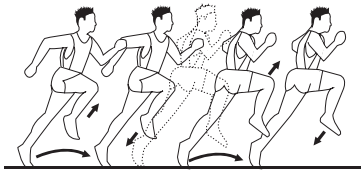


Fig. 3-15 High Skipping

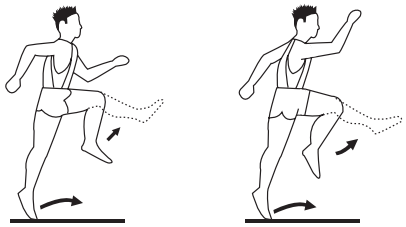


Fig. 3-16 Skipping Kicks

Interval Fitness

Good physical fitness is an absolute requirement for good play. Volleyball is a physically demanding game, requiring bursts of strenuous activity. Adding to the fitness demands of volleyball, are its substantial technical demands. Without good physical fitness, players are rarely able to play the game with good technique. When fatigue sets in, technique deteriorates and the chance of injury increases. For volleyball players, basic fitness training includes *aerobic conditioning*, *interval training* and *strength/power training*.

Volleyball players need a good cardiovascular base. They need to be able to perform aerobic activity over a prolonged period of time. Their running requirements differ from those of distance runners or sprinters. **They need the ability to:**

- Perform quick bursts of speed and power (approaches, lateral movement, etc.)
- Jump repeatedly
- Quickly recover from the previous rally so that they are ready for the next one

The challenge for volleyball coaches is that endurance, speed and power are developed by different means of training. This is because different systems of human energy production are used to fuel different types of exercise. To understand why volleyball requires a mix of training, you need to understand a bit about the nature of energy production in response to exercise.

ENERGY PRODUCTION AND AEROBIC RUNNING

To live, the human body needs energy. The more active a person is, the more energy required. Energy fuels the body and allows you to perform the wide range of your daily activities.

All human energy is produced through the breakdown of a chemical compound called **ATP**, *adenosine triphosphate*. Like gasoline, it's broken apart, or burned, to produce energy. At any given time, you have about three ounces of ATP spread throughout your body. That amount lets you engage in vigorous activity for only a very short time. For example, existing ATP is exhausted after roughly six seconds of an all-out sprint.

Physical activity that lasts longer than six seconds requires the body to produce additional energy by converting the raw fuel of carbohydrates, proteins and fats from food

into ATP. This energy production is characterized by whether or not oxygen is used to make ATP. Energy can be produced through **aerobic** processes, with oxygen. Or, it can be produced through **anaerobic** processes, without oxygen.

Whether energy is produced aerobically or anaerobically depends mostly on the nature of the physical activity involved. As already mentioned, intense energy needed for a very short period of time is supplied from the break down of stored ATP. It is an immediate energy source.

Once ATP stores are exhausted energy must come from another source. If the activity is intense and of short duration, energy is produced anaerobically. But while anaerobic processes supply energy quickly, they can only do so for a short while. You see, anaerobic processes create **lactate**, or **lactic** acid, that causes muscles to burn, cramp or seize if the activity is carried on long enough. It's the body's way of signaling that it cannot create energy at the rate at which it's being used. The muscle burn at the end of a 400-meter sprint is an example. When lactate starts to accumulate, your muscles soon stop working.

To sustain activity over a long period of time, your body must be able produce ATP through aerobic means. A balance between the demands of the activity and aerobic energy production is called a steady state. In this steady state, lactic acid does not accumulate in the muscles, and you are able to continue activity for a long time. Since volleyball requires cardiovascular exercise for extended periods of time, you must be able to produce energy aerobically. Aerobic fitness is important for three reasons. First, aerobic fitness creates generally good cardiovascular capacity and strengthens muscles and tendons. Second, good aerobic fitness allows your players to train at a steady state without incurring oxygen debt and exhausting important ATP stores. Third, good aerobic fitness allows your athletes to recover quickly from short ATP-depleting sprints, making them able to be more effective throughout the game.

AEROBIC FITNESS FOR VOLLEYBALL PLAYERS

Although volleyball players do need to be aerobically fit, they do not need to be distance runners. You should, however, establish standards of fitness for your athletes. Many volleyball coaches have used the Cooper 12-minute run as a standard measure of aerobic fitness. In this test, players cover as much distance as possible in 12 minutes. Although a hard 12-minute run also relies on anaerobic energy, the test is generally

considered a good measure of fitness. Athletes who can run a mile and a half in 12 minutes probably have sufficient fitness for competitive volleyball.

Aerobic fitness should be developed during pre-season training. You should encourage your athletes to begin fitness training before the practice season begins. If you have the benefit of a summer school class, use this time to develop cardiovascular endurance and skill work. Any running sessions should be relatively easy steady-state runs. For variety, you can intersperse steady-state running with basic skills drills or fitness circuits. The goal of the training, however, is to raise the aerobic fitness of the athletes. You don't need to run athletes into the ground to make them fit. Harder mixed-pace anaerobic running should start once the athletes have developed basic aerobic fitness.

Steady-Pace Training (Continuous Slow Distance)

Steady-pace training is relatively slow, continuous long-distance running, where the aerobic system remains in a steady state with energy demands. Long steady runs should be done at a pace that can be maintained comfortably for about 40 minutes. Exercise scientists estimate that the ideal intensity of a steady-pace run is 5-10 percent below the anaerobic threshold. A very good approximation of this intensity is the talk test. Athletes should run at a pace that lets them hold a conversation. Unstable breathing (ventilation) indicates that the pace is too fast, approaching the anaerobic threshold.

Steady-pace training develops aerobic and cardiovascular capacity (VO2 max), improves muscle capillarity, and enhances the efficiency of energy production. Coaches often refer to long steady runs as the base or foundation training that precedes more intense threshold training.

ANAEROBIC FITNESS

The unique nature of the game of volleyball, however, demands both aerobic *and* anaerobic energy production. Within a relatively steady state of activity, an athlete must be able to do multiple hitting approaches, recover quickly, and then do more approaches, blocks, etc. again. As a consequence, you must train your athletes to meet both aerobic and anaerobic requirements.

The varied-pace running that characterizes volleyball demands anaerobic fitness. Short bursts of jumping within a general steady state create energy demands that can-

not be met solely by ATP supply and aerobic metabolism. Volleyball players need to develop a special kind of stamina that lets them engage in repeat bouts of anaerobic jumping followed by periods of little to no movement. This stamina is a unique form of what is called **speed endurance**. Normally speed endurance refers to the ability to perform anaerobically over time. In volleyball, however, the length of anaerobic activity is relatively short. What becomes important is the ability of the athlete to recover quickly from multiple speed bursts. This type of endurance can be referred to as **anaerobic recovery capacity**.

Increasing aerobic fitness, by raising the lactate threshold, and by developing lactate tolerance, develops anaerobic recovery capacity. Since we have already discussed the basic principles of aerobic fitness training, we will address what is called **threshold** and **high lactate training**.

Lactate Threshold Training

The primary form of running designed to raise the lactate threshold is called **tempo-pace** running. Basically, tempo runs should be 8-15 minutes long at a pace that puts the athlete slightly out of breath. In other words, the athlete should have a difficult time having a conversation while running. Threshold training also can be divided into segments, or tempo reps. Tempo reps are shorter runs or movement drilling lasting from 90 seconds to four minutes with short rest intervals of one minute or less. The entire workout should last 15-20 minutes.

Repetition Training

Repetition training helps athletes use oxygen more efficiently. In repetition training, athletes train above the threshold level for longer periods than can be sustained during a match.

Repetitions should be from 30 seconds to 3 minutes long, or distances of 220-880 yards. Pace will vary according to distance. The rest period should provide slightly less than complete recovery. A 1:2 run-to-recovery ratio is a common rest parameter. The workout should total 20-25 minutes of running or movement not including recovery.

Intervals (High Lactate Training)

Interval training is a frequently misunderstood concept. Most coaches use the terms

interval and repetition interchangeably, but, in fact, they are very different types of training. A repetition is a single unit of running or movement. An interval is the recovery period that follows individual bouts of running. In repetition training, the objective is to run or do specific distances with a relatively complete recovery. With interval training, the goal is to run specific distances with incomplete recovery so that the athlete trains with elevated blood lactate.

Interval training enhances a player's ability to tolerate and produce lactic acid. While interval training does help raise the lactate threshold somewhat, it is primarily anaerobic. Volleyball matches require a lot of anaerobic energy, so interval training develops this specific type of fitness.

The duration of each run in an interval session is typically 10-90 seconds or 110-440 yards. The run-to-recovery ratio should be between 1:1 and 2:1, run to recovery. Interval training should be done at a pace fast enough to create oxygen deficit. The intention of these workouts is to produce lactic acid by forcing your athletes to run the last portion of each repetition anaerobically.

Interval training is intense, demanding and painful. Do not schedule more than one such session during any single week of training. Some athletes might require two-three days of easy workouts to recover fully from a hard interval session.

Shuttle Runs

Shuttle runs have been a staple of volleyball training for a long time. Essentially, shuttle runs are repetition or interval runs that involve numerous changes of direction. Here is an example of a typical shuttle run workout:

Player runs the length of the court and back, then to the far side's 3-meter line and back, then to the center line and back, then to the near side's 3-meter line and back. The player is allowed to rest a specified time. Repeat three or four times. To make more difficult the athlete can roll or dive every time he/she changes direction!

Speed Play (Fartlek Training)

Speed play is the literal translation of the Swedish word fartlek. It is varied pace running that combines fast and slow running within a continuous run. Bouts of fast running are followed by easy recovery running. Ideally, speed play is done over varied

terrain, including hills. The length of speed bursts and recovery is unstructured so that the athlete gains a genuine feeling of playing with speed.

Since the aim of fartlek training is to develop speed in the context of continuous running, the overall pace should be relatively easy. Only the speed bursts should be done with any intensity. However, speed play is not easy training. Speed bouts should be 40-220 yards long (or 5-40 seconds). The number of speed bouts depends on their length and the total length of the run. Athletes should always recover between sprints; it's not intended to be high-lactate training.

High school athletes tend to need some structure to reap the benefits of fartlek and surging workouts. You might use predetermined markers or time intervals to indicate speed units. Speed play is especially effective training for volleyball because it closely resembles the work and rest ratio of a rally. Speed play also is easy to do on a track, field or even in the neighborhood. It is much more interesting then just going for a long run. Below is an example of a varied-pace workout:

Players jog one side of the field, sprint one side, jog two sides, sprint two sides, jog three sides, sprint three sides, jog the field, then sprint the field, then jog three sides, sprint three sides, jog two sides, sprint two sides, jog one side, sprint one side, and then jog slowly. The total distance covered is approximately two miles.

SPEED TRAINING FOR VOLLEYBALL

All other things being equal, the quickest team has the advantage. As discussed earlier, in volleyball there are three types of speed: **first-step quickness, transition quickness,** and **technical speed**. A good training program will include training that develops all three types of speed.

First-Step Quickness

First-step quickness is the ability to react and move one step to the ball. Reaction training can greatly improve an athlete's reaction and first-step quickness. Great improvements in this type of speed can occur with lots of repetitions and improved technique. Your players need to be able to react and move quickly to the ball. While often times our defensive specialist and setters are the quickest, all of your athletes need to work on their first-step quickness. First-step quickness training should be done with and without the ball. Most of this training will consist of reaction repeats covering

only one to two steps. (See reaction drills in the Underhand Passing section for first-step quickness drills with a ball. See the clock drill in the Ready Position section for first-step quickness drills without a ball.)

Transition Quickness

Transition quickness is the ability to move laterally along the net, move forward or backward to the ball while staying low to the ground, change directions if necessary, or be explosive to the ball. It also refers to the ability to change from being on offense to defense. This type of quickness includes the ability to react and move explosively. We usually define quickness as the ability to change direction with speed.

Training players for quickness takes several forms. Plyometric training helps develop the explosive skills that make for quickness. Reaction drills help train the neuromuscular system to react with greater speed. Speed skill drills help train the ability to move quickly with the ball. For example, you might conduct a whistle drill where players move laterally in a low defensive position and change direction at the sound of your whistle.

Technical Speed

Technical speed is the combination of physical speed with volleyball skills. It is the speed with which a player is able to swing at the ball, make decisions, take advantage of defensive situations, and create offensive opportunities. Players with good technical speed are able to play balls traveling at varying heights, angles and velocity.

For high school players, technical speed is developed by gradually adding offensive or defensive pressure and/or limiting time and space during technique drills. Remember that good technique should not be sacrificed. Passing and setting the ball well is more important than how many play sets or combinations your team knows. As players refine technique, you can add complexity to the drills.

A NOTE ON CARDIOVASCULAR TRAINING

Although running is an integral element of developing a good cardiovascular base, you still need to remember that your players are volleyball players, not runners. Don't place fitness ahead of the ultimate goal of playing good volleyball. A fit, skilled team is much more potent than a fit unskilled one. Do not over train young players.

Careful monitoring of individuals and each athlete's ability to respond to the training is important. If players are continually fatigued or injured outside of games, it might be a good idea to cut back on the intensity of training until basic fitness improves.

Remember also that at no time is there a greater disparity of physical maturity than among high school athletes, sometimes literally the difference between adult and child. Your youngest players can rarely handle the workload of the older and mature players.

Strength Training

WHY STRENGTH TRAIN?

Many coaches do not think that strength training is important for volleyball players. They reason that the muscle gains and power produced by weight training are not specific to the game of volleyball. Strength and weight training are important for volleyball players. The basic elements of speed, mobility and endurance are all functions of muscular strength. According to the President's Council on Physical Fitness and Sports, improvements in absolute muscular endurance, motor ability elements, and athletic abilities are associated with the individual's muscular strength. Thus, strength development may be considered not only a physical fitness need, but also fundamental to the total physical being.

Strength training for volleyball typically has two purposes: improving the overall strength of the athlete and developing muscle balance, and preventing injury. Although most coaches understand the value of such conditioning, many still do not fully understand the process by which strength and weight training contribute specifically to volleyball performance.

WEIGHT TRAINING AND MUSCLE DEVELOPMENT

At first glance, weight training seems to contradict the requirements of aerobic sports. Weight training enlarges muscle cells, increasing size and strength. However, the number of mitochondria does not increase. Mitochondria are the tiny structures inside cells that are responsible for aerobic metabolism, the process by which oxygen and food fuels are converted into energy (ATP). Since volleyball relies on aerobic energy and the maximization of mitochondrial density, weight training would seem to conflict with the principles of aerobic conditioning. The process by which weight

training contributes to volleyball performance is more complex than its effect on mitochondria. Let's look at how weight training actually affects the muscles and other soft tissues.

- Weight training strengthens the connective tissues of the muscles, fascia, tendons and ligaments. Weight training spurs the production of collagen, a substance that makes up much of connective tissue. Increased muscle collagen lessens the risk of muscle, tendon and ligament strains.
- Athletic performance is often limited by muscle weakness and imbalance. Repetitive movements tend to create unbalanced strength. When opposing muscles have large strength inequities, the weaker muscle is prone to injury. Such muscle imbalance is a common cause of injuries. For example, players commonly have much greater quadriceps than hamstring strength. Not surprisingly, hamstring strains and knee problems are among the most frequent running injuries. Weight training is an excellent method of addressing muscle imbalances. Neglected muscles can be targeted directly. The isolation of specific muscles strengthens weak areas and decreases the risk of injury.
- Volleyball rallies require a significant degree of anaerobic energy.
- Anaerobic energy is directly related to muscle strength. When a muscle is forced to work harder than its anaerobic threshold, lactic acid accumulates and performance suffers. Obviously, a muscle with greater strength can respond better to race challenges without creating excess lactic acid.
- Strength training improves the athlete's ability to produce anaerobic energy and move quickly.

WEIGHT TRAINING FOR VOLLEYBALL ATHLETES

With volleyball players, the aim of weightlifting is not to develop large muscle mass and great amounts of absolute strength. Rather, the goal is to maximize strength in proportion to body weight. Gymnasts and wrestlers, for example, have great strength-to-body weight ratios. That's the type of strength that volleyball players need. Most good players are, in fact, quite strong and muscular. They aren't bulky, but they're strong.

Muscular strength is a function of two things: size and neuromuscular efficiency (the ability of the muscle to contract forcefully). Weight training will increase muscular size and reduce mitochondrial density, but only to a point. Properly designed weight programs will limit muscle mass growth (hypertrophy) while improving neuromuscular function. Olympic weightlifters and wrestlers, who must compete in body-weight categories, have known this for years.

Moreover, other factors will limit the amount of muscle mass your athletes will add. First, the intense aerobic activity of volleyball will counter the hypertrophic effect of weightlifting. Aerobic exercise shrinks the size of muscle fibers (myofibrils) and makes some fast twitch fibers (type 2A) take on the characteristics of slow twitch fibers (type 1). As a result, it is very difficult to build tremendous muscle mass while you are consistently engaged in intense aerobic activity. This is why bodybuilders who are trying to reduce weight do very low intensity aerobic work.

Another common misperception is that volleyball players should continue to train for endurance in the weight room, thinking that such training will develop muscular endurance and strength together. This approach is simply wrong. The only goal of weight training should be greater strength. It is nearly impossible to develop endurance by weight training.

Think about it. The specific muscular endurance of volleyball is developed through the thousands of steps, approaches and jumps in any single workout. Developing real strength and endurance in the weight room would require hundreds, if not thousands, of repetitions. Weight training increases muscular strength and size, specifically fast-twitch muscle fiber. Muscular endurance comes as the result of the specific aerobic training of that newly developed muscle fiber.

PRINCIPLES OF WEIGHT TRAINING FOR VOLLEYBALL ATHLETES

The universal principles of training must guide every strength training program. Progressive overload, or resistance, is the cornerstone of weight training. Gradual increases in the amount of weight stress the body to adapt with greater strength. In general, progressive increases are the measure of increased strength. Weight training must be specific to the demands of volleyball. It should aim to increase the overall strength of your athletes.

Remember that all gains are made during periods of recovery. Without adequate rest between workouts the strength of your athletes will actually decrease. The process of super-compensation that produces increased strength occurs while the athlete is recovering, not while the athlete is training. The neuromuscular system makes its greatest changes in response to an unaccustomed stimulus, or shock. This requires weight training to incorporate a relatively large amount of variability. Research has

shown that planned variations in the volume, intensity and mode of weight training produce the greatest gains in strength.

At no time is there a greater range in the individual physical characteristics of similarly aged individuals than during high school. Strength training programs must adapt to the different capacities of individual athletes. Sometimes the difference between your most and least mature athletes will literally be the difference between adult and child. Failing to construct your strength training program accordingly will lead to the frustration and/or injury of your athletes. Don't make the mistake of assuming that your best players are the strongest. Often, they are quite weak even though talented. In addition to the general principles of training that govern strength training; there are principles specific to weight training:

- Muscular endurance should be developed primarily by running or movement drills. The weight room is for strength and power training.
- Proper posture, biomechanics and technique enhance weightlifting performance and prevent injury.
- When you introduce weight training, emphasizing repetition of movement creates rhythm and develops better technique. After technique and rhythm are mastered, varying exercises keeps your athletes psychologically fresh.
- An athlete has a finite amount of energy each day. The key to successful strength training for volleyball players is carefully integrating it into the overall training program. Strength and power training are important because they increase the basic physical capacity of the athlete. However, volleyball players are not weightlifters. Keep in mind that weight training, plyometrics, running, studying and work cannot all be done intensely every day. Be very aware of your athletes' total workload.

SAFETY IN THE WEIGHT ROOM

If not properly supervised, the weight room can become a very dangerous place for young athletes. As a coach, you have four primary responsibilities:

- Determine the physical condition of each athlete.
- Maintain good condition of the equipment.
- Ensure proper lifting and exercise technique.
- Make sure that the lifters get proper assistance or spotting.

Physical Condition of the Athlete

Before starting a student on weight training, evaluate his or her physical condition.

High school athletes present extreme differences in physical development, including gender differences. Evaluative physical tests and a careful developmental strength program are prerequisites for a safe and effective weight training program. Such testing should be done prior to beginning weight training and also periodically throughout the training cycle. Weight training does incur some degree of physical risk

Condition of the Equipment

Ill-maintained or damaged equipment poses a risk of severe injury. Check cables on machines for wear. Check the condition of seat backs; stability of benches; condition of power racks, bars and dumbbells; positions of free weight storage racks, and the fit of the bar collars. Provide a clean, stable lifting surface. Serious injury can occur when an athlete slips on the lifting surface. Make sure that proper shoes and lifting belts (if necessary) are used.

Proper Weightlifting Technique

Proper technique produces the best results and reduces the risk of injury. Even with weight machines, athletes risk injury if improper technique is used. When handling free weights, consistent use of sound technique is essential.

Proper Assistance or Spotting

Spotting is usually used in free weight exercises such as squatting and bench pressing. You must have spotters for any exercises where athletes can be injured because they lose control of the weight.

In the **dumbbell incline press**; one person stands behind the athlete to make sure that the lift is completed safely. If the attempted repetition fails, the spotter should help guide the dumbbells up by supporting and pushing the elbows up. Don't allow the lifter to struggle if the dumbbells start tilting to either side; this can cause rotator cuff or pectoral tears. Don't allow the lifter to arch his or her back; this can cause lower back injury.

Squats are done safest inside a squat rack, having pins that catch the bar in case of a failed lift. When lifting outside the rack, athletes must use spotters. On light to medium lifts, one spotter is needed. The spotter stands directly behind the lifter, ready to help in case of trouble. The spotter stands with knees slightly flexed, and arms near the lifter's torso. If the lifter fails to rise, the spotter steps in, hooks both arms around

the torso, and pulls up. This stabilizes and helps complete the lift. One style of spotting involves reaching around the torso and placing the palms on the lifter's pectorals. Another is to place both hands around the side of the torso, just above the weight belt, and lift upward. We recommend the first method, which is the strongest and most efficient, although the second should be used with female athletes.

Use bar collars to keep weights from sliding off the bar. They should fit snugly when tightened. Also, always check the weight on the bar. It is easy to forget to put on or remove a weight from one side of the bar. The resulting imbalance can cause serious injury.

Medical Clearance: All your athletes should be examined and cleared by a doctor before undertaking a weight training program. Those with high blood pressure, congenital back problems (bulged discs, loose ligaments), knee problems, etc., should not be allowed to lift until those problems have been remedied.

The Strength and Weight Training Program

The following section offers a strength training program designed for high school volleyball athletes. The program has two levels, each intended for athletes of various maturity levels and strength training backgrounds.

Your program also will be defined by the limitations of your school facilities and team characteristics:

- Equipment
- Weight training knowledge
- Available time
- Number of athletes
- Staff available for supervision
- Maturity of athletes

CONSTRUCTING A STRENGTH TRAINING PROGRAM

There are a number of ways to integrate strength training into your volleyball program. Most coaches develop a short weight training circuit that their athletes follow throughout the season. Such a regimen is easy to teach, takes little time, and

can be done by a large number of athletes. To be optimally effective, however, weightlifting must be periodized over the course of the season.

There are two points to keep in mind when creating weight training for volleyball players. First, while strength training is quite important to the long-term development of your athletes, it is less important than volleyball skills and tactics training. Your team definitely needs strength training to remedy weaknesses and prevent injury. But, fundamentally, your athletes are volleyball players, not bodybuilders.

Second, strength training for volleyball players is often remedial. The wide range of physical maturity among high school athletes, gender differences, and the range of body types among high school volleyball players make a uniform strength program nearly impossible. As a coach, your first task is to develop the basic physical strength of your athletes. Some athletes need an introductory strength routine using body weight exercises. Once basic strength develops, strength training can be geared toward optimizing performance.

PERIODIZED STRENGTH TRAINING

As mentioned above, most coaches create a simple weight circuit that varies little, if at all, during the season. While this is certainly much better than no strength training, the principles of progressive overload and variability dictate that training should change every four-six weeks.

The program is designed to be done two or three times per week. Pre-season training should include three sessions weekly. During the competitive season, athletes should cut back to one or two sessions. The volleyball strength program described here has two levels: one for physically weak or young athletes with no strength training experience, and a second for stronger athletes. Ideally, you will combine exercises from both levels with plyometric exercises for a complete strength and power program.

Level I

The Level I routine is a basic strength training circuit intended for athletes without weight training experience and those who are physically weak or immature. This routine is also recommended as a transition from off-season to pre-season training for advanced athletes.

Begin the Level I routine with 4-5 minutes of easy continuous running and various footwork followed by 10 minutes of stretching. The circuit should take 20-30 minutes. Be aware that the numbers of sets and repetitions vary substantially. The key point to remember is that the amount of work and its intensity must increase gradually. Note that the arms and leg exercises can be alternated to rest each body part.

The Level I Circuit

Push-Ups (Up to five sets of 5-15 reps with 30-60 seconds rest.) Vary the hand position: regular, wide (hands wider than the chest), finger tip, triangles or also called diamonds, and elbow (done on the forearms).

Pull-Ups (Up to five sets of 2-10 reps with 60-90 seconds rest. Partners may assist weaker athletes until they gain sufficient strength.) These can be done on a pull-up bar or on an angle. Put a pole through the referee's stands and have a few athletes help secure it. The athletes hold on to the pole and pull their body towards the pole.

Lunges to the side and forward. (Up to four sets of 20, alternating legs.) Be sure to keep the knee over the heel and the heel on the floor. The knee should bend at a right angle.

Single Leg Squats, lower down on one leg as low as possible, keeping the heel of the weight bearing foot down and the knee over the ankle. (Up to three sets of 10-12 per leg.)

Bench Step-Ups, (Up to three sets of 10-12 reps per leg. Boxes or benches should be between 10-18 inches high; dumbbells can be added with the weight ranging from 5-20 pounds depending on the athlete's strength.) Do these step-ups with the slide hitting technique in mind. Have the athlete drive the arms and knee up into the air.

Abdominal Crunches (Up to 100 in sets of 20-30.) When conditioning the stomach muscles, an athlete does not need to rise more than 30 degrees from the ground. Beyond that point, the psoas muscles do the majority of the work, placing substantial stress on the lower spine and risking injury. For long torsos this can be very tough. Teach the athletes to push the low back down as they contract the abs.

Standing Long and High Jumps onto sand, grass or wrestling mats (Up to five sets

of three jumps with both feet together.) Have the athletes do continuous jumps. No Stopping! Jump for length or height.

Medicine Ball Tosses. If you don't have medicine balls, use homemade weighted balls of 3-8 pounds. Old volleyballs filled with rags packed tight work quite well. Choose 2-3 of the following exercises:

- ***Overhead Toss*** (2-3 sets of 10-20)
- ***Chest Pass*** (2-3 sets of 10-20)
- ***Side Toss*** (2-3 sets of 10, each side)
- ***Straight-Armed Forward Toss***, supine position with abdominal curl up and toss to partner (2-3 sets of 10-20)

You might finish the program with five minutes of easy jump rope work. Jumping rope is an excellent way of developing rhythm and movement skills and ankle strength. The emphasis should be on coordination.

Sample Level I Workout (2-3 sessions per week)

Day 1 – Jog 4 minutes. Stretch 10 minutes. Push-Ups, Lunges, Single Leg Squats, Medicine Ball Tosses, Curls, Sit-Up Crunches, Jump Rope

Day 2 – Jog 4 minutes. Stretch 10 minutes. Pull-Ups, Step-Ups, Medicine Ball Tosses, Sit-Up Crunches, Jump Rope

Day 3 – Alternate between Day 1 and Day 2 routines

This program can be done during a P.E. class or as part of volleyball practice. If done during practice, the strength training circuit should follow the main body of the workout.

Level II

Weight training should start during the pre-season. Just as you establish aerobic fitness over the summer, it is also time to build a strength base. Two to three sessions per week are recommended. If your athletes weight train twice per week, have them do a weightless strength circuit that includes calisthenics and plyometric exercise on a third day.

Schedule three strength sessions per week during the preparation period and the pre-competition period. After a 2-3 week introduction to weightlifting technique,

the focus will shift to strength building. In the beginning, your athletes will have sore muscles. Don't worry; it's all right for volleyball players to feel sore from weightlifting. While you must take care to avoid injury, soreness is part of training.

During the introductory phase, have athletes do 2-3 sets of 10-15 repetitions using light weights for each exercise. High repetitions and light weights let athletes learn proper technique without struggling against the load.

For the remainder of the preparation period, focus on building muscle and strength. Divide the time into two 4-6 week phases. In a six-week phase, for example, schedule four weeks at 6-8 repetitions of 60-80 percent of max for all core lifts. For the next two weeks, have athletes do 4-6 repetitions of 75-85 percent. After completing a lifting cycle, test for new *1-repetition maximums. Once competition begins, reduce weight training to twice per week*. During this phase, focus on strength maintenance rather than strength gains as training becomes more intense.

As the season moves into its peak, reduce strength training to once per week. Research shows that one good session per week is adequate to maintain strength for a long period of time. Emphasize rest and recovery. Stop all weightlifting 10-14 days before the target competition.

Sets and Repetitions

Despite what some coaches believe, doing 10-15 repetitions of an exercise with light weight does not build endurance. Some coaches like to create a fast moving circuit that keeps athletes working aerobically. This short-changes both elements of the workout. You compromise strength gains by using insufficient weight and improper rest. And you really don't get a good endurance workout. Athletes really can't train for strength and aerobic endurance simultaneously. The weight room is for the building of basic strength and power.

Muscle mass is developed best by 6-8 repetitions of 60-80 percent of the l-repetition maximum. Maximum strength is developed best by 4-6 repetitions of 75-85 percent of the max.

Level II Weightlifting Routine

The Level II weightlifting routine is appropriate for volleyball players with good basic strength or weight training experience. The program consists of six exercises making

up a basic whole-body routine that can be done in less than 30 minutes using free weights.

- Back Squat
- Overhead Pull Downs
- Seated Row or Dumbbell Rows
- Dumbbell Incline Press
- Sit-Up Crunches
- Hamstring Curls
- Supplemental Lifts

You can teach the above lifts to your athletes as described in the following section.

Primary Lifts

Back Squats. Assume a high bar posture with the bar resting on the trapezius muscles about two inches below the base of neck, and your hands spaced evenly on the bar several inches outside your shoulders. Lift the bar off the supporting pins of the squat rack and step into starting position.

Foot placement can be adjusted according to your flexibility. A base of 4-6 inches wider than the shoulders usually yields the best results. Place your feet with the toes pointing straight ahead. Make sure that your heels stay in contact with the ground at all times.

The key to the squat is keeping your torso tight with a straight back and lowering the bar under control. Pushing your chest and stomach out compresses the lower back and is referred to as keeping the torso tight. Doing so helps protect you from lower back injury. You should focus on using your gluteal and hamstring muscles to control the pace of descent. A complete squat is attained when the upper thigh, the line from knee to hip, is parallel to the ground. Don't force a full squat if you have poor flexibility or poor balance. By the same token, don't lift more weight until you learn proper technique.

A properly performed squat feels almost as if you are about to sit in a chair: Your knees don't move forward beyond your toes, and your heels never leave the ground. *If your heels come off the ground, you are doing the squat incorrectly and endangering your knees*.

Your eyes should look straight ahead during the entire lift. (Many athletes tend to look at the floor, which causes them to lean too far forward.) Also, make sure that both feet are spaced evenly and in line with your body. Some beginners tend to place one foot forward.

When returning the bar to the rack, don't rush back or catch your hands on the supports. Fatigue can make this a dangerous moment. Note: Some athletes may need to do squats without weight until they develop the flexibility and balance to handle an extra load. They may only be able to do a 1/2 or 3/4 squat in the beginning. However, don't increase the load at the expense of good technique. It will only lead to muscle imbalances and injury

Overhead Pull Downs. This lift, also called the lat pull downs, develops the arms, shoulders and back muscles. Use a weight machine or pull-up bar. Pull the bar so that the weight comes towards your upper chest, with your hands placed slightly outside the shoulders. Slowly allow the weight to pull the bar away from you and repeat. Make sure that you sit erect and don't pull with your back during the exercise. Your eyes should look forward. If done with a pull-up bar, have a spotter help by supporting the feet (so that the athlete can extend her legs and push off of the spotter, to assist herself).

Seated Rows or Dumbbells Rows. The row is an excellent back exercise. It requires coordination and good technique, and is an excellent strength building exercise. Back work will help support the hitting shoulder.

The seated row is down while sitting at a pulley machine. The athlete should pull the weight out with bent knees. Once the weight is pulled out, the lift is done by first pulling with the back muscles, then the arms. The bar should be pulled into the stomach area.

The dumbbell row is done with a dumbbell in hand. The lifter leans over a bench, putting one hand on the bench. The exercise begins with the back muscles pulling the shoulder blade back, then the arm muscles (biceps) finishing the pull to the chest.

Dumbbell Incline Press. Sitting on an incline bench, the athlete holds both dumbbells above the chest. The weights are slowly lowered towards the chest and stopped about six inches above and outside of the chest. The weights are then pushed up and

away from the chest.

Sit-Up Crunches. Abdominal conditioning is a very important element of strength training and also one of the most neglected. We recommend sit-up crunches. When doing a crunch, only raise the shoulders about 30 degrees off the floor. Beyond that point, most of the work is done by the psoas muscles, putting unhealthy stress on your lower back.

Hamstring Curls. Players need to maintain a balance between quadriceps and hamstring strength, since running tends to overdevelop quad strength. Most weight rooms have machines that isolate the hamstrings. If not, you can use elastic tubing.

Supplemental Lifts

During the pre-season, or if weight training replaces running on any given day, the following exercises can be added for a more comprehensive workout. Secondary or supplemental lifts should be done after the core lifts. These exercises enhance general strength, develop muscle balance, and strengthen weak areas. As a general rule, you do slightly more repetitions in a single set; 10-15 repetitions are recommended.

Curls. Using an underhand grip (palms up), stand with the hands at arms length against the thighs. Slowly curl the bar up to the chest while keeping the back straight. Lower the weight until the arms are fully extended again. If necessary, standing against a wall helps eliminate the tendency to throw the hips forward and arch the back while lifting the weight.

Triceps Press. Stand, holding the bar with the hands about eight inches apart, palms facing the thighs. Press the weight overhead until the arms are fully extended with the elbows near the ears. Holding the upper arms still, lower the weight as far as possible behind the head. Press the weight to the overhead position, keeping the back straight, head up and upper arms motionless.

Lateral Raises. Hold a dumbbell in each hand at the sides of the body, palms facing slightly forward. Keeping a slight bend in your elbows, raise your arms away from your sides until they're just below shoulder level. (Imagine that the weight is a can of soda. Don't pour out your soda! This prevents internal rotation.)

Plyometric Training

Plyometric training is a form of exercise that utilizes the body's stretch reflex and eccentric muscle contractions to enhance speed and power. Though explosive power contributes relatively little to aerobic performance, plyometric training helps develop general athletic ability, ballistic skills, kinesthetic awareness, rhythm and coordination. High school volleyball players, especially, can benefit from the development of the power and overall athleticism provided by plyometric exercise. Volleyball players need to have power in both their hitting and jumping.

THE PHYSIOLOGY OF PLYOMETRIC TRAINING

The effectiveness of plyometric exercise derives from conditioning the neurological mechanisms and elastic properties of the muscle. Deep within all muscle tissue is a structure called the **muscle spindle,** which contains special fibers called **intrafusal fibers.** These intrafusal fibers are wrapped with nerve cells that tell the central nervous system when a muscle is being stretched rapidly. In response, the nervous system triggers a muscle reflex to protect the muscle from injury. This reflex is called the **myotatic,** or **stretch, reflex.**

Plyometric training uses the stretch reflex to improve strength, power and rhythm. By pre-stretching a muscle quickly, one can generate greater power than without the pre-stretch. Plyometric training uses gravity and body weight to load elastic tension within the muscles. This generates powerful eccentric contractions that allow an athlete to use more of his or her total muscle capacity. Plyometric training is quite specific to the explosive jumping required by volleyball. Plyometric training specifically trains the muscle to generate strength as quickly and as efficiently as possible.

GUIDELINES FOR PLYOMETRIC TRAINING

- Keep in mind that plyometric training is less specific to the demands of volleyball than skills development, and should be used as a supplement to the main body of training.

- The overload presented by the combination of gravity and body weight requires good basic strength to prevent injury. Two rules of thumb apply. First, your athletes should **always start with the easiest and least complicated plyometric exercises**. Low intensity and limited repetitions are suggested for beginners and young athletes. You must also take into account an athlete's body weight. The same exercise will create more physical stress on a heavier athlete. During adolescence, strength in relation to body weight is often poorest among heavier

individuals. Second, if an athlete is able to perform the exercise with correct technique, he or she probably has adequate strength. If the athlete is unable to execute the task properly, or if execution breaks down after a few repetitions, have the athlete build basic strength before doing plyometric drills.

- **The ballistic nature of plyometric exercise poses a risk of injury**. Plyometrics can be tremendously beneficial, but must be used cautiously. A conservative approach to plyometric training minimizes the risk of injury for high school athletes. Adolescents are usually still growing, have softer bone structure, and have not developed the absolute strength needed for advanced plyometric work. The age, strength, body weight and maturity of each athlete should be taken into consideration when constructing plyometric training.

- **Proper technique is crucial** to maximize benefit and reduce injury risk. Good technique indicates a proper degree of stress. Reduced height or distance, poor range of movement, poor body posture, and loss of coordination are signs that the exercise should be stopped.

- **Always conduct plyometric drills on a soft level surface, such as grass or padded mats**. Concrete, asphalt, or the running track are poor surfaces for training.

- **Plyometric drills should be done in shoes with good support and cushioning**. Gravity and speed provide the needed resistance.

- **Never add extra weight**, such as weight vests or ankle weights.

TYPES OF PLYOMETRIC EXERCISES

Plyometric exercises can be classified into three categories: rhythm, power and speed. The classification depends on the objective of the exercise and the nature of the overload. Rhythm plyometrics develop coordinated movement skills and basic ballistic strength. Power plyometrics combine maximum strength and speed into explosive action. Speed plyometrics shorten the time in which an action must be performed.

Rhythm Plyometric Exercises

- Rhythm Skipping
- High Knee Running
- Swing Skipping
- Butt Kicks
- Ankle Bounces
- Cariocas

- Rhythm Bounds
- Skipping Kicks

Skipping. Skipping helps develop good running mechanics. Skips are a total-body exercise that build both lower and upper body strength. They are the basic plyometric exercise. Do 2-3 sets of 30-50 yards.

Swing Skipping. Swing skipping is a variation of rhythm skipping. Instead of running posture, the arms swing loosely with each skip. The exercise combines relaxation with rhythm. Do 2-3 sets of 30-50 yards.

High Knee Running. This drill develops good running form and hip flexor strength by stressing high knee lift. Good running posture and mechanics are essential when doing the drill. Forward speed should be slow and controlled. Do two sets of 20 yards.

Butt Kicks. This exercise strengthens hamstring muscles and develops quickness and coordination of the stride recovery. Maintain tall running posture, and attempt to kick the heels to the buttocks while running slowly forward. Good arm action and controlled speed are important. Do 2-3 sets of 20 yards.

Ankle Bounces. This drill strengthens the muscles, tendons and ligaments of the ankles, which must cope with the various terrain challenges of volleyball. The exercise can be done in place or moving forward slowly. Jumping rope is an alternative exercise. Do 2-3 sets of 20-30 reps.

Skipping Kicks. Skipping kicks require the coordination of multiple quick movements. While skipping on one foot, pull the other toward the buttocks and then kick it forward as the knee drives to waist level. The extended foot then pulls back to the ground, initiating a new skip. Do 2-3 sets of 20 yards.

Cariocas. This exercise requires relaxed coordination and rhythm in a complex movement. The athlete runs sideways with the trailing leg alternately stepping in front of and behind the leading leg. Do two sets of 30-50 yards in each direction.

Rhythm Bounds. These bounds develop leg power at low intensity. They are a good introduction to power plyometrics. Bounds are an exaggerated running motion where the athlete tries to hang in the air during each stride. Do 2-5 sets of 30-50 yards.

Power Plyometric Exercises

Before starting power plyometrics, first make sure your athletes can do each exercise as a rhythm drill. Emphasize good technique. Improper technique is a sign that the athlete is not ready for that power plyometric exercise.

- Power Skipping
- Power Bounds
- Double Leg Hops
- Single Leg Hops

Power Skipping. This type of skipping emphasizes vigorous arm action and drive from the ground. The athlete should try to attain the greatest height possible. Do 2-4 sets of 10-15 skips, or 20-50 yards.

Power Bounds. The basic motion is similar to rhythm bounds except that the lead knee drives vigorously to waist level. The athlete tries to achieve both height and distance. Do two sets of 8-12 bounds, or 30-50 yards.

Double Leg Hops. Double leg hops develop lower body power. Consecutive hops should be done without pausing. Novices and weaker athletes should use a small hop between each full hop. The athlete should aim for maximum distance and height with each jump while moving continuously. Do 2-3 sets of 6-8 repetitions.

Single Leg Hops. Single leg hops involve the same muscle groups of the lower legs as double hops, but focus on balance and power. This is a demanding drill that should be done cautiously. As with double leg hops, a small intermediate hop between full hops is a good way to introduce the exercise. Do 2-3 sets of 6-8 reps for each leg.

Speed Plyometric Exercises

Speed plyometrics use velocity to force the neuromuscular system to develop speed and quickness.

- Speed Skips
- Fast High Knees
- Butt Kicks
- Fast Hands/Quick Feet
- Speed Hops

Speed Skips. These skips stress fast execution, not distance. The athlete should appear to be doing a quick shuffling step. Do 2-3 sets of 10-15 yards.

Fast High Knees. As with normal high knee drills, the arms and knees drive vigorously, but emphasize fast leg turnover. The range of motion will be 1/3–1/2 of normal. Do 2-3 sets of 10-15 yards.

Butt Kicks. The athlete tries to kick the butt as fast as possible while running slowly forward. As with high knees, the range of motion shortens. Do 2-3 sets of 10-15 yards.

Fast Hands/Quick Feet. The aim is to move both the hands and feet as quickly as possible within a short range of motion. Do 2-3 sets of 5-10 seconds, or 10-15 yards.

Speed Hops. The athlete performs a double leg hop in place, driving the arms and knees up very fast. Upon landing, the next hop should be done as quickly as possible. Do two sets of 10-12 repetitions.

VOLLEYBALL-SPECIFIC PLYOMETRIC EXERCISES

In addition to the general plyometric drills discussed above, you might want to include a number of exercises that specifically develop the type of power skills used in volleyball. Plyometric training is especially effective in developing explosive jumping ability and a powerful arm swing. The following drills will add greater specificity to your plyometric sessions.

Cone Jumps

Volleyball requires a tremendous amount of explosive lateral movement, such as a lateral side step, followed by a quick change of direction to a spiked ball. Plyometric drills that incorporate lateral jumping movements help develop the strength and power such movements demand. Cone jumps are a way of incorporating explosive jumping with lateral movement. Plastic traffic cones of various sizes are perfect for these drills. Plastic cones provide a safe obstacle over which your athletes can jump.

Double Leg Side Jumps. The athletes simply performs side to side jumps over a plastic traffic cone. The cone forces the athlete to jump up while moving laterally. Use cones of different heights. If you want to emphasize speed, use smaller cones.

For power, use taller cones. In any case the athlete should be able to clear the height of the cone.

Single Leg Side Jumps. These jumps are similar to double leg jumps, except that the athlete jumps from one foot to the other. When teaching this drill, make sure that a player drives the knee of the free leg up while jumping. This keeps the athlete from merely falling from one foot to another.

Turning Cone Hops. Have the athlete jump from side to side while making half turns (180 degrees). This helps develop the ability to make explosive reversals of direction.

Diagonal Cone Hops. Set up a line of several cones. Now have your athlete jump from side to side over the cones while moving forward. The drill can be done as a double leg or single leg drill.

Multiple Jumps With a Sprint. Set up several cones in a line. Have the athlete jump diagonally over the cones. Once past the last cone, the athlete should immediately sprint for 20-30 yards.

Of course, all of the above drills can be done without using cones. Some coaches simply use the lines on the gym floor. You also can create your own drills. For example, construct a pentagon and have your athletes jump from point to point.

Medicine Ball Throws

Overhead power is an important part or the game. Explosive upper body strength helps athletes hit the ball with power and pace. Just as important, medicine ball throws help develop abdominal trunk power used in serving the ball and spiking. Using lightly weighted medicine balls, or old volleyballs filled with rags, have your athletes perform two-handed overhead throws and chest passes from standing and kneeling positions. For all exercises, emphasize quick and rhythmic execution. Each set should involve 6-12 contacts. Remember, you are developing explosiveness and power, not endurance.

USING PLYOMETRICS IN VOLLEYBALL TRAINING

You don't need to schedule specific workouts emphasizing plyometric training. For volleyball players, plyometric drills can be incorporated after the warm-up and pre-

ceding the main body of training. These drills should emphasize a full and smooth range of motion more than eccentric overload, and use the pre-stretch of the muscle to facilitate rapid movement, mechanical efficiency and coordination.

As with other types of training, plyometric exercise should be periodized over the course of the season. Volume and intensity will vary over the course of the season. In general, the volume of plyometric exercises for volleyball players will be low to moderate. The intensity also will be low to moderate.

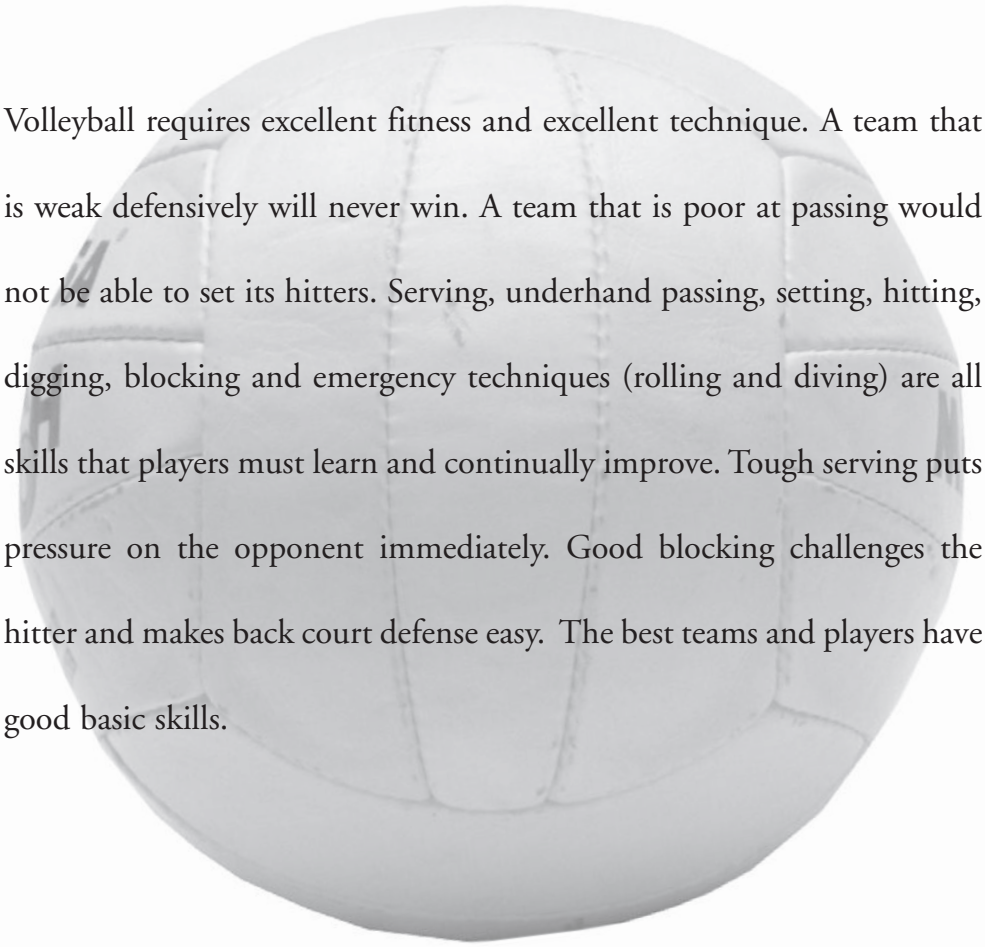
Begin each season with a gentle introduction to plyometric training using simple rhythm drills. As your athletes become accustomed to the exercises and their fitness grows, gradually increase volume and intensity. Once athletes have learned basic rhythm skills, slowly introduce power exercises.

As the competition phase of the season begins, plyometric work stresses rhythm and speed development. Once the peak competition phase starts reduce plyometric training to one light session per week, though your athletes can continue to include plyometric drills in the warm-up. Stop any strenuous plyometric training 7-10 days before playoffs begin.

CHAPTER

4

Teaching Volleyball Technique: Basic Skills



Volleyball requires excellent fitness and excellent technique. A team that is weak defensively will never win. A team that is poor at passing would not be able to set its hitters. Serving, underhand passing, setting, hitting, digging, blocking and emergency techniques (rolling and diving) are all skills that players must learn and continually improve. Tough serving puts pressure on the opponent immediately. Good blocking challenges the hitter and makes back court defense easy. The best teams and players have good basic skills.

Serving

Serving begins play in volleyball and is the only time a player may actually hold the ball. It is the one skill that is completely within the control of the individual player. Successful serves can force opponents into a difficult attack position, reducing attack options and enabling the serving team to react more effectively in setting up the defense. A "let" serve is legal as long as it hits only the net, not the antenna, and travels between the antennae.

Serving is like throwing. A server must use his or her body weight to give momentum to the ball. The transfer of body weight from one foot to the other adds power to the serve. There are numerous serve variations, including the underhand, overhand float serve, the roundhouse float, jump, sky ball, topspin and sidespin serves. We will cover the underhand serve, overhand serve and jump serve, which are the three most used in volleyball.

RULES

The server must contact the ball before stepping on or into the court. The server may serve from any place behind the end line. Once the referee has signaled for the server to serve, the server has eight seconds to serve the ball. The server must hit his or her toss. Here the rules vary for high school and club. In club volleyball the "Fourteen and Under" divisions may toss twice. A high school player has three options. If the toss is poor he/she may catch it and the referee will whistle a dead ball and restart the serving process. A server may do this one time during a rotation. The server also has the option of catching the toss and retossing it, as long as he or she does so in the eight seconds. The third option is to hit the ball!

GENERAL PRINCIPLES

1. The same skill mechanics should be duplicated each time.
2. The flight of the ball is determined by how close to the net and how high the ball is contacted.
3. Contact the ball with the entire hand, especially the palm.

Fig. 4-1 Underhand Serving

Underhand Serve

The underhand serve is the simplest and easiest to learn, so it is good for young players and for those just beginning their involvement in volleyball. It is also a good starting point for teaching other serves because it teaches the concept of comfortable contact and familiarizes the player with how much force is required to get the ball over the net.

TECHNIQUE

The underhand serve begins by standing with the server's hips perpendicular to the end line. The server's weight should be on the back foot. The ball is held in the non-serving hand.

Fig. 4-2 Underhand Serving

The server draws the serving hand back behind his or her body with a straight arm. (Fig. 4-1) The ball is held in front and to the serving arm's side. As the server steps forward, the serving arm begins to swing forward. (Fig. 4-2) Just as the ball is about to be contacted, the hand holding the ball gives a low toss. (The serve is illegal if served directly off of the palm with a sticky contact.) The ball is then contacted with the palm side of the serving hand. (Fig. 4-3) Make sure the elbow is straight.

Fig. 4-3 Contact Point Underhand Serving

The bodyweight, arm and hand should all finish in the direction of the target. Don't swing across the body or face the body away from the target. (Fig. 4-4)

PROBLEMS/SOLUTIONS

Tossing too high:

Have the server try to toss and serve the ball while you hold your hand just above the ball. This keeps the toss low and gives the server a target area to toss the ball to.

No power to make the ball go over the net:

1. Have the server try to begin with the feet even and the arm back. As he or she steps with the leg opposite to the serving arm, the arm swings through the ball.
2. Another problem might be the serving hand is not being held firm. To transfer power, the contact must have a firm hand.

Fig. 4-4 Underhand Serving

Poor aim:

Make sure the server is contacting the ball with the entire serving hand (fingers palm, etc.) The larger the contact area, the more the control. Also make sure he/she finishes with their had towards their target, not across the body or at the floor.

Overhand Serve

Overhand serving is much more commonly used after the beginner stage of volleyball. It can be used to create a "floater" or a topspin serve. The floater is designed to allow conditions in the gym, as humidity and temperature to change the path the serve travels. A serve with topspin travels much more directly to a spot on the opposition's side of the court.

Fig. 4-5 Overhand Serving

TECHNIQUE

The server should start by facing the area of the court he or she is aiming at. The ball is held in the non-serving hand, in front of the body. The serving arm should have the elbow raised above and behind the shoulder, and the hand up and behind the head. The correct position can be likened to the position that William Tell would take prior to shooting an arrow at the apple on his assistant's head. The bodyweight should be on the same side as the serving hand. (Fig. 4-5)

Fig. 4-6 Overhand Serving

The server then tosses the ball in front of his or her serving shoulder about 1/2 meter high in front of his or her shoulder, at a height of 1 meter. (The toss should be high enough for the server to contact the ball above his or her head, and in front of his or her body.) (Fig. 4-6) Next, the server steps with the foot opposite of the serving hand and then contacts the ball with a firm hand. (Fig. 4-7)

Fig. 4-7 Overhand Serving

All parts of the server's body should move towards the target. The follow-through and finish should be directly at the target. (Fig. 4-8)

Floater – The contact with the ball should be made 2/3 through the serving arm swing. The stopping of the hand quickly after contact with the ball, combined with a flat contact on the ball, will cause the ball to float or fly like a knuckle ball.

Fig. 4-8 Overhand Serving

Topspin – A topspin serve would require a wrist snap at the contact point, to create a forward spin on the ball. (Fig. 4-9)

KEY POINTS

1. The lead step should be comfortable and directed at the target.
2. The hitting arm should be drawn back with the elbow at shoulder level or higher.
3. The hitting hand should be behind the head when tossing/starting the serve.

Fig. 4-9 Overhand Serving Topspin

4. Players should hit through the ball with the entire hand, fingers included.
5. The toss should be in front of the serving shoulder, high enough for the ball to be contacted above head.
6. Step forward with the foot opposite of the serving arm and contact the ball high, in front of the serving shoulder. The server's weight should move forward to add momentum to the ball.
7. Finish with the serving hand going towards the target.

KEY WORDS FOR THE SERVER

Elbow Raised (The serving arm's elbow should be raised above and behind the shoulder.)

Hand Behind the Head (The serving hand is behind the head.)

Lift/Toss the Ball (Toss the ball in front of the serving shoulder, high enough for the ball to be contacted above head height.)

Step and Contact (Step forward with the foot opposite of the serving arm and contact the ball high, in front of the serving shoulder. The server's body weight should move forward to add momentum to the ball.)

PROBLEMS/SOLUTIONS

The server cannot get enough power to get the ball over the net:

1. Make sure the serving hand is held firm and not loose like a wet noodle.
2. Check to see if the toss is in front of the serving shoulder.
3. Check to see if he or she is stepping through the ball and using his or her weight.
4. Add an extra step to the serve, having him or her step once, then toss, and then step as he or she hits the ball.
5. Make sure the athlete is accelerating their arm and hand as they swing through the ball.

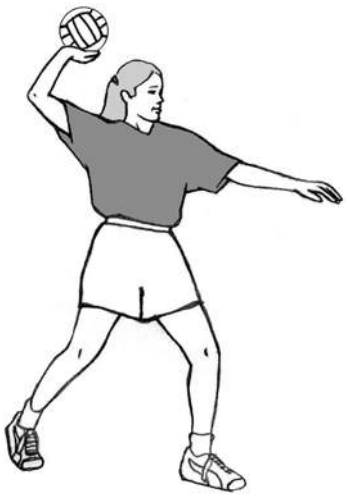


Fig. 4-10 Drill 1
Overhand Serving

DRILLS

1. **Throwing**: Have the servers practice correct body mechanics by throwing a tennis ball back and forth. (Fig. 4-10)
2. **Partner Serving**: Have each of the servers stand on the 10-meter line. Have them serve to the other player. As they succeed, have them step back one-step, until they are at the back line.
3. **Target Serving**: The coach puts a target on the court for the servers to try and hit. The team is divided in half with each half on a side aiming at their target. Whichever team hits the target first wins.

4. **Spider**: This drill is called many things, so you may have heard of it with another name. The players love it, no matter what level they play. The team is divided in half with each half on a side. One member of the team is the target and is lying down on the court. Whoever hits the target joins him or her. The game continues until one team has all of its team members connected and lying on the court.

BASIC TACTICAL PRINCIPLES

1. The first and foremost application of the serve for the beginning player is to get the ball into the opponent's court. There are no tactics, or play, if the serve is into the net or out-of-bounds.
2. Once a player can consistently serve into the opponent's court, encourage him or her to vary the trajectory, velocity, and target of the serve. Consistent serving means that the player should be able to place the served ball into the opponent's court with confidence and control, 90% of the time.
3. The server should be able to control the flight of the ball. The most effective servers use a variety of trajectories ranging from flat serves to lobs. This allows for flexible targeting.
4. Changing the distance behind the end line from which the server contacts the ball can also vary the trajectory. Such variation, coupled with a change in velocity, can wreak havoc on the opponent's serve-receive.

JUMP SERVE

The jump serve is a difficult serve to master, although many players try. The differences between it and an overhand serve are the server tosses the ball higher and with the same hand as he or she is going to hit the ball. (Some serves need to use to hands for a consistent toss.) The server needs to stand three steps behind the point of contact as he or she will take those steps as he or she is tossing the ball up in the air, then will jump up to meet the toss. The key to this serve is a good toss that leads the server. Another key is for the server to be able to time his/her approach to his/her toss. Today more and more servers are utilizing a jump float serve. This allows for a high point of contact for the serve. Both the topspin and float can be very effective.

PROBLEMS

There are a lot of variables that are introduced: the height of the toss, the height of the jump of the server, and the contact of the ball. Have your jump servers work on their tosses. If they can toss well for their approach, usually they can make a good contact on the ball. If you are able to have one or two players who can be fairly consistent with their jump serve then you will have a great weapon for your team.

Ready Position

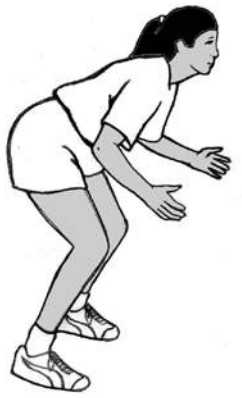


Fig. 4-11 Ready Position

While the ready position is not a basic skill, almost all of the basic skills start from it. Blocking has its own variation of the ready position, and serving does not use it. Ready position is used while playing down defense (not at the net blocking) and when waiting for the opponent's serve.
(Fig. 4-11)

TECHNIQUE

Proper ready position includes:

1. Body weight is forward on the balls of the feet, with the heels barely touching the ground.
2. Knees are bent so that the athlete can barely see his/her shoes.
3. Shoulders are further forward than the knees.
4. Arms are held out at waist height and are bent slightly with the thumbs up. (Fig. 4-12)
5. The athlete should see his/her hands in his/her peripheral vision!
6. The athlete should intently watch the opponent who is playing the ball, but also pay attention to the entire team as the play develops.

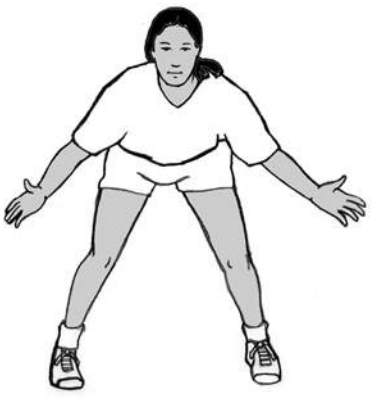


Fig. 4-12 Ready Position

DRILLS

1. **Clock**: The athlete imagines that he/she is in the middle of a clock. One step in front of them is the 12, one step right is the 3, one step left is the 9 and one step back is the 6. In ready position, keeping the shoulders down and the hands out, the athlete moves in the following sequence: (Note: Each foot that goes towards a number should step down onto the floor.)

   A. Step with the right foot to the 12, then bring it back to ready position.
   B. Step with the left foot to the 12, then bring it back to ready position.
   C. Step with the right foot to the 3, then bring it back.
   D. Step with the left foot to the 9, then bring it back.
   E. Step with the right foot back to the 6, turning the hips towards the three. Bring it back.
   F. Step with the left foot back to the 6, turning the hip towards the 9. Bring it back.
   G. Repeat two or three times at least.
   Each time through the athlete should try to go faster.

2.**Advanced Clock**: An advanced version of the Clock would be to add in steps between the 12 and 3, between the 3 and 6, between the 12 and 9, and the 9 and 6. The sequence would be:

A. Right foot to 12, back
B. Left foot to 12, back.
C. Right foot to 1:30, back.
D. Left foot to 10:30, back.
E. Right foot to 3, back.
F. Left foot to 9, back.
G. Right foot to 4:30, back.
H. Left foot to 7:30, back.
I. Right foot to 6, back. (Turn hips.)
J. Left foot to 6, back. (Turn hips.)

3. **Shuffle Stepping**: Slide steps laterally without crossing over feet. Athlete should stay in ready position as athlete moves. Stay low! Use for blocking footwork, too.

4. **Step, Crossover, Even-up**: This footwork is used for pulling off of the net and in down defense for covering a long distance. Middle blockers use this footwork for getting outside to block.

5. **Follow Me**: All the athletes face the coach in ready position. The coach holds a volleyball and moves it around to make the athletes move. Should the coach hold it to the right, the athletes shuffle step left. Should the coach drop the ball, the athletes do a roll, dive or just touch their stomachs to the floor. If the coach holds the ball still in two hands, the athletes keep their feet moving in place.

Underhand Passing

Underhand passing is sometimes called "bumping" and forearm passing. This technique involves manipulating the ball with the use of the player's forearms. This skill is primarily used to receive a serve. It is called digging when receiving a hard-driven ball.

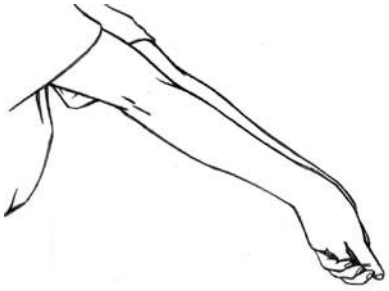


Fig. 4-13 Underhand Passing

Fig. 4-14 Underhand Passing

Fig. 4-15 Underhand Passing

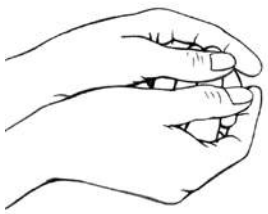


Fig. 4-16 Underhand Passing

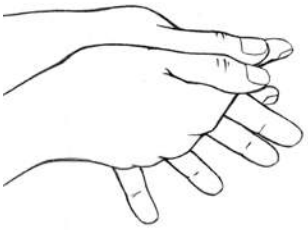


Fig. 4-17 Underhand Passing

RULES

A passer may be called for a "double contact" if the referee sees the ball hit the passer twice. (i.e. The ball could hit the arms then the chest.) If the ball is hard driven and not on a serve, the referee will rarely call a "double."

TECHNIQUE

From the ready position the passer must step to where the ball may be intercepted before hitting the court. The movement to the ball can be made with shuttle moves or running, depending on the speed of the ball. The passer should move with the arms apart, not already formed for underhand passing. Keeping the hands locked together while moving will hinder the passer from getting to the ball quickly.

As the passer arrives to where the ball is falling, the arms should be put together away from the body, as if the passer had a bunch of pillows (or a huge tummy!) under his/her shirt. (Fig. 4-13) This minimizes how much the arms will be swung. There are a variety of ways to put the forearms together. All of these variations on technique require the shoulders to be rolled forward to maximize the effort of putting the elbows, forearms and wrists together as a single unit. With straight arms, the hands are linked by either putting one fist in the other hand, or putting the back of one hand's fingers in the fingers of the second hand and hooking the thumb of the hand below with the middle finger of the hand on top. Years ago coaches taught to interlace the fingers, keeping the fingers extended. In all of these positions, the thumbs should be extended (flat) and the wrists pointed down. (Fig. 4-14, 15, 16, 17)

With the arms in position, the passer should contact the ball on the forearms, above the wrist bones and below the elbows. The velocity of the ball will dictate how much the passer must use his or her legs. Should the ball come slowly to the passer, then the legs are used to give the ball momentum. *The arms barely swing!* The angle of the arms is changed according to where the passer wants to pass the ball. The arms create a platform parallel to the bent legs. Ideally, the shoulders and hips face the target. The legs extend towards the target as well. (Fig. 4-18, 19, 20, 21)

The contact of the ball on the arms should be above the wrist bones and on the lower half of the forearms. The passer should watch the ball contact the platform simultaneously, keeping the head steady to insure balance and maintain the desired degrees of deflection. *Watch the arms by moving the eyes, not the head!* (Fig. 4-22)

Most importantly, the passer should call the ball as early as possible. The passer can say "I go!" or "Mine!" to alert teammates. The players around the passer should also call the ball in or out, deep or short, in reference to the court. This will help the passer know that the ball is his/hers and whether it is in or out.

Fig. 4-18 Underhand Passing

Fig. 4-19 Underhand Passing

Fig. 4-20 Underhand Passing

Fig. 4-21 Underhand Passing

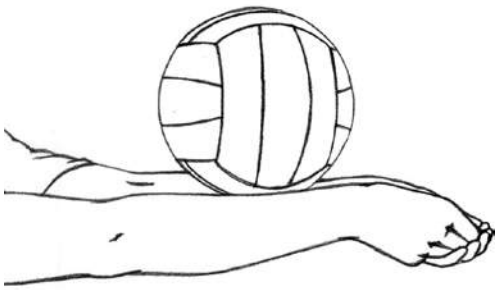


Fig. 4-22 Underhand Passing

PROBLEMS/SOLUTIONS

Forearms hurt from passing:

1. Have the athlete use long sleeves or cut off the toes of socks to use as forearm pads.
2. Have the athlete use a less inflated ball.
3. If available, have the passer use a "light" volleyball

Athlete can't control the ball:

1. Make sure that the athlete is forming the arms away from the body with the arms straight.
2. Have the athlete practice by him/herself with a ball, passing to self and to the wall.
3. Make sure the athlete is using the legs.
4. Make sure the athlete's wrists are pointed down to keep the arms straight.

Key Words for Helping the Passer

Feet to Ball (Get to where the ball is falling.)

Platform (Form your platform away from your body.)

Guide (Have your hips facing your target and use your legs to guide the ball.)

DRILLS

Partner Drills for Two People and One Ball

1. **Toss and Pass**: One person tosses ball for the partner to pass back. The toss can be to the partner, to each side, or short and deep to move the partner passing.
2. **Once To Self, Then To Partner**: Passer receives the ball from his/her partner

and first passes to him/herself and then back to the partner.

3. **180s and 360s**: Same as "Once to Self, Then To Partner" but the passer does either a half turn (180) or a full turn (360) and then passes the ball back to the partner.

4. **Forward, Forward, Back Pass**: Both partners start on the sideline. The first partner passes the ball in front of him/herself, making him/her move forward a few steps. Then again the passer passes the ball forward making him/her move forward a few more steps. On the last contact the passer back passes the ball to the partner waiting at the sideline. Once he/she has passed the ball to his/her partner, then he/she runs back to the sideline and waits for the ball to be passed to him/her again. The partner does what the first person did, moving him/herself forward into the court.

5. **Forward, Forward, Front Pass**: Same as above but the third contact is made with the passer facing his/her partner at the sideline. After the second forward pass, the passer must run around the ball to face the awaiting partner.

6. **Look Drill**: Like "Once To Self, Then to Partner" but in between passing to him/herself, the passer looks at his/her partner who is holding up his/her fingers to indicate a number (one through 10). The passer says the number out loud while passing the ball back to his/her partner. The partner does the same thing. Note: the most difficult part of this drill is remembering to show the number! Once the passer gets rid of the ball, he/she often forgets that he/she must show a number! (Fig. 4-23)

Fig. 4-23 Look Drill Underhand Passing

7. **Under the Net**: Each partner is two steps back from the net. One partner tosses the ball low to his/her partner at knee height. The passer passes the ball back, low and under the net.

7A. **Under the Net (Advanced)**: If able, both passers can keep the ball going back and forth under the net. Have the partners count how many contacts they can make in a row, with out an error.

8. **One On One**: Just like the name, two players play against each other in a small, short court. Only one contact is allowed, like in tennis.

9. **Reaction Drill 1**: One partner (thrower) holds the ball overhead with two hands. (Make sure he/she does this! It makes a difference for this drill!) The other partner is in ready position about four steps away from the thrower. The thrower throws the ball to either side of the passer, or in front of him/her, to make him/her take a step to pass the ball. *The thrower should just flex the wrists forward to throw the ball*, not pull his/her arms down.

10. **Reaction Drill 2**: Same as above except the passer starts in ready position with his/her eyes closed. The thrower says, "Go!" before throwing the ball. Upon hearing "Go!" the passer opens his/her eyes and reacts to where the ball is going by taking a step to the ball and then passing it.

11. **Reaction Drill 3**: Same as Reaction Drill 1 except the passer is turned around with his/her back to the thrower. Upon hearing "Go!" the passer turns around

and reacts to where the ball is going by stepping to the ball.

12. **Reaction Drill 4**: Same as Reaction Drill 1 but the two players are much closer. The thrower is only two to three steps from the passer. This shortens the reaction time of the passer.

Drills for Threes

13. **Toss/Serve-Pass-Catch**: One athlete tosses or serves the ball over the net to the passer. The passer passes to the catcher, who is on the same side of the net as the passer. The catcher catches the ball and then throws it under the net, back to the tosser/server. This can be done with two balls to make it faster. Have the catcher throw one ball to the tosser/server immediately after the tosser/server has released his/her ball.
14. **Sideline to Sideline**: One athlete starts in the middle of the court. The other two athletes each have a ball and are on opposite sidelines. The athlete in the middle runs to pass a ball tossed by one of the athletes on the sidelines. (The toss should be close enough to the tosser that he/she could catch it without moving.) After passing the first ball, the athlete runs to the other sideline to pass the ball tossed by the other partner.
15. **Shuttle Passing**: (This can be done with or with out the net.) Two athletes with one ball start on one side and the third athlete is on the other side. The drill begins with the first athlete tossing the ball to the athlete on the other side, then running to get behind him/her. The athlete who received the toss passes the ball to the athlete who was waiting behind the tosser, then runs to get behind him/her. The ball does not stop but goes back and forth while the athletes run to get behind the athlete they passed the ball to. (This drill can be done with more athletes, but three is the minimum number needed.)

Setting

Most people involved with volleyball use the term "setting" to describe overhead passing. It is certainly easier to say "let's set a few balls" than "let's overhead pass a few balls." Setting is the tactical skill that allows a player to put the ball in a position where another player can jump and attack it. There are usually one or two primary setters on the court at one time, with only one acting as the setter at any given moment. At the beginner's level, the setter usually sets the ball forward from the front, right-hand side of the court. He or she pushes the ball high to the left-side hitter or the middle hitter. As a setter gains experience, he or she will increase his or her control over the ball and will be able to vary the location, height and speed of the set.

PRINCIPLES

The most important objective of setting is to provide the attacker with a good swing at the ball. If the ball is set too wide or too tight to the net, the attacker is at a disadvantage.

The standard high, outside set should be set between the attacker and the net, about one meter from the net. The ball, at its apex, should be about three meters (9'3") above the net and look like a ball coming off a waterfall.

When in a game situation, every player should set the ball to the easiest option, which for beginners, is in front of the setter. Once a player gains experience, only then should he or she attempt to vary the height and direction of his or her sets. Each player should make the highest percentage play, as coaches and partisans alike will emit a collective catch-of-breath when a novice player jump sets, back sets, or attempts a difficult variation on the traditional sets. The setter, along with every other player on the team, should be instructed to set the closest, easiest option in front. If a front option is not available, only then should a player try a backset.

RULES

Hand setting is considered illegal when the two hands contact the ball unevenly. This can happen when one hand touches the ball slightly before the other. It is also illegal to hold onto to the ball long enough for it to come to rest, or actually be held in the hands for a moment. Often an illegal overhand set is referred to as a "throw."

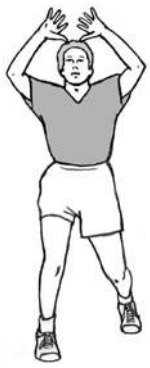


Fig. 4-24 Setting

TECHNIQUE

From the ready position (see section on Ready Position), the setter anticipates and moves to where the pass is going. The setter should get to that place before the ball does, as he does not want to be running as he sets. Once the ball has arrived, the player should be stationary with his body weight balanced so that he can use his legs and arms to direct the set. (Fig. 4-24)

The setter should be positioned as follows:

Feet – The setter's feet should be spread apart almost as far as his or her shoulders, parallel to each other and pointed directly towards the target of the set (where the hitter will contact the ball). The setter's right foot should be slightly ahead of the left foot. (Fig. 4-25)

Fig. 4-25 Setting

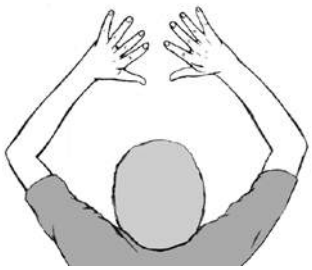


Fig. 4-26 Setting

Legs – A setter gets his/her power from his/her legs so he/she should have them slightly bent so he/she can push off.

Hands and Arms – A setter needs to contact the ball above her forehead. She brings his hands above the forehead with both hands open wide. The setter's elbows should be pointing outward toward the 8 and 4 positions on a clock, and her fingers should be spread and flexed, but not stiff. (Fig. 4-26, 27)

COMMON ERRORS

Fig. 4-27 Setting

1. A beginning player will have a tendency to stab at the ball instead of letting it come to his/her hands. The player should try to contact the ball as close to the forehead as possible, with both elbows bent.
2. The player may point her thumbs at the ball instead of her eyes. It is important to have the thumbs back for the most control over the ball. It is also safer for the player to have her hands open wide to avoid the possibility of a sprained thumb.
3. Contact is sometimes made too far away from the head. The player's hands may absorb the ball, but with the arms extended at contact, there is no power left to deliver it very far.
4. The ball is contacted too low or too far out front, relative to the head. Some players have a tendency to follow the ball with their hands and not with their feet.

SETS

For an advanced setter, there are at least seven locations on the net and at least three areas off the net to set the ball. There are also four different heights the setter could use and several speeds of release. In all of these, the setter maintains the same body position. (See Diagram: Set Definition, page 130.)

Since there are four heights of sets and seven locations on the net, a setter has 28 options to choose from! In reality, most high school setters will primarily use four to six of these sets. Many of the set possibilities are not practical and do not have a high percentage of success. Most teams develop a number, letter or name system for communicating which set each hitter would be set. Many high school coaches use a two-digit number to designate each set, in which the first digit tells the location of the net and the second tells the height. The height of the set will usually determine the speed of the release.

The most common area to set the ball is the left-hand side of the court (often referred to as the "strong side." Most of these sets tend to be high and if left to bounce would land on the sideline. By pushing the set out to that location, the setter gives the left-hand or outside hitter an opportunity to "view the court" and choose the placement of the hit. It also weakens the opposition's double block. A high set is also often made to the right-hand side of the court (behind the setter) as well.

Another common set is the quick or "shoot" set, most often made to the middle hitter. This is usually set about one foot above the net and the hitter hits the ball at its apex. This set can be made to any of the locations on the net, but since it is a quick set, the hitter must know it is being set because he or she must start his or her approach as the ball is passed to the setter.

The two middle height sets are usually reserved for combination plays because, without the element of surprise, the opponent's team easily blocks these.

Backsets can also be made to any of the heights. They should be released from the same body position as front sets to camouflage the direction of the ball. The follow through and slight back arch as the ball is released cause the ball to go behind the setter. (Fig. 4-28)

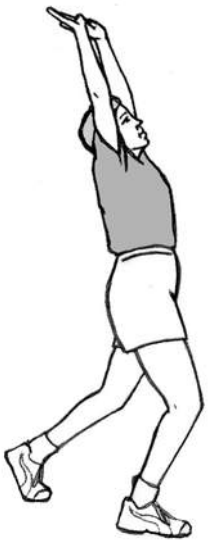


Fig. 4-28 Setting

CONDITIONING

It is beneficial for a setter to strengthen his or her hands and arms and to perform agility exercises. Some suggested exercises are:

1. Squeeze a tennis ball or soft rubber ball.
2. Do fingertip pushups.
3. Do wrist curls with weights or food cans.
4. Throw and catch a heavy ball, such as a basketball, a weighted volleyball or a medicine ball.
5. Do movement skills, such as running and crossovers.
6. Do squats to help flexibility of knees.

DRILLS

Drills For Control

1. Set to self.
2. Set to self, alternating between sitting, kneeling and squatting in a small circle.
3. Set to self and squat between sets.
4. Set to self and jump between sets.
5. Do steps 1-4 in pairs.
6. Set to a single spot on a wall.

Drills to Train Decision and Reactions

1. In pairs, one player tosses to their partner whose back is turned; on the toss, the player calls their partner's name. The partner must turn around, locate the ball, and set.
2. In pairs, there is one attacker and a setter. The attacker tosses the ball to the setter and runs anywhere at any speed, and the setter must set the ball to him for an attack.
3. In pairs, one setter, and a player with the coach. The setter at the net, partner at midcourt, the coach on opposite side of the net. The partner tosses the ball to the setter, as the ball is descending the coach calls "left" or "right." The setter must follow the command.
4. Do the same as #3, but have the coach call sets according to the team's system.
5. Do the same as #3, but have the partner toss the ball in various positions that make the setter move.
6. Do the same as #3, but the coach is at the net, simulating the opponent's middle blocker. Just prior to the set, the coach moves either left or right, the setter must set the opposite.

BASIC TACTICAL PRINCIPLES

1. The tougher the play, the higher the pass.
2. When setting, make the simplest play. The setter should set the attacker nearest him or her and in front. It is imperative that the attacker get a good swing at the ball.
3. Keep the ball off the net slightly.
4. Stop moving prior to setting the ball. A player must be situated so that he /she can move through the ball to the target. A player backing away must compensate with the hands and lose rhythm and control.

BACK SETTING

To back set the ball, the athlete should take the ball in the same place (above and in front of the forehead) but will follow through with the arms backward. The back setter should push off of his/her front foot and extend the hips forward and up. Often beginners want to use too much wrist flick. They try to set the ball backwards with just their wrists. Back setting is the result of the body following through the ball with a slight back arch and the arms going up and backwards.

PROBLEMS/SOLUTIONS

Athlete is taking the ball lower than his/her head or to one side of his/her body:
Have the athlete catch the ball in the correct position. Challenge him/her by moving him/her around. Make sure he/she is facing where the ball is supposed to be set and that the ball is caught above and in front of the forehead.

Athlete's hands are extremely stiff:
Try the "Hot Potato" drill listed below. Also have the athlete do little baby sets to his/herself and then to a partner, or set lying down or against the wall.

Athlete's sets are very flat and don't go far:
Challenge the athlete to set the ball as high or as far as possible, making them use his/her legs. Let him/her toss the ball to him/herself and then set it.

KEY WORDS

Key Words For Helping The Setter
Feet to Ball (Get to where the pass is falling.)
Face (Position the body to face the target.)
Shape (Shape the hands round like a ball, with the wrists back.)
Extend (Extend the legs, arms, wrists and hands towards the desired target.)

Partner Drills for Two People and One Ball

1. **Hot Potato**: One athlete tosses a high, up and down ball for the other to contact above the forehead. The ball is briefly caught with the hands in the setting position and thrown back to the tosser. Like a hot potato, the ball is briefly held and gotten rid of quickly.
2. **Toss and Set**: One person tosses ball for the partner to set back to the tosser. The toss can be to the partner, to either side, short or deep to move the partner around.

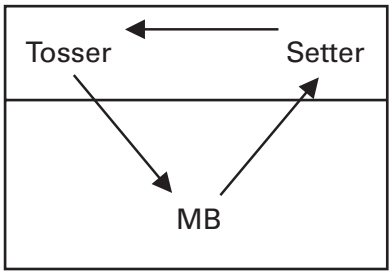
3. **Once To Self, Then To Partner**: Setter receives the ball from his/her partner and first sets to him/herself and then back to the partner.
4. **180s and 360s**: Same as "Once To Self, Then To Partner" but the setter does either a half turn (180) or a full turn (360) and then sets the ball back to the partner.
5. **Forward, Forward, Back Set**: Both partners start on the sideline. The first partner sets the ball in front of him/herself, making him/her move forward a few steps. Then again the setter sets the ball forward making him/her move forward a few more steps. On the last contact the setter back sets the ball to the partner waiting at the sideline. Once he/she has set the ball to his/her partner, then he/she runs back to the sideline and waits for the ball to be set to him/her again. The partner does what the first person did, moving him/herself forward into the court.
6. **Forward, Forward, Front Set**: Same as above but the third contact is made with the setter facing his/her partner at the sideline. After the second forward set, the setter must run around the ball to face the awaiting partner.
7. **Look Drill**: Like "Once To Self, Then to Partner" but in between setting to him/herself, the setter looks at his/her partner who is holding up his/her fingers to indicate a number (one - 10). The setter says the number out loud while setting the ball back to his/her partner. The partner does the same thing. Note: the most difficult part of this drill is remembering to show the number! Once the setter gets rid of the ball, he/she forgets that he/she must show a number!
8. **Over the Net**: Each partner is two steps back from the net. One partner tosses the ball over the net to his/her partner. The partner sets the ball back, high over the net. If the athletes are capable to keep setting back and forth over the net, have the partners count how many contacts they can make in a row without an error.
9. **One On One**: Just like the name, athletes play against each other in a small, short court. Only one contact is allowed, like in tennis.

Drills for Three Athletes or More

10. **Triangle Pass-Set-Catch**: Three athletes are on the court with one in the middle back position, one to the right of the center of the net, and the third at the net, in the left front position. The left front athlete tosses the ball to the middle back athlete. He/she passes (underhand or overhand) to the setter at the net. The setter sets the ball high to the left front athlete. The left front athlete then sets the ball to the passer in the middle back.
11. **Sideline to Sideline**: One athlete starts in the middle of the court. The other two athletes each have a ball and are on opposite sidelines. The athlete in the middle runs to set a ball tossed by one of the athletes on the sidelines. (The toss should be close enough to the tosser that he/she could catch it without moving.)

After setting the first ball, the athlete runs to the other sideline to set the ball tossed by the other partner.

12. **Shuttle Setting**: (This can be done with or with out the net.) Two athletes with one ball start on one side and the third athlete is on the other side. The drill begins with the first athlete tossing the ball to the athlete on the other side, and then running to get behind him/her. The athlete who received the toss sets the ball to the athlete who was waiting behind the tosser, then runs to get behind him/her. The ball does not stop but goes back and forth while the athletes run to get behind the athlete they passed the ball to. (This drill can be done with more athletes, but three is the minimum number needed.)



Triangle Pass-Set-Catch

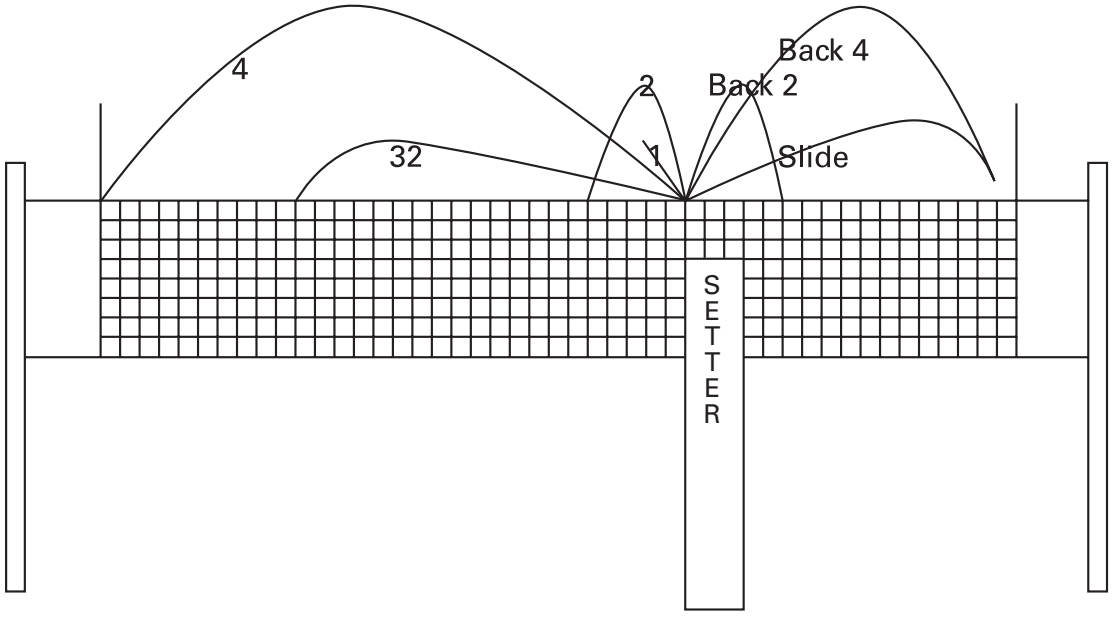


Diagram: Set Definition (Some teams will name back sets with letters.)

Overhand Passing (in Serve Receive)

Overhand passing is used in serve receive for the first contact to pass the ball to the setter. This has recently become legal in volleyball at all levels. While the technique for overhand passing is similar to setting, the pass is allowed to be sloppier than a set. See the section above for basic hand and body positions.

IMPORTANT KEYS FOR OVERHAND PASSING INCLUDE:

- Passers should anticipate early with their feet.
- Passer should try to get his/her hips and shoulders behind the ball.
- Follow-through should be towards the target.
- Hands should be up and ready as early as possible.

COMMON ERRORS/SOLUTIONS

- Ball goes behind passer: Hands need to be up sooner to pass the ball.
- Ball rebounds off of the hands and passer doesn't have much control: Passer needs to absorb the ball and use the fingers to help redirect it.
- Passer passes the ball low and forward: Passer should take the ball above the for head and may need to bend the knees to pass the ball.

Spiking

Spiking is also called hitting or attacking. It is one of the most exciting and challenging parts of the game of volleyball. It requires the hitter timing his/her jump and arm swing with the ball flying through the air. Jump serving is just spiking from the end line but the server tosses the set.

RULES

The three frontcourt players may attack the ball from any where on the court. The back row players must jump from behind the 10-foot/3-meter line. Spikers are not allowed to touch the net during the play and must be careful under the net. Indoors the centerline divides the court and both teams share the space. Neither team may interfere with the other team's ability to play the ball outdoors or indoors.

The hitter must cleanly hit the ball. It is not allowed to come to rest in the hitter's hand, nor may the hitter hit it with two hands unevenly. The hitter may only attack a ball on his/her side of the net. Either team can play a ball directly above the net.

TECHNIQUE

Standing away from the net, the hitter should be standing upright with the weight on the toes ready to move forward. Once the setter has released the ball and the hitter sees that the set is intended for him/her, then the hitter must decide when to begin the approach to the ball.

Wherever the ball is going to be hit, the spiker should plant his/her feet behind the ball. The sequence of the last two steps for a right-handed hitter should be right than left. The left foot (the last step) helps transfer the momentum of the approach to vertical lift. (Fig. 4-29)

As the spiker plants the next to last step (the right foot for the right-hander) he/she should swing the arms back so that the hands are shoulder height behind him/her. He/she should also lower the hips as the next to last step is taken. (Fig. 4-29, also)

When the last foot is planted, the arms swing forward and up, helping to throw the body up into the air. Once the arms have been swung up above the head, the hitting arm swing begins. (Fig. 4-30, 31)

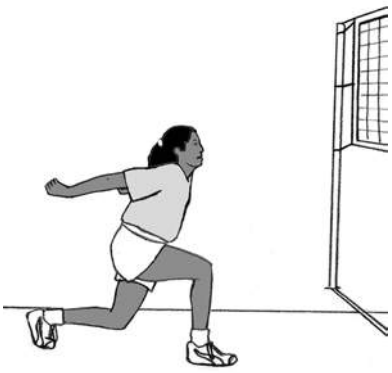


Fig. 4-29 Spiking

Fig. 4-30 Spiking

Fig. 4-31 Spiking

The hitter should draw the hitting arm's elbow back. The hitting hand goes behind the head as the elbow pulls back. The elbow should be higher than ear height. Once the non-hitting arm has swung to the maximum height possible, it naturally falls with gravity. The hitting arm's elbow swings forward towards the ball, and then the hand extends forward to contact the ball. (Fig. 4-32, 33, 34, 35)

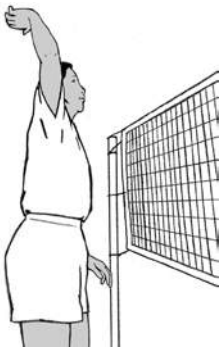


Fig. 4-32 Spiking

Fig. 4-33 Spiking

Fig. 4-34 Spiking

Fig. 4-35 Spiking

When the hand contacts the ball the entire hand should be on the ball. The wrist snaps forward to give the ball topspin. (Fig. 4-36)

Fig. 4-36 Spiking

KEY WORDS FOR THE SPIKER

Feet to the Ball (The hitter should get his/her feet to where the ball is falling, not jump to that place.)

Lower the Hips (As the next to last step is planted, the hitter should bend that leg's knee to lower the hips to jump.)

Swing the Arms (The arms should create a pendulum action beginning from the back swing to them flying up above the hitter's head.)

Elbow High (The hitter should have the hitting arm's elbow up above the ear and back behind the shoulder.)

Hand Back (The hitting hand should be behind the head and then swing forward to the ball. The elbow leads the hand to the ball.)

Snap (The wrist must snap on the ball to make the ball have forward spin.)

Wait!!! (The hitter must wait to see the set before beginning his/her approach.)

PROBLEMS/SOLUTIONS

The hitter cannot hit over the net:

1. Have the hitter practice standing spikes, working on a high contact point and wrist snap.
2. Give the hitter tosses in front of his/her body that he/she can get to with one step.

The hitter cannot time the approach with the set:

1. Make the hitter wait to see the set reach its apex before moving forward. Have the hitter practice approaching and catching the ball in the air.
2. Try having someone behind the hitter holding on to his/her shirt (lightly holding on!) so that he/she cannot move forward.

The hitter has no power when hitting the ball:

1. Have the hitter practice the arm swing against a wall or standing and hitting the ball into the net.
2. Tell the hitter to accelerate the arm through the ball. (Make sure the hitter is hitting the ball squarely in the center of it.)

TEACHING PROGRESSION

First show the athletes what the spike looks like. Have a coach hit a few balls for the athletes to see a live spiker. As they are watching, point out the footwork. Show them the last two steps, and how the hips lower, and the arms swing back, and then forward.

Line up the group on the 10-foot line. Walk them through the last two steps of the approach. Have them slowly practice drawing the arms back with the next to last step, and then swinging them forward and up with the last step. Ask them to do five to 10 repetitions on their own.

Demonstrate the "Flamingo" described below. Ask them to do it as the coach does it. Make it fun by seeing how long the athletes can balance on one leg.

Next show them the arm swing. Have the athletes begin the arm swing with the back swing. Then once the arms are above their heads teach them to draw the hitting elbow back and up.

Next have the arm and hand swing forward, snapping the wrist at the end. Ask who can touch their fingers to their wrist. There is always someone in the group who can!

Lastly, have them practice the full approach (starting in the Flamingo) with the arm swing. Watch to make sure their footwork is correct and that they use their arms to jump.

DRILLS

1. **Arm Snaps**: Two athletes work together with one ball. Facing each other on the sidelines they toss the ball up in the air with two hands and then spike the ball down into the middle of the court. They should work on a high contact point and wrist snap.
2. **Arm Swings on the Wall***: Two athletes work together with one ball. One athlete stands facing the wall (about 15 feet back from it) with his/her hitting elbow up and behind his/her shoulder and the non-hitting arm up in the air. The partner is standing in front of the hitter and to the side of the hitter's arm. The partner with the ball tosses it up in front of the hitter for him/her to spike at the wall. The hitter should be aiming at something on the wall that is about net height. *(If a wall is not available, this drill can be done with the hitters hitting into the upper part of the net.)
3. **Standing Spikes**: Coach tosses balls for the hitters about 10 feet back from the net. The hitter should have the hitting elbow back and up. The hitter steps to where the ball is falling and uses the hitting arm swing to hit it over the net into the court.
4. **Flamingo**: The hitter should stand on one foot. Right-handed athletes stand on their left foot and left-handed athletes stand on their right. The hitter should be balancing on one foot and leaning forward so that the arms are hanging forward. The hitter then steps to a tossed ball, with the foot that is in the air. As the hitter does this, the arms swing back. Then the last step is planted and the hitter jumps up to spike the ball. The Flamingo is a great way to teach correct footwork. (Fig. 4-37, 38)

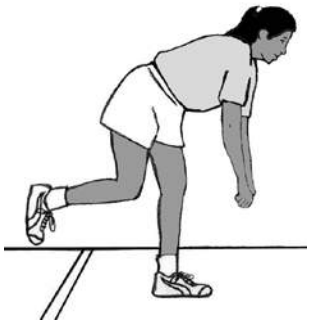


Fig. 4-37 Spiking (Flamingo)

Fig. 4-38 Spiking

5. **Hitting Lines**: Athletes line up in the left front. Coach can toss the ball for the athlete to approach and spike, or the athletes can toss to the setter and hit whatever set they are given.

Blocking

Blocking can be one of the most frustrating skills in volleyball. It is defined as the attempt by a player or players to stop the ball before or as it crosses the net. Many players think that if they don't block the opponent's spike back in their court, then they are not doing a good job as a blocker. A blocker's job is to protect an area of the court. If the spiker cannot or does not hit into the area that the blocker is supposed to protect, then the blocker has made an excellent block!

RULES

Players are never allowed to touch the net. A blocker may not touch the ball before the hitter, if the ball is completely on the opponent's side of the court. If the ball is above the top of the net, then either team may play the ball. In indoor volleyball the centerline under the net is a shared space. Blockers and hitters may land on the centerline. This can be very dangerous! On the beach, players are allowed to go completely under the net if they don't affect the opponent's ability to play the ball.

TECHNIQUE

The ready position for a blocker is similar to the down defense ready position discussed earlier. The blocker has his/her weight on the balls of the feet with the knees slightly bent. He/she holds his/her hands in front of him/her, where they can be seen in his/her peripheral vision. He/she is like a coiled spring ready to jump up at any time. (Fig. 4-39, 40)

Fig. 4-39 Blocking

Fig. 4-40 Blocking

Once the blocker sees the setter release the ball, the blocker should look at the hitter to watch the angle of the approach and body position. The blocker should step in front of the spiker and jump straight up, shooting his/her hands over the net. (Fig. 4-41, 42, 43)

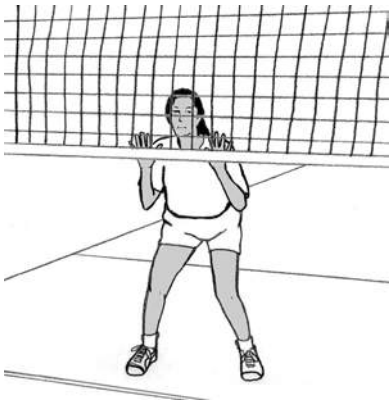


Fig. 4-41 Blocking

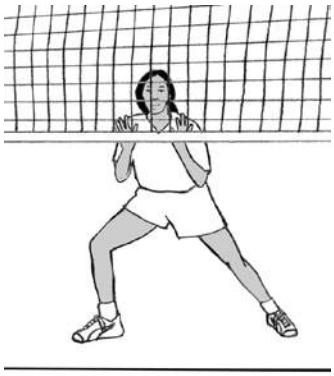


Fig. 4-42 Blocking

Fig. 4-43 Blocking

The hands are extended by pushing the heels of the hands over, not the fingertips! (Fig. 4-44, 45)

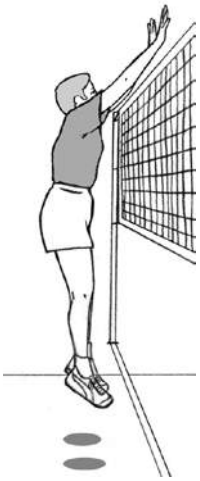


Fig. 4-44 Blocking

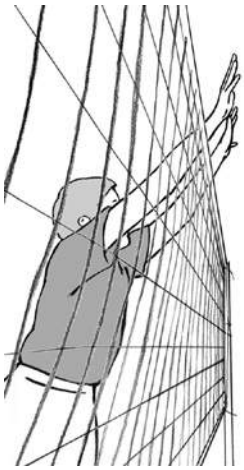


Fig. 4-45 Blocking

It is important for the blocker to jump and land from the same space on the court. The blocker should not be flying from one place to another.

PROBLEMS/SOLUTIONS

The athlete is too small or doesn't jump well enough to get his/her hands over the net:

1. If the athlete can barely get the hands to the net, let him/her feel what blocking is by having him/her control block (wrists are flexed back).
2. Lower the net slightly if possible, to give the athletes the feel of blocking.

The athlete keeps netting:

1. Ask the athlete to block jump while seeing the back of his/her hands the entire time. This will keep the hands in front of the blocker, not allowing him/her to reach up and then over the net.
2. Show the athlete the action of jumping up and shooting the arms from the ready position, over the net. If the coach is able to hold a ball up on top of the net, have the blocker practice jumping and blocking the held ball without netting.

KEY WORDS FOR HELPING THE BLOCKER

Coiled (Be in ready position with the knees bent and the arms and hands in front of the body.)

Watch (Watch the set and the hitter.)

Front (Get in front of the hitter.)

Extend (Extend the legs and arms with the arms reaching over the net.)

Press (Press the heels of the hands over the net to the ball.)

Seal (As the arms extend over the net, have minimal space between the arms and the net.)

DRILLS

1. **Partner Blocking**: Facing each other across the net, one athlete is the hitter and the other is the blocker. The hitter practices the approach for spiking, and the blocker works to step in front of him/her and blocks. The hitter may attack in different places on the net to move the blocker.
2. **Follow**: Two blockers face each other at the net. One is the leader and the other follows trying to block wherever the leader blocks.
3. **Coach Hitting**: One athlete is across from the coach. The coach stands and hits the ball just over the top of the net for the athlete to block. As the athlete gets better, the coach can hit slightly to each side of the blocker to move him/her.
4. **Two Person Blocking**: Like Coach Hitting but two blockers working together to block the coach. One blocker starts in the middle of the net, and the outside blocker is one arm's length from the sideline.
5. **Coach Tossing**: Coach tosses for hitters to hit into the block (one or two blockers).

Digging

Digging is when a hard driven ball (usually a spike) is played up. It can be done with any part of the body but is best controlled with two arms playing the ball up in an underhand passing fashion.

RULES

The defender can "double" contact any hard driven ball. (See "Underhand Passing" for this rule.) On the beach, a legal overhand dig can be almost a catch and throw by the digger. The outdoor player can play the ball up in almost any way possible. Both indoors and outdoors, the use of the legs and feet are legal except in high school.

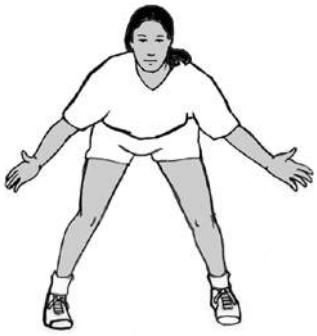


Fig. 4-46 Ready Position

TECHNIQUE

The digger starts in ready position. (Fig. 4-46) He/she should be low with the feet a comfortable distance apart and be able to touch the floor without bending at the waist. Arms are out and away from the body with the thumbs up.

Reading and Watching Sequence

As the opponent plays the ball, the defender should expect the ball to come over at any moment. If the opponent's spiker is about to attack the ball, the defender should be reading the attack's approach (watching the angle of approach). The defender should also watch the shoulder (which way it is facing) and the arm swing. Should the hitter stop the arm midswing, the hitter may be tipping the ball. (Fig. 47, 48, 49)

Fig. 4-47 Off Blocker Footwork

Fig. 4-48 Off Blocker Footwork

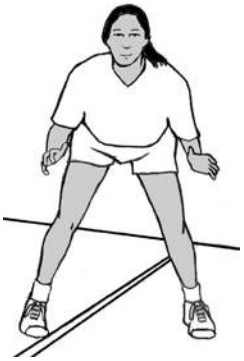


Fig. 4-49 Off Blocker Footwork

The digger should line up with the hitter's approach, shoulder and arm swing. Next the digger should stop any lateral motion and have his/her body weight forward on the balls of the feet with the knees in front of the toes. The digger should then form his/her platform by putting the hands together with the arms straight. (Fig. 4-50)

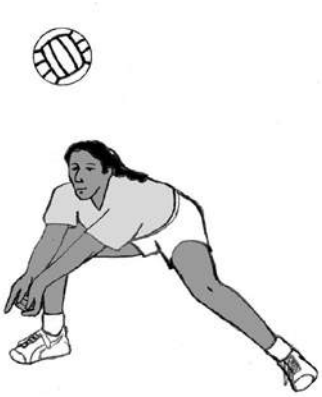


Fig. 4-50 Digging

Ideally, the ball is played at the midline of the body with two arms. Often the digger is trying to get any touch possible and may end up playing the ball with one arm. No matter how many arms are used, the digger should stay low to the ground and use the angle of the arms, not arm swing, to control where the ball will be dug. Should the arms be too close to the body, the dug ball will be directed straightforward and not up.

KEYWORDS

Read (Watch what the attack is doing with the approach, etc.)

Stop Lateral Motion (Stop moving sideways and change to forward momentum.)

Weight Forward (Keep the body weight leaning forward, on the balls of the feet.)

Hands In Peripheral Vision (Keep the hands where they are seen in the peripheral vision while watching the hitter. This allows for quicker reactions to play a ball coming high or low at the digger.)

Two Hands (Try to play the ball with two arms, not just one arm or hand.)

Up, Not Over (Dig the ball up on your side of the court, not over to the opponent's. This may mean adjusting the angle of the arms.)

PROBLEMS/SOLUTIONS

Digger cannot control where the ball is dug:

1. Make sure the digger forms the platform out and away from the body. The arms must be flat with the wrists pointed down.
2. Check to see that the digger is digging the ball on the forearms, not on the hands. It is harder to control the ball with the bones of the hands than the flat forearms.

The digger does not move to where the ball is being hit:

1. All of volleyball is about getting to where the ball is going. Have the digger run down tosses by the coach. Let them catch the tosses at first.
2. Next have them read and dig easy floor spikes by the coach.

The digger has a hard time moving to the ball in front of him/her:

1. Check to make sure the body weight is forward and as the hitter is about to attack, the digger should step forward.
2. The coach can run a controlled digging drill where the hitter can tip or hit. The digger has to learn to see and read the hit versus the tip and needs to move forward to play the tip up.

Fig. 4-51 Overhand Digging

Overhand Digging

Overhand digging is used for any hard driven ball shoulder height or higher. Indoors an overhand dig can be with one or two hands. If two hands are used, they must be connected in some fashion otherwise; the referee may call the digger for a "double contact." (Fig. 4-51, 52)

Fig. 4-52 Overhand Digging

On the beach almost any dig is allowed. A beach dig can be a sloppy dig that almost rests in the digger's hands. Overhand digging is common in doubles play since two players must cover the entire court.

Just like the underhand digging described above, the athlete should be in ready position with the hand in the peripheral vision. The arms and hands drop low or rise high depending on the height the ball is traveling. Ideally, the ball is played in the middle of the body. For the overhand dig, it may be chest height or higher.(Fig. 4-53)

Fig. 4-53 Overhand Digging

To overhand dig, the hands are brought up with the thumbs back and the hands open wide and as big as possible. To overhand dig with the hands interlaced, the hands are joined by crossing the thumbs over the back of the palms and the fingers of one hand behind the fingers of the other. If the overhand digger is going to "beach dig" the ball, then the hands are not joined but held firm to almost set the ball up. The difference between a set and a beach dig is that the beach dig requires the hands to be firmer than when setting. The digger must follow through up towards the desired target.

PROBLEMS/SOLUTIONS

The dig keeps going backwards behind the digger:

Any time the ball goes backwards on an overhead dig, the digger has brought his/her hands up late. The hands must be up and follow through up and forward.

The digger keeps playing the ball on one side of the body and/or with one hand:

1. In all of volleyball the feet must be moved to play the ball. The digger needs to move his/her feet to get the ball in midline of the body.
2. Have the digger practice playing up balls that are thrown at the face at a medium to slow speed. Let the digger feel what it is like to step behind the ball and play it up.

DRILLS FOR OVERHAND AND UNDERHAND DIGGING

1. **Reaction Drill 1**: One partner (thrower) holds the ball overhead with two hands. (Make sure he/she does this! It makes a difference for this drill!) The other partner is in ready position about four steps away from the thrower. The thrower throws the ball to either side of the passer, or in front of him/her, to make him/her take a step to pass the ball. *The thrower should just flex the wrists forward to throw the ball*, not pull his/her arms down.
2. **Reaction Drill 2**: Same as above except the passer starts in ready position with his/her eyes closed. The thrower says, "Go!" before throwing the ball. Upon hearing "Go!" the passer opens his/her eyes and reacts to where the ball is going by taking a step to the ball and then passing it.
3. **Reaction Drill 3**: Same as Reaction Drill 1 except the passer is turned around with his/her back to the thrower. Upon hearing "Go!" the passer turns around and reacts to where the ball is going by stepping to the ball.
4. **Reaction Drill 4**: Same as Reaction Drill 1 but the two players are much closer. The thrower is only two to three steps from the passer. This shortens the reaction time of the passer.
5. **Reaction Off Of Wall**: One player (digger) faces the wall about 15 feet back. The other player (tosser) stands behind the digger about five feet. The tosser says, "Go!" and then throws the ball at the wall, about nine- to 10-feet high on the wall. The digger reacts to the ball bouncing off of the wall and digs it up.
6. **Pepper**: Pepper requires two players and one ball. It is basically pass-set-hit over and over. One player passes the ball to the other. That player sets the ball back. Then the first player hits the ball for the other to dig up. The hitter then sets the ball up and the other player hits it at his/her partner. This continues on and on if the pair are able to keep the ball in play.
7. **Russian Pepper**: Like Pepper described above but with a third person that sets the ball back to whoever dug it. Basically, two players (hitter/diggers) are facing each other about 15 feet apart. The drill begins with one hitter/digger tossing the ball to the setter who sets it back. The player who gets the set hits it at the player facing him/her. That player digs it up to the setter. The setter sets it back to the digger and then the digger hits it at the other digger.
8. **Brazilian Pepper**: In Brazilian Pepper the middle person is the digger and the outer players are the setter/hitters. The middle person digs the ball back to who

ever hit it at him/her. That player sets the ball across to the other setter/hitter.

9. **Figure 8**: This drill can be done with as few as three players or as many as seven. The athletes in the drill line-up at the end line off of the court. The first player steps into the court about five feet. The coach is standing at the net in the middle of the court. The coach alternates tossing or hitting balls to the left and right. The players enter the middle back position and shuffle step or use cross over footwork to get to the ball. The athletes should be low as they move, keeping their center of gravity low like in ready position. If the coach is hitting, the digger should read the coach's arm swing and get in line with the ball. (This drill can be modified by having two coaches positioned at the left and right at the net. These coaches toss or hit the ball straight down the line.)
10. **Over the Net Russian Pepper**: Just like the drill described above but the hitter/diggers are across the net from each other. The setter must go back and forth under the net to play the ball. This can be done in fours with two players as setters for each of the hitter/diggers.
11. **Singles/Doubles One Contact**: Like tennis this drill involves only one contact per side. This drill encourages the athletes to look for openings in the opponent's court and makes them move to get to the ball. The teams can be changed every play (like with King-of-the-Court or play for points – rally or regular). The serve should be easy or even just a toss over the net to start the play.
12. **King-of-the-Court**: This drill can be used for all aspects of the game. Most players love this game! The game begins with the "Challengers' side" serving over to the "Kings'/Winners' side". There is only one rally to determine who will stay on the court. Which ever side wins goes to (or stays on) the "Kings/Winners' side." The loser of the rally should shag the ball. This game can be played with lots of variations: No jumping; jumping from behind the 10-foot line only, with twos, threes or more players, no serving, but coach tosses the ball in, etc.

Emergency Techniques

DEFENSIVE ROLLING

Defensive rolling is a move that causes excitement for both players and spectators. Usually used in conjunction with defensive passing or "digging", rolling is considered a "finish" move. It is important that players understand this.

When on defense, the defenders must be in a defensive position ready to move their bodies in an efficient manner to prevent an attacked ball from hitting the floor within the court. A player may be required to run down or shuttle to the attacked ball. However, a ball may be hit outside the comfortable reach of a player so he/she will be

required to extend their body to attempt to make a touch on the ball to prevent a kill or point for the opponent.

Rolling is a very difficult emergency move for players to make. With much practice, the player will be more comfortable with putting his/her body out of balance and recover into balance.

Technique

Rolling should occur at the end of a defensive move performed by the player. The purpose of this move is to prevent injury while a player may be moving at tremendous rates toward the floor and to allow a defender to play the ball low to the ground. Rolling moves closely resemble recovery moves made in many martial arts.

As a player is extending his/her body to make the very last possible move to prevent the ball from hitting the floor, the player's forward momentum will create an unbalanced state. The inexperienced player will force and manipulate his/her body in such a way to prevent falling to the floor. An experienced and trained player will manipulate his/her body in such a way that will utilize momentum to hit the floor and recover back into a defensive position.

Stepping towards the ball, the player will be required to shift weight out of balance and over the feet. This will create the falling motion. As the player is falling toward the floor, arms should be outstretched in attempt to play the ball. As the player's hand nears the floor, the knee of the coordinating hand will also be nearing the floor. It is important that the knee be rotated in such a way that the outside portion, not the kneecap, of the knee hit the floor to facilitate a sliding motion. At this point, the player's thigh, then hip, should be absorbing the falling weight. The player will then be required to move his/her body as if rolling out of bed. That is, the athlete will roll onto his/her back and then turn over onto the hands and knees. At this point, the player should be bending the legs to ready the body to use the hands and toes to quickly push up onto the feet, ready to make the next play.

Learning Progression

Practice just the first half of the roll:

From ready position have the athlete step forward and extend both arms, as if playing a ball underhand. As he/she steps forward the step should be long and cause the ath-

lete's hips to lower towards the ground. As he/she extends forward to play the ball the torso should be over the front leg and the arms still extending out and down. Have the athlete work on the landing and only go onto his/her side of the torso.

After they feel confident in going for the ball and landing on their side, work on the recovery or rolling over and getting up.

Key Points

As the defender goes onto his/her side, the leg on the side that the player rolled to should bend as the athlete rolls onto the front of his/her body. The toe and knee of that leg dig into the floor to help the defender get up quickly.

DIVING

Diving is also a spectacular defensive move. It should be used as an emergency technique. This is when a defender cannot get to the ball with a step or two, but must extend his/her body in the air and make a play for the ball. The dive is actually the finish to the play on the ball. The dive is the landing that the defender makes after contacting the ball.

Technique

From the defensive ready position the defender steps to the direction the ball is falling. The last step to the ball is done with a bent knee, causing the body to be low to the ground. From this last step the defender pushes off of the floor to propel his/her body towards the ball. The body should be almost low to the ground already so there is not a lot of height between the body and the floor. As the athlete extends to the ball his/her body should be horizontal to the ground.

The defender should try to play the ball with two hands if possible. After the contact on the ball has been made, then the defender should extend his/her arms to the floor. ***It is vital that the diver keeps his/her chin up!!!!! The chin can easily split if it hits the floor!***

The arms help absorb the momentum as the body is lowered. The chin should be lifted up! The chest should be lifted and the back slightly arched. The first contact point of the torso should be on the upper chest, then the rest of the torso touches down.

The knees should be bent. The thighs touch down last as the arms pull through.

LEARNING PROGRESSION

Have the athletes begin on their knees. Toss a ball near them so that they can move one knee towards the ball, then play the ball up, then slowly absorb their landing.

Next have the athletes start with both hands on the floor and one leg in the air. A partner holds the leg in the air. The diver pushes off of the foot on the floor and slowly lowers his/her body down. The partner holding the leg helps the diver to lower slowly. ***KEEP THE CHIN UP!***

After athletes feel comfortable trying to dive with help, let them try it on their own without a ball. Lastly, try tossing a ball one step away from them. Let them try to dive for it. Keep reminding them to keep their chin up.

Problems/Solutions

The diver keeps hitting his/her hips:

1. Make sure that the diver is slightly arching his/her back as he/she lands.
2. Check to see what is the first part of the body to hit the floor. (It should be the chest.)

The dive keeps banging his/her toes:

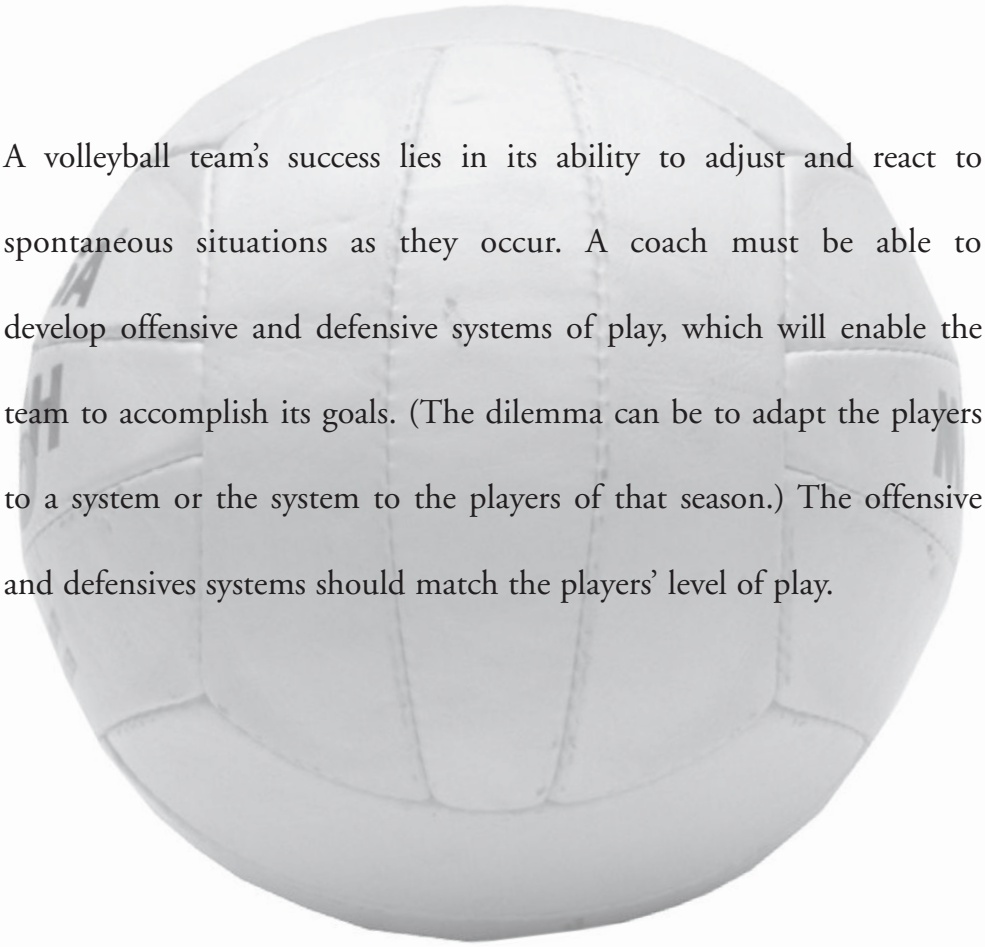
Check to see that he/she is bending the knees once the feet leave the floor.

The diver is getting stuck on his/her chest:

This happens when the diver tries to dive straight down, not forward and down. Remind the diver that he/she should land like an airplane. The last step lowers the hips so that there isn't much distance to the floor.

CHAPTER 5

Team Systems



A volleyball team's success lies in its ability to adjust and react to spontaneous situations as they occur. A coach must be able to develop offensive and defensive systems of play, which will enable the team to accomplish its goals. (The dilemma can be to adapt the players to a system or the system to the players of that season.) The offensive and defensives systems should match the players' level of play.

Principles

- Develop offensive and defensive systems that are appropriate to the level of play and athletes' abilities.
- A chosen system should expose the team's strengths while camouflaging its weaknesses.
- The systems of play should be easy to practice. The time required to learn a system should fit into the seasonal schedule and time allotted to train.
- Each playing system should be accompanied by a consistent communication system. The most efficient words only have one syllable.
- The playing systems should incorporate tactical flexibility. The team should be able to adjust to opponents and game or match situations that arise.
- Most importantly, the system you develop should enable the team to enjoy the game.

General Rules of Serve Receive: Overlap

It is important to remember the two rules regarding overlapping when you are designing your team serve receive. An overlap is determined by the placement of the foot on the floor, prior to the server contacting the ball. The penalty for overlapping is a point or side out.

OVERLAP RULES

1. A back-row player may *not* be in front of the player directly in front of him or her. For example, a middle back player cannot be closer to the net than the middle front player. (Fig. 5-1)
2. In the same row, a player may *not* be on the other side of a player to each side of him or her. For example, a middle-front player cannot be closer to the left sideline than the left front.

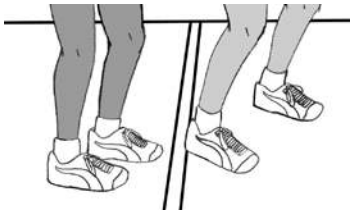


Fig. 5-1 Overlap

These rules pertain to both the team serving and the team receiving the serve. Players must be in their correct positions (with regard to service order and front and back row) before the server contacts the ball. Once the ball is served, players may switch positions and places on the court.

TEN-FOOT/THREE-METER LINE

The 10-foot/three-meter line is marked on the court to determine where a back-row player may jump and attack the ball over the net. The purpose of this line is to limit

how many attackers may spike the ball at the net. Back-row attacking is legal but the back-row player must jump from behind the line. No part of the foot may touch the line. The attacker may land in the 10-foot/three-meter area.

Offense

There are many types of offenses that a team can employ. Some common terms to describe offenses include the 4-2, the 6-2 and the 5-1. While this may seem confusing, these terms simply indicate the number of hitters and setters on the court at one time. The first number refers to the number of hitters and the second to the number of setters. For example, a 4-2 offense has four hitters and two setters. In this offense there are two hitters and one setter in the front court at all times. Because of its simplicity, this offense is often used with beginning players.

A 6-2 offense includes six hitters and two setters, allowing the setters to hit when in the front row. This is made possible by the setter coming from the back row. Having three front-row hitters allows the team to have a more complex offense, including front and back sets.

The 5-1 is a combination of a 6-2 and a 4-2, but it only has one setter who sets whether in front court or back. This allows the hitters more consistent setting and enables the team to run a more varied offense. Most advanced teams use this offense. All offenses have their team pass to the right of the center at the net and have the setter run the offense from this position.

SETTERS TO THE RIGHT SIDE OF THE COURT!

In the 5-1, 6-2 and most 4-2 offenses the setter switches to the right side of the court after the team has attacked the ball over the net. If the setter is in the backcourt, the setter switches to the right-back position. The reason behind this concept deals with the fact that most players are right-handed. Having the ball set from the right to a right-handed hitter is favored over the opposite. The ball does not cross the hitter's body before he/she will hit it. This is especially true for the quick (1s, 31s, etc.) attack.

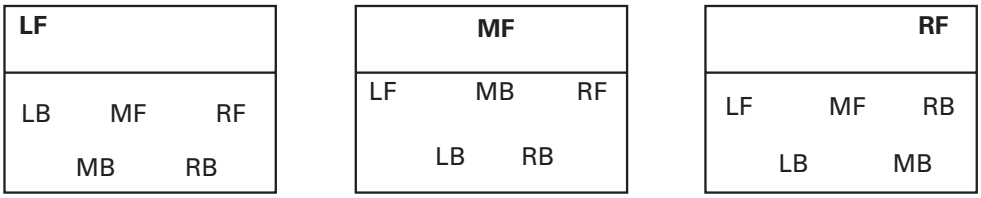
When a team is serving, the setter switches to the right front or back as soon as the server contacts the ball. Having the setter in this position also provides the shortest

distance to the area that the team is trying to pass the ball: right of the center of the net, a few feet/1/2 meter off of the net. Should the setter dig the ball up on the first contact, the second setter is also on the right side (front or back) of the court. The second setter steps in and sets the ball for the hitters.

Each time a team plays the ball, after covering the hitter, the setter returns to the right side of the court. Once the rally has ended, the setter must return to his/her correct place in the rotation and the rules regarding overlap must be obeyed. When the team is serving, the players prepare to switch positions after the ball is served. The setter will switch into the right front or back, the middle hitter will switch to the middle-front position, the defensive specialist will switch to the middle-back, etc.

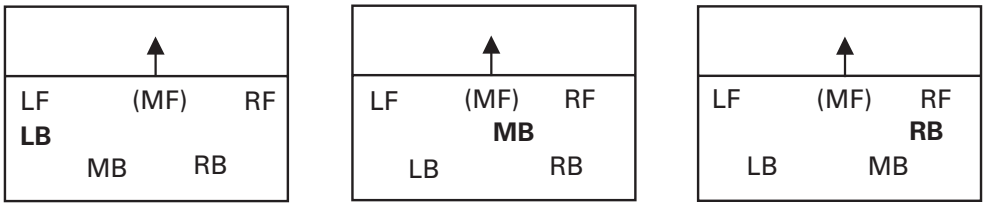
SERVE RECEIVE

When receiving the serve, the coach needs to decide how many passers to utilize in the serve receive pattern. A beginning team will usually have four or five players in the serve receive and use a 4-2 offense. If the team uses the "W" receive (five players), the court is covered. No player needs to move very far to receive the ball. The disadvantages of a five-person serve receive is that a team seldom has five equally competent passers.



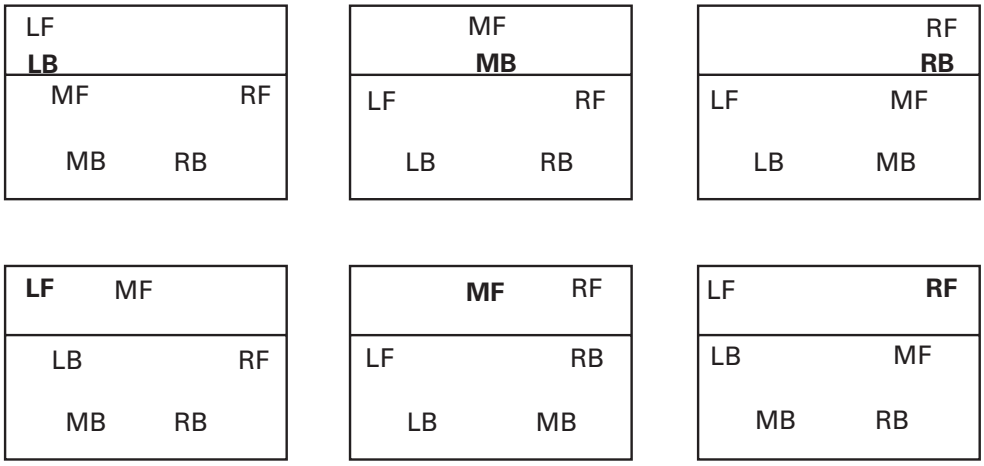
"W" Serve Receive Formation with the setter (in bold) in the left, middle and right front.

In a 6-2 offense, the setter will always come out of the back row. With this more complex offense, most coaches employ a serve receive with less than five players.



Five-Person Serve Receive (or Four-Person if the MF moves up to the net) with the setter (in bold) coming from the left, middle and right back positions.

In a 5-1 offense, the setter will switch to the right front (setter's position) from every position on the court. If the coach wants to get the setter out of the way of the serve receive pattern and provide the shortest distance to his or her offensive position, then the team will use a four-person serve receive (or less) when the setter is coming from back-row positions. There is still the option of having a five-person serve receive when the setter is coming from the front row.



5-1 Offense with the setter (in bold) and a four-person serve receive.

Team Defensive Systems

The purpose of team defenses is to transition the opponent's offensive attack into your offensive score. By doing this you are preventing the opponent from scoring a point and/or scoring yourself!

The first part of a defensive system is the block. Blocking schemes will vary and will depend on the height of your players, the opponent's ability to hit at the net, down balls, the setter dumps and the back-row attack. Questions to look at are how tall are your players? How tall are your opponents? Will we double block or triple block? Will we block the down ball or back-row attack?

When you have answered these questions you will put together a blocking scheme and work on individual techniques to set the block.

KEYS TO THE BLOCK

- Players must learn to identify their front-row hitters and communicate where they are going.
- The entire team must understand how to defend every possible individual attack the on ball. The attack and your personnel will dictate the blocking scheme.
- Communicating where hitters are going is critical.
- Angles, penetration of the net, and the soft block will help the floor defensive scheme.
- Efficient movement along the net and jumping.
- Players that don't block must play floor defense.
- The block should funnel the ball to the floor defensive player if the ball is not hit into the block. The block can score points but is not an attack.
- The block has a defensive assignment to protect part of the court. Even if the block does not touch the ball but prevented the hitter from hitting into its' assigned area, then the block has done its job.

ONE-BLOCKER TEAM DEFENSE SYSTEM

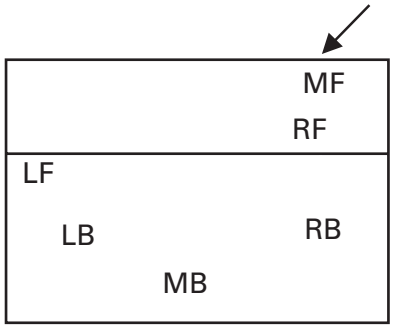
Advantages

1. This is the simplest defense and therefore the easiest to teach.
2. The blocker does not have to coordinate his/her timing with another player.
3. The one-blocker system is effective against any team that tips and hits off-speed.
4. It is also easier to transition to offense.
5. It limits the number of players who would be required to block, taking the pressure off of some of your weaker blockers.

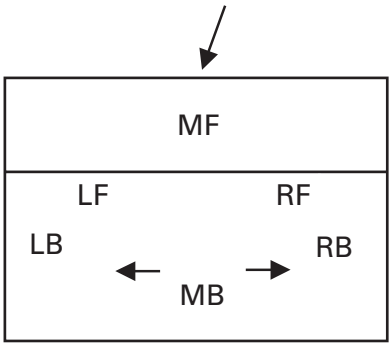
Disadvantages

1. A good serve-receive team will be able to take advantage of one blocker.
2. There will be more area to cover on the court because a single blocker does not protect a large zone on the net.

Blocking against a left-side attack ("Block Right"):



One Blocker: The blocker protects against the cross-court attack. The left front hitter takes cross-court at the 10-foot line, while the left back takes deep cross-court angle playing just to the right of the blocker and the right back takes deep line. Right front covers tip. Blocking a right-side attack ("Block Left") would be the mirror image.



Blocker Middle Attack ("Block Middle"): Blocker blocks straight on. Left front takes short angle, while left back takes deep angle. Right front covers tips, while right back takes angle. The middle back moves to the side of attack. Usually an attacker will hit in the line of his/her approach.

TWO BLOCKERS WITH MIDDLE BACK DEEP

Advantages

1. This system is strong against a good passing and strong hitting team.
2. It allows for transition to quick plays.
3. The third front row player can get the tips as well as any backcourt player who reads the play.

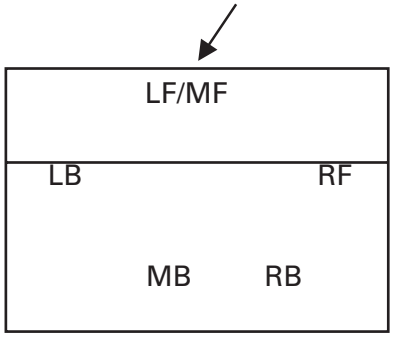
Disadvantages

1. It is based on reaction and slower teams have trouble getting into position quick enough.
2. It is susceptible to tips and off-speed shots.

The two blockers must work in unison and create a "wall" which the rest of the defense plays around. The block must protect a zone in both the front and backcourt.

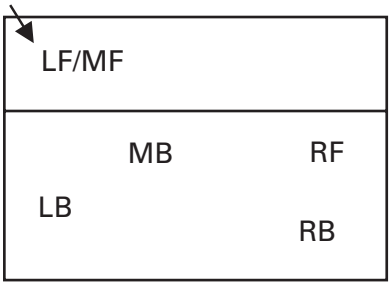
The block's first priority is to protect an assigned area of the court. The defensive specialist must be able to read and move quickly in backcourt to cover missed blocks.

Two blockers versus a left-sided attack ("Block Right"): Middle and right front block the hitter. Left front comes off the net towards the 10-foot line to take the short angle and cross-court tip. Left back lines up on the left of the middle blocker in back court. Middle back lines up between the blockers (the seam), three feet inside the back line. Left front and the right back are responsible for short tips.



Two blockers versus a middle attack ("Block Middle"): The middle and the stronger of the two front row players form the block. The left back and right front (if not blocking) are on the 10-foot line, near the sidelines. The middle back and right back are about three feet from the back line and inside of the front defensive players. The entire floor defense forms a horseshoe shape and should be able to see the attacker at all times.

Middle Back Up Defense



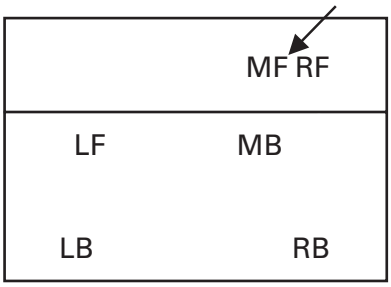
"Block Left" with the Middle Back Up

Advantages

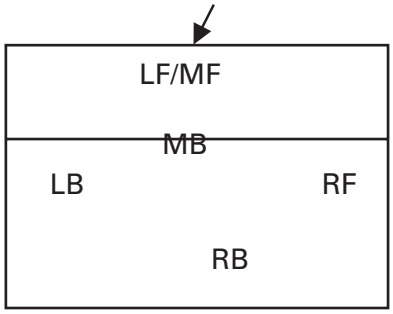
1. This system is strong against the tip and off-speed hits.
2. Transition to offense is relatively simple.
3. It works against a good attacking team.

Disadvantages

1. If the block does not successfully take care of the hit, then the player playing short middle may get hit on his/her upper body.
2. The deep middle area of the court is vulnerable.
3. The block must be consistent or the backcourt opens up and becomes vulnerable.
4. There is more pressure on the wing (line) diggers.



"Block Right" with Middle Back Up: Right and middle front block a fairly sharp cross-court angle, giving the hitter line. Left front drops back behind the 10-foot line and takes cross-court. Middle back plays up at the 10-foot line, behind the blockers. Right back plays inside the sideline and deep.



"Block Middle": Left- (or right-) and middle-front players block. Middle back plays up at the 10-foot line, behind the blockers. Left back and right front play near the sidelines and about the 15-foot line, while the right back plays deep, near the middle of the court. The backcourt players must take their cues from the blockers. If the blockers fail to get to their position, they not only weaken the defense, but also in some cases leave another player open to injury.

Team Strategies

To be able to come up with a team strategy, a coach has to evaluate the players as a team and as individuals. One type of team would be when you have one or two strong players with support players. With this team you would need to design offenses and defenses that use their talents while incorporating the other team members' skills as well.

Examples:

1. A team has two great passers. Create a two-person serve receive, so they pass 90% of the serves. With consistent passes you can set-up a more complicated offense and give opportunities to more positions to hit.
2. A team has two strong hitters. Split them up and feed the ball to each when in front row. Make sure you set other players or set them in different locations, so the blockers do not "camp out" in front of your best hitter.
3. Everyone is about the same height, talent and experience. On this team it would be good to develop multiple offensive plays so keep the other teams off balance. Work on defense so nothing touches the floor without someone "going after it". Serving and digging will be the best weapons.

The next part of a defensive system is the floor defense. There are several different defensive floor schemes: the player-back (read defense), rotation defense (line digger behind the block comes up to play up any tips), and player-up defense (as described above with the middle back player up). The rules regarding the first contact should

be considered in the defensive scheme. High school rules allow double contact on a hard driven ball, but no finger action. In college, club and international competitions any type of double contact is permissible on any first ball. The players that play club and high school have difficulty with this rule, however the defensive scheme can help alleviate this a little. The player-back (read defense) is probably the best, as the formations will adjust to the attack. The rotation and player-up defenses will help pick up balls more easily with teams that do not hit the ball hard.

KEYS TO THE FLOOR DEFENSE

- The block will dictate the placement of the defensive players. With a good solid block there are tip and off-the-blocker responsibilities. If there is a hole in the block an assigned player must cover the hole for a spike.
- All players must see the same thing and communicate so that the defense covers all possible attacks including free balls, first or second balls.
- Players must be able to see the ball at all times and get into defensive position as quickly as possible.
- There must be traffic rules on the court for all balls to create the least amount of confusion and provide for the athletes' safety.

All defensive schemes should fit your personnel. You need to maximize your players' potential. Be sure to look around your school, as there are often players out there that think they would not make the team. Look for the tallest students on campus!

Team Transition: Free Ball

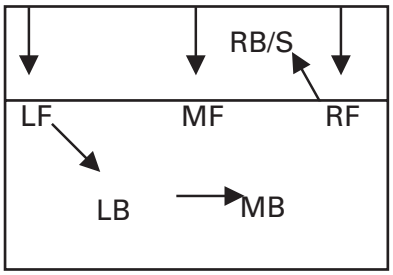
Every successful team must effectively transition from defense to offense. Being able to successfully receive a ball from the opponent and return it for a point or side out is an example of transitioning. When on defense, a team should expect an opponent to strategically attack the ball with an overhand attack or tip. If the opponent is not able to attack the ball on the third contact then the opponent may play the ball over the net with an overhand or underhand pass that has a high trajectory and slow velocity. This is referred to as a "free ball". When a team receives a "free ball" it is expected that the ball will be returned for a point or side out.

From the base defensive positions, players must transition quickly to positions on the court in order to receive the free ball in a well-balanced manner. Players on the net should reposition themselves on the 10-foot line (except for a the setter if he/she is

front row) while the back-row players slide in the slots to form a "W" pattern. The reason for this formation is to eliminate the time required for front row players to transition to offense. If the setter was in the backcourt, he/she should release from the base defense position and go to the right of the center of the court, at the net. This is the target for all passes.

From the "W" formation, the opportunity to run simple to complex offenses increases. Teams should always create standard free ball plays for every rotation.

BASE DEFENSE POSITIONS



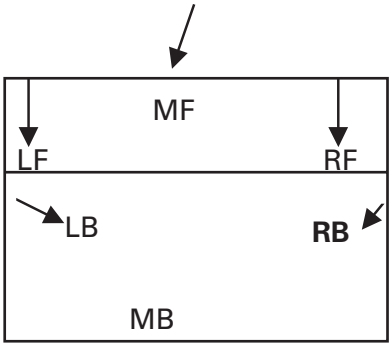
TRANSITION TO FREE BALL
(Setter came from the right back)

Team Transition: Down Ball

A "down ball" is generally defined as a ball that is attacked with a standing spike. It is an attacked ball that travels faster than a free ball and has a flatter trajectory. Coaches must decide if they want their middle blockers to block a down ball. If they decide to not have the middle blocker block, then the middle blocker must be taught to pull off the net slightly to play up any tips or balls deflected off of the net. If the middle blocker pulls off too far, then sometimes he/she will get in the way of the defenders behind him/her.

Another difference between how a team will defend a "down ball" and a "free ball" deals with the setter. If the setter is in the backcourt, the setter does not release from his/her defensive position before the ball is hit. He/she must stay in position until he/she is sure the ball is not coming to the right back section of the court. The setter must play defense first! Then he/she can release to set the ball. Should the setter defend the ball, then the right front player should take the second contact and set an attacker.

BASE DEFENSE POSITIONS



TRANSITION TO DOWN BALL
(Setter stays from the right back)

Team Transition: Communication

Teams must learn to communication often and well. When a team sees that the opponent is going to send a free ball over the net, then the entire team should yell "free ball!" This lets the setter know that it is safe to release from his/her defensive position as the middle back will slide over to the right and cover the back right half of the court. The middle back knows that the left back will slide over and help cover the middle of the deep court. The entire team knows that there won't be any blockers up at the net, but instead they will all pull off of the net and help pass the free ball. All of this begins with the team identifying and calling out "free ball!"

When a team sees a down ball coming at them they should yell "Down ball!" This tells the left front and right front to pull off of the net and cover for tips and balls deflected off of the net or the middle blocker. It makes the right front aware of the possibility that he/she may have to step in and set the second ball. Teams that communicate "down ball" or "free ball" quickly will change their defenses accordingly and play great defense.

Position Specific Roles

On almost every level of organized volleyball, players are assigned rolls and have specific positions that they play. Players will have specific assignments for the front and back row. At the lowest level of play setters are designated in the front row. Positions include setters, outside hitters (rightside or leftside), middle hitters and liberos.

Setters

Setters are responsible for every second ball on their team. They must call for help should they not be able to get to the ball. Their job is to give the ball to a hitter so that the hitter can put it down in the opponent's court. The setter must choose what type of set to set and who should hit it! Setters have a huge impact on the outcome of a match. They are offered referred to as the "quarterback" or "point guard" of the team as they are running the offense. Your setters must be confident in their abilities and willing to take direction from the coaching staff. They should be your best or one of your best athletes.

Your setters must be quick to the ball and have a good contact when setting. They must be in good shape as they can end up running a lot if your team doesn't pass well! Setters need specific training to work on the trajectory, consistency and speed of their sets.

Left–side hitter

The left-side or out side hitter is the most utilized offensive weapon in all but the most sophisticated volleyball programs. The left-side hitter must be ready and willing to take that role. Here are some attributes that would best suit a left-side hitter.

- A good vertical, enabling the player to "see" openings on the court
- Flexibility to hit to several locations on the court
- Be the "go to" player in a tight situation and be able to hit from anywhere on the court
- Lead by action and words on and off of the court
- Be able to get off the net quickly either to hit or to cover short behind the middle blocker
- Be able to set the block on the opponent's right-side hitter and close the block for a double block in middle

Right–side hitter

The right-side hitter needs to have more varied skills at his/her disposal than any other player on the court. Depending on the play, he/she may be a hitter, setter or blocker.

- Right-side hitter should be able to hit both line and angle.
- If the setter takes the first ball or it is a broken play, the right-side hitter becomes the setter, taking the second ball.
- The right-side hitter will need to defend against most of the other team's attacks

and should be the best blocker on the team, being to set the block against the other team's strongest attacker and being able to close the block in the middle.

Middle Blocker/Hitter

Coaches often chose their tallest players to be their middle blockers. Often times this is a good choice, but not always as the middle hitter/blocker is involved on every offensive and defensive play. If the middle is able to be up for the quick attack and get outside to block, then this is a good choice. At minimum, the middle blocker/hitter should be able to move laterally along the net with control.

The middle blocker is the key to good team defense. If he/she can close the block then the team can control the opponent's hitter. The middle blocker has to work to get outside even if he/she thinks he/she is late.

The middle hitter should be able to hit a variety of sets including quick sets (1's, 3's, 11's) as well as slides. The middle attacker is a vital part of the team offense as he/she can draw the other team's middle blocker (make the opponent's middle blocker hesitate with him/her on the quick) and thus cause a one blocker on your hitter situation. That's the goal: to get one or no blockers on your hitters.

THE ROLE OF THE LIBERO

The position of "libero" was established first internationally in an attempt to make the game more exciting by increasing rallies. It allows a great defensive player and/or passer to be on the court for almost every play. The position of libero is becoming more and more critical to a team's performance and has definitely elevated the importance of the defensive specialist and their skills. It also allows more participation opportunities by giving seven rather than six players court-time.

The libero can replace any back row player, except the server, without it counting against the team's allotted number of substitutions. The libero enters and exits through the sideline between the ten-foot line and the end line. The libero must wear a jersey of contrasting color from that of teammates, and is not allowed to hit, block, serve or set overhand in front of the ten-foot line. NCAA rules allow the libero to serve in one rotation.

The job description for the libero includes serve receive, attack reception, as well as being a spark plug for the team. The libero must come off bench with lots of confidence and energy and maintain this throughout the match. His/her role includes

being the leader of the back row, being communicative, being aggressive to pass the majority of balls on serve reception and go after balls on defense. The libero must be mentally tough. It is a high stress position because essentially there is no sub for this position. It is hard to find someone who has all these qualities so your selection of the libero will be based on which skills are most beneficial for your situation.

TACTICS/PHILOSOPHY

The biggest way to impact the game is through accurate serve receive. Therefore, if the libero is a good passer he/she should be positioned to receive the most balls, which in a three-player pass formation is in the middle whenever the rotation permits it.

For defense the libero usually plays left back which allows the outside attacker to play middle back and hit out of the back row from the middle of the court. Another popular option is to play the libero in middle back with the idea that good passes create holes in the block and this gives more freedom to move to play these openings. The libero should feel comfortable playing any position in the back row.

The libero generally subs for a middle blocker, but it depends on the dynamics of the team. The libero should take the place of a player who has difficulty passing, playing defense or who cannot hit out of the back row. A great middle blocker with good ball control skills should not automatically be taken out of the back row especially if he/she can score points attacking.

TRAINING

Libero training must be integrated into the regular practice scheme, similar to training "defensive specialists." Any time skills are being worked on with other players the libero and the defensive specialists should be involved. If hitting, the libero is digging, if serving the libero is passing, if blocking the libero is digging behind the block, if the setters are drilling, the libero should be involved as the passer or digger, etc. It is important to train four to five defensive specialists who could fit into the libero position. Be mindful to give the libero pass and defense work without reducing the time other players need to train in these same positions.

The concept of training the libero is similar to training the setter. He/she needs a high volume of repetitions within the practice and possibly extra training before or after the general practice if possible.

Avoid specialized training in youth programs; it limits player development. It is a disservice to the individual player and the game to develop half-players. Train players in all positions regardless of a player's height or ability. Training all skills gives young players the widest range of experience and knowledge of the game that in the long-term help more effectively train a libero.

MATCH

You don't have to use the libero. Avoid automatically replacing taller athletes for smaller ones. Young athletes should learn to play the back row. Consider allowing players to play all-around and/or alternate players in the libero position so they can just focus on backcourt skills.

LIBERO EVALUATION

Make practice like the game, make players responsible for each contact and evaluate players objectively through games and statistics. Each player is evaluated through stats and each game he/she wins.

Serve reception stats: 3,2,1,0

3 = Perfect pass to the target that allows all first, second and third tempo attack options. Equal to a "1" serve.

2 = Good pass that allows second and third tempo options. Equal to a "2"serve.

1 = Poor pass that forces the setter to set with the hands or a forearm set in one direction only, forces another player to step in to set, or forces the receiving team to return the ball with a pass. Equal to a "3"serve.

0 = Reception error that results in the loss of a point. Equal to a service ace, i.e., a "4"serve.

Dig Goals

Dig balls attacked within 3-4' radius of body with no step or one jab step and run down all slower balls. Get ball up and create an opportunity to counter-attack. Make at least one move in the direction of the ball. Never say die attitude, continual hustle, desire and heart.

Dig stats

+ = Dig that permits transition to set for the attack (3 or 2).

0 = Dig that is playable, but cannot be set for the attack (1)

- = Dig error that causes a point or not making an attempt on a playable ball due to poor body or court position or lack of focus.

Team Systems: Final Notes

The amount of success any team has is based on how well they play together and how well they maximize their strengths and minimize their weaknesses. One strong, talented player cannot have a large impact on any team if the team does not play well together. Since no one is allowed to set himself/herself, teamwork is the essential ingredient in the recipe for team play.

Coaches may find that while one player is talented, he/she does not positively affect the team's outcome. Team chemistry is another key element to a good team. Good chemistry is the product of good communication on and off of the court. Players must feel valued and important no matter what role they have on a team.

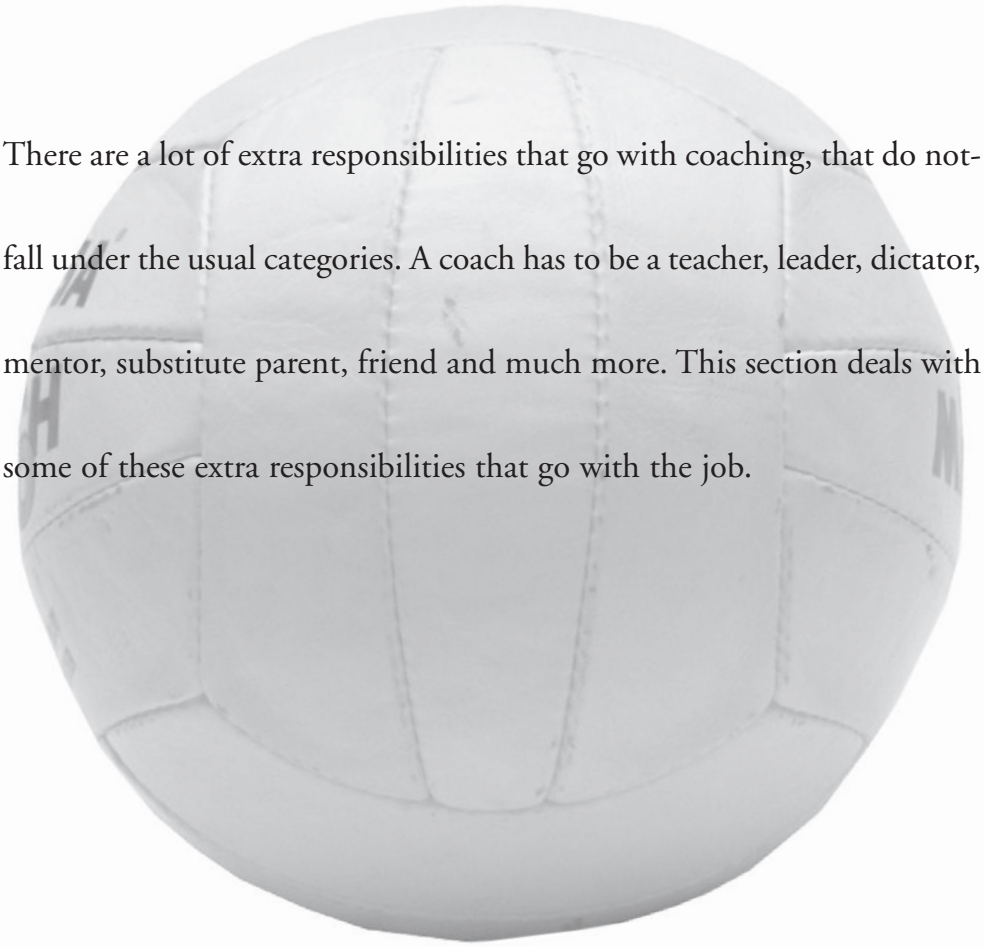
Players must trust each other to do their jobs. If one player runs all over the back-court and takes other players' balls, then no one knows who is going to play the ball. Each player must call the ball and play up any balls in the area he/she is defending. The same is true for the team's setter. Everyone on the floor must be confident that the setter will take all second balls or call for help if needed. The entire team must be sure that if someone calls for a ball, then that player will take the ball.

These concepts are essential for all aspects of team systems. Without trust, acceptance of responsibility, good communication and the willingness to work for the good of the entire team, no team can be successful. While practicing in the gym, try to reinforce these. Set up drills that enable athletes to practice them. Coaches should make sure that they point out any problems that come up in drilling and scrimmaging with communication, trusting one another, etc. Coaches should also point out how these concepts carry over to all aspects of life.

Lastly, coaches should make sure that the entire team experience is a positive one for everyone. Win/loss records should not determine if a team was successful. Set realistic goals and make sure everyone understands and agrees with them. Any team that works together towards the same common goals will improve. Improvement is proof of a successful season.

CHAPTER 6

Coaches' Miscellaneous



There are a lot of extra responsibilities that go with coaching, that do not-fall under the usual categories. A coach has to be a teacher, leader, dictator, mentor, substitute parent, friend and much more. This section deals with some of these extra responsibilities that go with the job.

Being A Role Model

Your athletes will model the way you behave in practice, in matches and off of the court. How you react to a bad call by a ref will dictate how your team will behave. Should you curse, your athletes will too. Whether or not you realize it, your actions are under a microscope and your team is examining them as well as their parents.

No one is perfect and all of us can get angry or frustrated. How you behave when you are feeling this way will influence how your athletes will act. Even during the most heated and competitive match, you are still teaching your athletes how to conduct themselves.

Choosing A Captain

Choosing a captain can be one of the hardest things you do as a coach. It can have a big impact on how your team performs, both on and off of the court. Here are some thoughts that will help you choose the best captain(s) for your own team.

Attributes and Duties

As a coach you need to decide what attributes a captain must have and what duties will be assigned. The captain should be the person to whom players will tell their concerns about the team or coach. The captain should be a person who can communicate with you as the coach. He or she should be able to recognize what is best for the team when unpopular decisions are made by the coach for the good of the team.

- The captain may be responsible for:
    - Getting lines people for the JV and frosh matches
    - Creating the warm-up tape, making sure it is in the gym and the sound equipment is working
    - Checking with the team at games, and especially at tournaments, to see if everyone brought the full and correct uniform
    - Let you know if someone is nursing an undisclosed injury because the player is afraid you will not “let him/her play” if he/she tells you about it
    - Let you know if someone has a crisis in his/her “outside life” regarding a significant other, test grade, or parents, that will affect how he/she plays.

Examples of a Captain's Responsibilities

A starting player has left one of her jerseys at home when coming to a tournament. The teams gets ready to change for playoffs, having been in the same jerseys since 8:00 a.m. and its now 3:00 p.m. Do you involve your captain(s) in this decision? Will they support your decision and convey it to the team with support for the coach?

It is a home match, which requires the head coach to make sure everything runs smoothly. As you go to call to see why the frosh referee has not shown up yet, the JV ref calls for lines people. Can your captain get the required people without others complaining or having to do it herself?

A player has been at sports night with his youth group and fell while roller blading, hurting himself. He does not want you to know because he thinks you will be mad and limit playing time or not let him play at all. His injury will affect his level of performance and possibly injure him further. Can your captain give you the information even though his teammate will be upset with him?

Selection

- When to make the selection: Do you want this captain over summer practice, or use it as a reward to begin season?
- How many captains do you want? Do you have clear leader on the team? Would two feel more comfortable when tough decisions have to be made? Do all players get along equally well with or do some confide in one person better than the other?
- What grade level should he or she be? If you have two, then you may want a senior and a junior captain to communicate with your players.
- Some teams vote on their captains. Only a brave coach allows a team to vote unless the coach knows who is going to win! Remember he or she is your liaison.

Counseling Student-athletes

Athletes often talk with their coaches about personal issues and family problems. Coaches need to be sensitive to their athletes but not all coaches are suited for this role. Discuss this topic with your athletic director and school principal so that you are aware of your school's policies.

Be aware of counseling services at your school so that you can refer your athletes to the proper resources. Some times athletes just need an adult to listen to them. Refer

them to their church leaders, counselors and encourage them to talk to their parents and friends. Keep in mind your role in their lives as their coach and teacher.
Should you become aware of an athlete that has a drug and/or alcohol problem, or an athlete that has an eating disorder, you need to be aware of your duties and responsibilities as an employee of your school. Know what must be done to help that athlete and refer him/her immediately. Unless you have had special training in these areas, you are not qualified to handle these problems.

Handling Losing

Part of any sport deals with winning and losing. Winning is the easy part, losing is tough. After your team has lost a match, look at what caused the loss and how things could have been done differently. Some times a team needs to be scolded if it has played below its ability or without effort. Some teams don't respond well to being scolded. Be aware of what your team needs to hear. Always find positives in every match and be sure to point out great plays and exceptional performances. Remember to instill hope for a better match next time and discuss how your team will change to better itself.

Removing A Player From Your Team

Once you have selected your team, you must clearly state the team rules and consequences for breaking any rules. Most coaches will make up a type of contract for their players to sign. Others will print up the team rules and go over them as a group. The important factor is to have everyone (parents, athletic directors and teachers) aware of the rules of your team. Once these are set, you need to enforce them.

Should a player break a team rule, the captain(s) and coach need to discuss what should be done. Have a clear consequence in place for the broken rule, than it needs to be imposed. These rules should not change depending on a player's ability, time of the season, etc. Everyone must be treated *equally*.

If an athlete has done something that warrants being removed from your team, you need to speak with your athletic director or administrator in charge of athletics immediately. Make sure that you have a clear understanding of the entire situation and then speak with the athlete. Consult your athletic director about contacting the athlete's parents and consider telephoning them.

Team Meetings

Some coaches like to have team meetings before and after every match. Some coaches have meetings every week with the entire team and separately with the captains. Set up some type of system that works for you and stay with it through out the season. Team meetings after matches should occur regardless of whether you won or lost.

Individual meetings take up a lot of time but are also worthwhile. Players should have a list of obtainable goals in place at the beginning of the season. They should be personal and team goals. Players need to have a chance to speak with the coaching staff. Try to set up a meeting with all of your players at least twice or three times each season. Be sure players know what you expect of them and why they're not playing. Discuss with them how they can improve in practice and discuss their progress.

Club Volleyball

Club volleyball is organized by the U.S. Volleyball Association. (U.S.V.A.). The season runs roughly from January to June and some clubs will hold try-outs as early as October or November. Each club charges fees that are used to cover the cost of uniforms, registration, coaches' salaries, travel, insurance, facilities, etc. These fees range greatly from club to club. Teams that play more tournaments and travel to out of state tournaments, have higher fees. Some teams will offer "scholarships" to athletes that aren't able to pay the fee. These may be reduced rates or full scholarships that allow the athlete to participate without any payment. Club teams are usually coached by high school coaches, former and current collegiate players, college coaches or any combination of the above!

Club volleyball provides athletes with the opportunity to play outside of the high school season. It is allowed by the C.I.F. Most college coaches use the club season for recruiting. The largest club tournaments (Las Vegas, NV in February; National Qualifiers through the club season, Reno, NV in June, and the Junior Olympics in July) are heavily attended by college coaches of all levels. Probably every coach in the nation attends at least one of these tournaments to see potential recruits. They provide great exposure for all the athletes.

Depending on the competitive level of the club, teams practice anywhere from once a week to three or more times. Some clubs will add extra practices as a major tour-

nament approaches. Certain club teams will stipulate requirements for practice and playing time. Clubs will vary on their position of how much play time each athlete will get. A few clubs have a philosophy of playing everyone; others play only those they think will help them win. Each club is diverse in their philosophy and make-up. Parents and athletes should be clear on their clubs' principles, selection process and attitude towards playing time.

For more information on club volleyball and clubs in your area, contact the U.S.V.A. online at www.usavolleyball.org. In southern California, club tournaments are organized by the Southern California Volleyball Association (part of the U.S.V.A.). They can be found online at www.scvavolleyball.org.

FINAL NOTES

The amount of success any team has is based on how well they play together and how well they maximize their strengths and minimize their weaknesses. One strong, talented player cannot have a large impact on any team if the team does not play well together. Since no one is allowed to set himself, teamwork is the essential ingredient in the recipe for team play.

Coaches may find that while one player is talented, he/she does not positively affect the team's outcome. Team chemistry is another key element to a good team. Good chemistry is the product of good communication on and off of the court. Players must feel valued and important no matter what role they have on a team.

Players must trust each other to do their jobs. If one player runs all over the backcourt and takes other players' balls, then no one knows who is going to play the ball. Each player must call the ball and play up any balls in the area he/she is defending. The same is true for the team's setter. Everyone on the floor must be confident that the setter will take all second balls or call for help if needed. The entire team must be sure that if someone calls for a ball, then that player will take the ball.

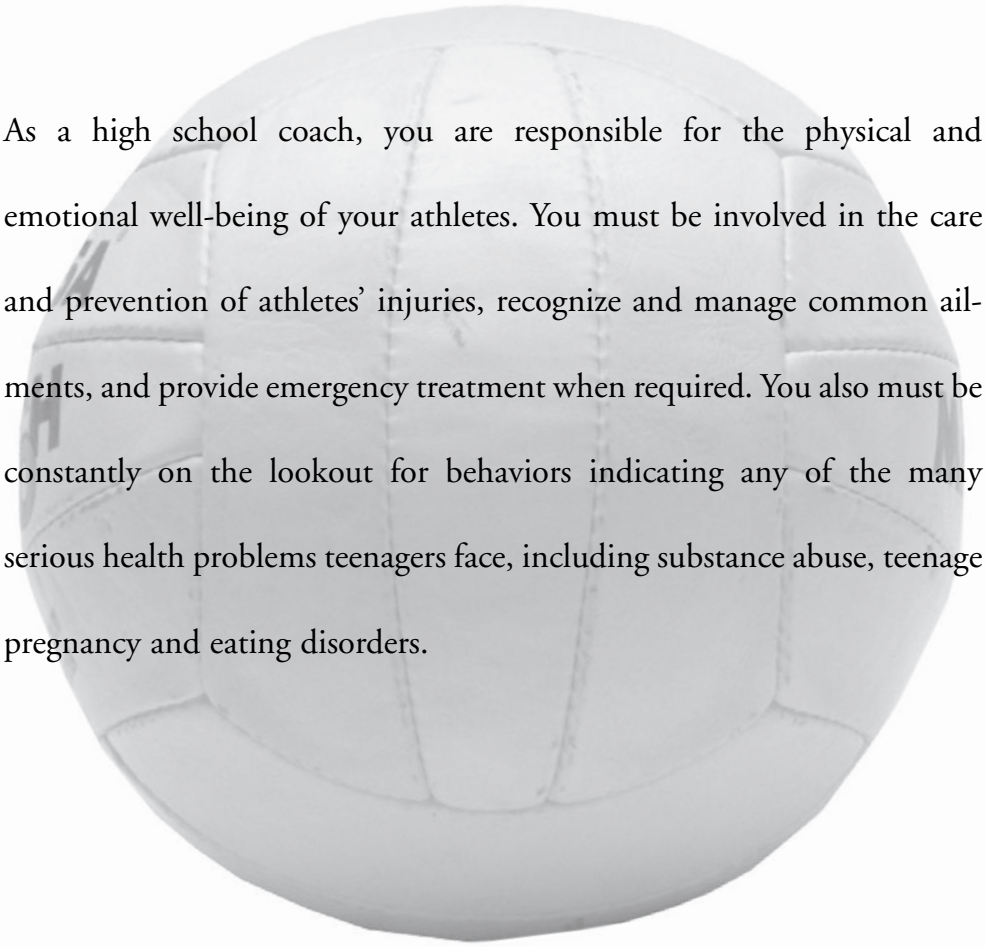
These concepts are essential for all aspects of team systems. Without trust, acceptance of responsibility, good communication and the willingness to work for the good of the entire team, no team can be successful. While practicing in the gym, try to reinforce these. Set up drills that enable athletes to practice them. Coaches should make

sure that they point out any problems that come up in drilling and scrimmaging with communication, trusting one another, etc. Coaches should also point out how these concepts carry over to all aspects of life.

Lastly, coaches should make sure that the entire team experience is a positive one for everyone. Win/loss records should not determine if a team was successful. Set realistic goals and make sure everyone understands and agrees with them. Any team that works together towards the same common goals will improve. Improvement is proof of a successful season.

CHAPTER 7

Managing Volleyball Injuries & Athlete Health



As a high school coach, you are responsible for the physical and emotional well-being of your athletes. You must be involved in the care and prevention of athletes' injuries, recognize and manage common ailments, and provide emergency treatment when required. You also must be constantly on the lookout for behaviors indicating any of the many serious health problems teenagers face, including substance abuse, teenage pregnancy and eating disorders.

The Coach's Responsibility

Among the many responsibilities of the high school coach is having a pre-determined plan for the prevention and care of injuries suffered by your athletes. This means taking precautions to prevent injuries, administering emergency first aid, securing prompt professional medical assistance, and recommending subsequent professional medical treatment or physical therapy. To fulfill this obligation to your athletes you must be able to:

- Recognize common injuries
- Know your responsibility for the management of an injury
- Provide immediate emergency care

PLAYERS' RIGHTS

The Bill of Rights for the School and College Athlete has been developed by the American Medical Association's Committee on the Medical Aspects of Sports to define the duties and rights of athletes and their coaches in regard to the health of young athletes, as follows:

Participation in athletics is a privilege involving various responsibilities and rights. The athlete has the responsibility to play fair, to give his best, to keep in training, to conduct himself with credit to his sport and his school. In turn he has the right to optimal protection against injury as this may be assured through good technical instruction, proper regulation and conditions of play, and adequate health supervision.

AN ATHLETE'S RIGHTS

Good Coaching

The importance of good coaching in protecting the health and safety of athletes cannot be overstated. Careful conditioning and technical instruction leading to skillful performance are significant factors in lowering the incidence and decreasing the severity of injuries. Good coaching includes discouraging tactics that violate the law or spirit of the rules, or that may increase the incidence of injuries.

Good Officiating

The rules and regulations governing athletic competition are made to protect players

as well as to promote enjoyment of the game. To serve these ends, the rules of the game must be thoroughly understood by players as well as coaches and be properly interpreted and enforced by impartial and qualified officials.

Good Equipment and Facilities

Proper equipment and facilities are essential to provide the protection athletes need. Good equipment is readily available; the problem lies in the false economy of using cheap, worn out, outmoded, or ill-fitting gear. Safe and well-maintained play areas are equally important.

Good Health Supervision

Before each season, an athlete should have a thorough medical examination and medical history review. Many sports tragedies are due to unrecognized health problems. Medical restrictions to participation in contact sports must be respected.

When possible, a physician should be present at all contests and should be readily available during practice sessions. It is wrong to have a trainer or coach decide whether an athlete should return to play or be removed from a game following injury. With serious injuries, the availability of a physician may make the difference in preventing permanent disability or even death.

The physician should have the authority to determine if an athlete is healthy to play. Most coaches and athletic trainers are happy to leave such decisions to medical professionals.

As a coach, you can make a tremendous difference in preventing injuries by adhering to sound principles of conditioning and technical instruction and avoiding tactics that may lead to injuries. You have day-to-day control over the use of the facilities and equipment and the responsibility to inspect them for dangers. Additionally, you are responsible for making sure that all equipment is safe and in good repair.

Unfortunately, cost considerations often prevent trained physicians or certified athletic trainers from working all contests and practice sessions. Consequently, your responsibility for caring for your athletes is even greater. The purpose of this section is not to scare you, but to acquaint you with the most common soccer injuries and correct injury management.

Handling a Medical Emergency

The following is a list of 10 questions that you should be able to answer without hesitation. These questions will also assist you in developing a plan to handle a medical emergency situation should one occur.

- Do you have ready access to your athletes' medical consent cards, which provide parental consent for treatment in case of an emergency?
- Do you keep these cards filed in your first-aid kit? Is your first-aid kit always on hand at your practices and meets?
- Do you know what materials are contained in your first-aid kit and how to use them? Do you have what you need?
- Are you aware of all your athletes' pre-existing medical/physical problems such as diabetes, epilepsy, who wears contact lenses, and who is allergic to bee stings?
- Do you know the location of the nearest telephone to summon emergency medical assistance? Do you carry a cell phone with you? If it isn't working, is the nearest land-line in a locked room? Do you have a key or know where to get one quickly? If it is a switchboard phone, do you know how to get an outside line?
- If the nearest phone is a pay phone, do you have quarters taped to the inside of your first-aid kit so you always have coins on hand?
- If you are not in a 911 response area, do you know the phone number for the nearest paramedics?
- Do you know the location of the nearest paramedics to your school and their anticipated response time?
- If paramedics have to be summoned, will they find the gates to your facility locked? Do you have keys for those gates? Do you know where to get a key quickly?
- Do you know the location of the nearest hospital to your school? Is that the hospital to which an ambulance will take an athlete?

Heat Problems

Heat problems can be among the most devastating and serious injuries. Heat cramps, heat exhaustion, and heat stroke must be identified and treated quickly and appropriately.

It is important to understand how the body handles excess heat during exercise. During exercise the amount of heat produced by muscular activity exceeds the amount of heat dissipated by the body, so the body's temperature rises. This rise in

body temperature causes increased sweating and blood flow to the skin. Heat is dissipated by the evaporation of sweat from the skin to the cooler surrounding of the air.

When the rate at which heat is produced equals the rate at which it evaporates from the body, the body temperature plateaus at that elevated level when the athlete continues to exercise. Trouble begins, however, when the body produces more heat than can be dissipated, causing the body temperature to rise to potentially dangerous levels. High environmental temperatures and humidity increase the danger of heat problems because they inhibit the body's ability to reduce heat.

Heat Cramps

Prolonged heavy sweating and inadequate fluid replacement in hot weather may cause muscle twitching, cramps and spasms in the legs or arms.

Immediate treatment is to remove the athlete from the source of heat by placing him/her in a cool, shaded place to rest. Then replace water and electrolytes.

Heat Exhaustion

As the body temperature rises, these signs indicate the possibility of heat exhaustion: headache, light-headedness, confusion, nausea, vomiting, muscle cramps, cold clammy skin, weak and rapid pulse.

Immediately move the athlete to a shaded area, elevate the feet, place cold towels or ice around the neck, head and abdomen, administer fluids as tolerated and refer to a doctor.

Heatstroke

This is a medical emergency! Symptoms of heatstroke are lack of perspiration, hot and dry skin, body temperature elevated to greater than 105 degrees, chills, irrational behavior, involuntary limb movements, seizures, cyanosis (bluish color of the skin), vomiting. Death may occur unless emergency medical treatment is administered at once! While waiting for an ambulance, move the athlete to a shaded area, remove clothing and keep the skin moist, place ice on the head and neck. The hospital will need to administer intravenous fluids.

Prevention of Heat Problems

Gradual acclimatization is the key. Most athletes will acclimatize within 5 to 15 days of training in hot, humid weather conditions. Other suggestions:

- Warm up in the shade (if training outdoors). Rest in the shade between events or bouts of training.
- Wear minimal, loose-fitting clothing.
- Drink plenty of fluids during the day prior to training or competing.

Injury Prevention and Scientific Training

A primary concern of all coaching, and especially with the younger athlete, is to prevent injuries from happening in the first place. The best prevention involves training, that adequately prepares the athlete to withstand the high levels of physical stress encountered during sports participation. This is accomplished most effectively when training programs follow the scientific principles of "Periodization." Periodized training programs develop an athlete's fitness and skill in a logical and sequential fashion. Periodized programs allow for adequate recovery and time for adaptation with built in periods of rest.

THE IMPORTANCE OF BASE TRAINING IN INJURY PREVENTION

The foundation of a quality sports training and injury prevention program is constructed in the early season base-training period. This is a generalized and less specific period of training where a broad base of fitness is developed. Beginning with low intensity activities in which the volume of work is gradually increased, the athlete's body begins to adapt to the physical stress of sport. Key to all periodized programs is built in periods of rest to allow for adaptation. The coach must realize that athletes never become stronger *during* a workout. Fitness is an adaptation to hard work and only occurs during built in and regular periods of rest and recovery.

In the base training period of low intensity and relatively high-volume exercise, the young athlete's body becomes more resilient to injury as the tendons and ligaments thicken, bones become more dense and muscles gain strength. Also paramount to injury prevention is the increased endurance achieved in the base training program. In all sports, without adequate endurance, biomechanics breakdown and injury occurs as fatigue sets in during training sessions and competition.

AVOIDING INJURY IN THE MAXIMUM STRENGTH PHASE

The next phase of a periodized strength program is the maximum strength phase where the young athlete, having achieved a good base in fitness, is ready to handle the heavy loads in the weight room and on the court necessary to build strength. Unfortunately, injuries are frequent in this period because young athletes are either exposed to loads for which they are not ready or they are allowed to use faulty mechanics while executing weight room exercises and higher intensity drills on the court. To avoid injury, all athletes must have gone through an adequate base training phase before more intense activities are begun here. Further, good stretching habits before and after all workouts are mandatory to aid adaptation and avoid injury. Once achieved, maximum strength is in itself a great protection against injury. Strong muscles and tendons provide better joint stability and are difficult to injure.

POWER TRAINING PHASE AND POTENTIAL FOR INJURY

The power phase is the next step in a periodized strength program. The plyometric drills it encompasses hold a very high potential for injury. Plyometrics must be progressed slowly as the forces on the quadriceps, patella (knee cap), foot, ankle, calf and Achilles tendon are severe. Again, proper technique, adequate stretching and careful progression are the keys to avoiding injury.

SPEED PHASE

The training necessary to develop maximum speed involves high-stress intervals and drills. This too can be injury provoking and requires proper mechanics and stretching with regular periods of rest.

Understanding Injury, Healing and Rehabilitation

There are two broad categories of sports injury, which the volleyball coach will encounter in young players. A rudimentary understanding of these injuries and the basic principles of rehabilitation will allow the coach to play a more meaningful role in getting the athlete back after injury while avoiding the re-injury cycle.

OVERUSE INJURIES (ALSO KNOWN AS MICRO-TRAUMA)

Occurs from the repetitive load of performing the same movements day after day. When the stress of these repetitive movements outpaces the body's ability to adapt and become stronger, an overuse injury results. Often volleyball players develop over-

use injuries in their hitting shoulder. Be aware of how many swings your athletes are taking in practice each day and week. You can still work on aspects of hitting without taking full swings at the ball.

TRAUMATIC INJURIES (ALSO KNOWN AS MACRO-TRAUMA)

Injuries which occur abruptly where tissue damage is caused by a one-time event. These can occur from external impact or internal forces. Examples of these are ankle and knee sprains, muscle or tendon strains, and fractures. Encourage your athletes to be careful when landing near the center line. Teach them to land on two feet as much as possible.

SOFT TISSUE INJURIES AND TREATMENT

Injuries involving soft tissues (i.e. muscle, tendon, fascia) whether caused by accumulated micro trauma or a sudden macro trauma follow a characteristic pattern of healing. The healing process has three distinct phases: inflammation, tissue repair and finally remodeling and maturation of the scar tissue. Inflammation occurs when chemicals are released by damaged tissue. These chemicals increase blood flow to the immediate area resulting in swelling, redness and pain. The first goal after injury is to limit this inflammatory response and decrease the amount of resulting swelling. Swelling increases pressure in the surrounding tissue and causes further "collateral" damage. Reduced swelling is accomplished by following the **P.R.I.C.E.** strategies:

Protection: Protect against further injury by immobilizing, bracing or resting the injured area during activities of daily living.

Rest: The injured athlete must be rested immediately and not return until pain free participation can be achieved.

Ice: Immediate icing will prevent excessive swelling by limiting blood flow to the area. Furthermore, ice reduces pain, spasm and further damage.

Compression: Compressive wraps limit the amount of resulting swelling by physically preventing it from collecting. Also compression protects injured tissue by providing support when the physical integrity of the tissue has been compromised.

Elevation: Elevating the injured part also prevents swelling by limiting blood flow to the area and aiding the drainage of lymph fluids from the tissues.

Once the inflammatory response is in check (after 48 hours if treated aggressively) the next goal of injury management is to assist in proper scar tissue formation. This is best facilitated by early rehabilitation involving pain-free range of motion exercises. Exercises performed in the pain-free range of motion stimulate the body to align scar tissue in lines parallel to the stress placed on the tissue during sports activities. Continued icing during this phase protects against re-injury from over zealous rehab. In physical therapy, a trained professional will guide the exercise program and help make decisions when to progress the athlete to stretching and strengthening exercises. In addition, ultrasound and electrical stimulation treatments help speed recovery by further limiting pain, swelling and lingering inflammation. The use of ultrasound helps promote healthy, functional scar tissue.

To maintain fitness, the injured athlete should be cross training on the bike or in the pool if it can be done pain free and protected with bracing or taping. Pain is the guide for determining the proper level of stress. All pain must be avoided in the rehab process. The "no pain, no gain" principle of sports training has no place in rehabilitation programs. Pain indicates aggravation of the injured site and must not be allowed even if pain improves with warm up.

The loss of strength and flexibility is often under appreciated following an injury. The greatest contributing factor in the re-injury cycle is the failure of the athlete to regain at least 90% of pre-injury levels of fitness. A limited cross training program can begin as early as 72 hours after the injury with bracing and protection of the injured area and using pain as a guide. A gradual return to a full training schedule should be accompanied by continued icing, physical therapy treatments, and specific strength and stretching exercises.

SPRAINS

Sprains are injuries involving ligaments. Ligaments are the tough fibrous tissue that connect bones to bones at a joint. They are injured when the forces acting at a joint overcomes the muscles ability to stabilize the joint. Sprains are graded by severity as Grade I, II and III.

GRADE I SPRAINS (SOME LIGAMENT FIBERS ARE TORN)

Characteristics of a Grade I sprain is pain, stiffness and minimal to moderate swelling. These can occur from torquing and twisting of a joint in an errant step, of

improper landing from a jump or from contact with another player. If an athlete can "walk off" the pain and participate pain free immediately following the incident, then continued play may be allowed with caution and immediate icing after play. If pain persists with play, then the athlete must be rested, iced and evaluated by appropriate medical personnel. Often times cross training with bracing and protection can be started immediately if pain free. Early protected motion will speed recovery and maintain fitness. Return to play should be through a guided and progressive practice participation schedule.

GRADE II SPRAINS

These injuries involve a greater degree of fiber disruption and are characterized by moderate to severe swelling, pain and stiffness. Often times when the athlete encounters forces great enough to sustain Grade II ligament damage, other structures are injured as well. The athlete who suffered a Grade II sprain must be immediately removed from activity, iced, protected and evaluated by a qualified health care practitioner. If other injuries are ruled out, cross training can follow the program for Grade I sprains with a more comprehensive rehabilitation program with greater emphasis on specific strength exercise. The athlete must have full and pain free range of motion of the injured joint and at least 90 percent recovery of pre-injury strength and endurance. Again, a guided return through progressively more intense practices is the best training and gauge as to when the athlete is ready to return to competition or full practice. Always err on the cautious side when returning young players to activity.

GRADE III SPRAINS

These injuries are complete ruptures of the ligament. These are often characterized by instability of the joint where an athlete cannot bear weight or load the joint without it giving way or becoming *misaligned*. However this is not always the case. Nonetheless, these are serious injuries that also may involve injury to surrounding structures including cartilage or bone damage. These injuries may require surgical reconstruction or repair of the torn ligament. With or without surgery the rehabilitation time is extensive, running anywhere from eight to 12 weeks or longer, before a return to athletics. This rehabilitation requires professional guidance by a physical therapist or athletic trainer. Often times the athlete will be required to wear a stabilization brace during sports participation.

STRAINS

Strains are injuries to muscles and tendons. Although these are quicker to heal than ligament injuries due to their greater blood supply, the loss of strength suffered when a muscle or tendon is injured is significantly greater. In a ligament injury, muscle weakness is caused directly by the pain and loss of motion. When the muscle-tendon unit is disrupted by injury, the strength loss is immediate and severe. So although a muscle strain may heal faster than a ligament sprain, the rehabilitation process back to full strength, and flexibility may actually take longer and require more careful progression of exercise.

BONY INJURIES

These include bone fractures and bruising. Fractures can occur with or without external forces i.e. collisions and falls. Bruising is less common, but they do occur from collisions and falls. X-rays are imperative to rule out fractures. If a fracture occurs, request that the doctor use a waterproof cast to allow for cross training in the pool (if it will not hamper the healing process.)

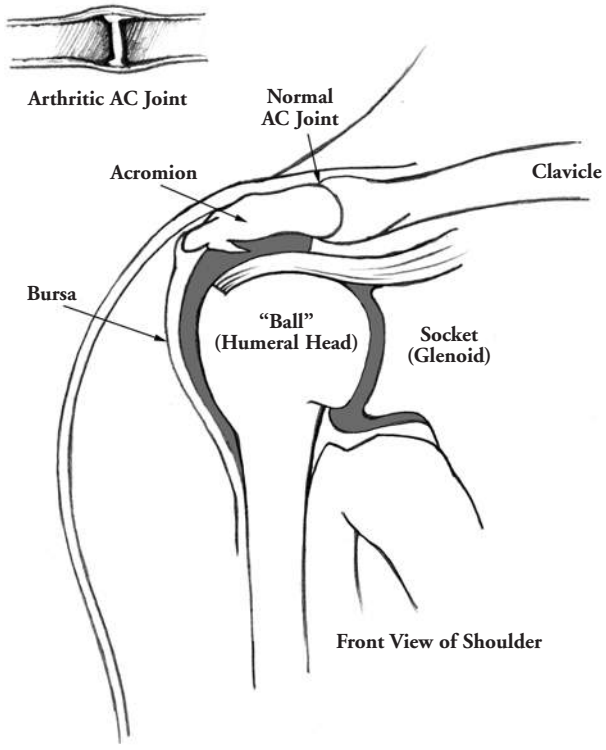


Fig. 7-1 The Shoulder Joint

Common Volleyball Injuries

THE SHOULDER JOINT

The shoulder joint is susceptible to a variety of injuries both overuse and traumatic in nature. Repeated overhead serve movements can produce chronic rotator cuff tendonitis (inflammation of the tendons.) This overuse injury occurs when the rotator cuff muscles become fatigued and fail to perform their function of keeping the head of upper arm bone (the humerus) down in the socket and away from the bone on top of the shoulder, the acromion. When the arm bone rides high in the shoulder socket and rubs the tendon between itself and the acromion it creates the impingement effect that will eventually wear through the rotator cuff tendon. (Fig. 7-1)

This can be prevented with early season rotator cuff strength exercises and instruction in proper technique in serving and overhead shots. Also careful progression of the intensity of the serve motion and the repetition of such, with proper work-to-rest ratios, will keep the muscles of the rotator cuff from fatiguing and of such, prevent the impingement injury. Adequate flexibility of the rotator cuff is also crucial in maintaining good mechanics.

When shoulder pain does present itself in the young athlete all serving must stop, along with weight exercises. Rotator cuff stretching efforts must be doubled. The application of ice 20 minutes three times per day should begin immediately. When the soreness dissipates somewhat, rotator cuff strength exercises can begin but only if they are pain free. Isometric exercises should progress to isotonic exercises with weights or resistance rubber bands. A return to the serve motion should only begin after a period of re-strengthening and a change in shoulder mechanics has been achieved. The serving motion should of course be pain free before progressing back to practice.

Acute or traumatic shoulder injures occur when a player lands on the shoulder in a diving play. This can produce sprains, strains and fractures and dislocation of the shoulder joint. In addition the acromio-clavicular joint, atop the shoulder joint proper, may suffer a sprain causing a loss of integrity of this joint (this is called a shoulder separation.) These injuries require a careful assessment. Rehabilitation efforts must return to a full and painless range of motion first and then re-strengthening of the rotator cuff muscles must be accomplished regardless of the exact location of the injury in the shoulder joint complex.

THE ELBOW JOINT

The elbow joint is also subjected to both overuse and traumatic injuries. The tendons attaching to the inside, or medial aspect, of the joint can become inflamed in an overuse injury called medial epicondylitis or golfer's elbow. Less frequently in volleyball players, the outside or lateral epicondyle, can be the location of tendon inflammation (golfer's elbow). Both of these overuse tendon injuries require the standard P.R.I.C.E. treatment and then rehabilitative measures to return the muscles to full strength. Protection with a tennis elbow strap may be useful.

The biceps muscle crosses the elbow and the shoulder, which distinguishes it as a two-joint muscle. At the lower tendon, injury may occur from a passing motion if the elbow is fully extended and locked. This injury should be treated with the same treatment principles outlined above.

THE WRIST AND FINGERS

Wrist injury can occur in volleyball from falls or poorly hit balls. These can involve tendon and ligament structures, and taping or bracing may be necessary to eliminate the pain during play. Swelling and stiffness may indicate a fracture. Finger injuries occur when the ball strikes at an odd angle and jams the joints causing a strain or sprain. P.R.I.C.E. remedies should begin immediately and very often taping is required to prevent re-injury.

LOWER EXTREMITY INJURIES

The repetitive jumping involved in volleyball places a high degree of stress on the kneecap and its articulation with the thighbone (the patello-femoral joint). Injuries can occur to the quadriceps tendon as it anchors on the top side at the patella to attach to the shinbone or tibia (patella tendonitis). Problems may also arise in the cartilage coating covering behind the kneecap (chondromalacia). The general condition that produces problems with the patella and the quadriceps tendons is caused by a "tracking disorder." This describes the path the kneecap takes when it articulates with the thighbone or femur. Due to bony abnormalities, muscle weakness or tightness, irritation of the above structures occurs when the kneecap drifts laterally with the bend of the knee. The solution is to identify athletes prone to these problems and increase stretching efforts of the quadriceps, hamstrings, calves and gluteal muscles. Strength exercises specifically strengthen the inner quadriceps muscle, the vastus medialis oblique, which can stabilize the kneecap in the groove and prevent lateral

tracking. This is accomplished with straight leg isometric quadriceps exercises progressing to limited range of motion knee extension work (the last 30 degrees of knee extension) with light weights (beginning literally with 1-2 pounds and not exceeding 10-12 pounds). These problems must be addressed as they can progress to a point where the cartilage behind the kneecap or on the thighbone can become permanently damaged and seriously limit not only a young person's athletic participation, but daily activities as well.

Another typical infliction occurring in young athletes involves the point where the quadriceps tendon attaches to the lower leg or shinbone. The exact spot of insertion is at the tibial tubercle, which is also at a growth plate or epiphysis in the bone. This area can become inflamed, painful and enlarged (known as Osgood Schlatter's Disease). This condition is benign. It will cause a permanent bump here, but will present no long lasting problem. The condition is generally self-limiting, which is to say the more it hurts, the less active the athlete will be, and with rest, it will calm down. Aggressive stretching of the quadriceps and frequent icing will speed up the recovery process.

The knee is highly susceptible to ligament sprain as it is poorly supported by muscles and tendons. The medial and lateral aspects of the joint are protected by strong bands of ligaments. Inside the knee are two thick ligaments, the anterior cruciate, which prevents a forward movement of the lower leg bone, and the posterior cruciate ligament, which prevents a backward movement of the lower leg bone. These structures can be damaged during an errant landing from a jump or from collision with another player. All sprains to knee are serious and need professional evaluation. Some may require surgery and can cause permanent problems in the athlete.

Also, inside the knee there are two cartilage discs called meniscus. They provide shock absorption and improve stability of the knee. They can be damaged with or without ligament injury. The symptoms include swelling, giving way, occasionally locking of the joint and clicking. These symptoms require immediate evaluation by a physician.

THE FOOT AND ANKLE

The ankle is also susceptible to sprain injuries, which occur when the player turns the ankle from unstable footing. Ligament sprains here are treated early with P.R.I.C.E. strategies, and after careful evaluations to rule out a fracture, early range of motion

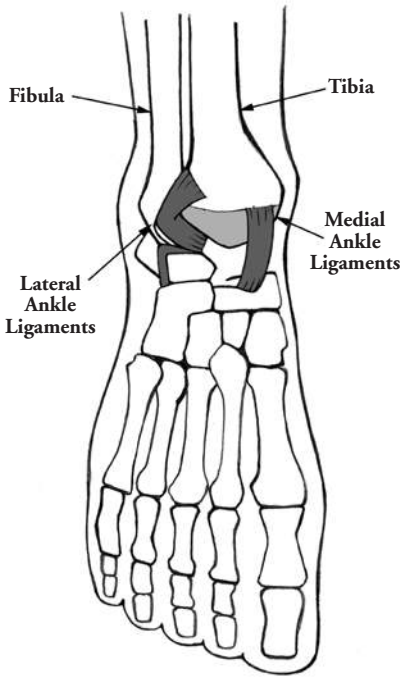


Fig. 7-2 The Foot and Ankle

exercises are begun. The athlete must achieve full range of motion and re-strengthen the muscles supporting the ankle before returning to practice or competition. An incomplete rehabilitation process can lead to the very common scenario of "recurrent" ankle sprains. The ligaments damaged in the sprain also supply information to the brain regarding where the foot is in relation to leg alignment. If not rehabilitated the athlete is more likely to sprain again because the feedback loop has been disrupted. Proprioceptive exercises involving balancing on one foot and the use of "wobble" boards are used to re-establish the sensory information necessary to prevent future sprains. These activities if used prophylactically in early season training can significantly reduce ankle sprains on your team. (Fig. 7-2)

The achilles tendon is also the common site of injuries in volleyball players as it is heavily involved in jumping activities. The achilles tendon attaches the powerful calf muscles to the heel bone. If the flexibility or strength of the calf is insufficient for the load placed on it, the achilles tendon takes the brunt of the stress and it will become irritated and inflamed. Again early rest from activity and an aggressive rehabilitation program will prevent this from becoming chronic. If left untreated or incompletely

rehabilitated, surgery is sometimes necessary to remedy the problem.

The plantar fascia is a thick band of connective tissue, which runs from the heel to the base of the toes. It is pulled tight when the athlete goes up on their toes. This can become irritated at the attachment to the heel (overuse) or can tear in the arch area (acute traumatic injury). Proper stretching of the calf and foot help prevent this problem. Proper footgear is critical and foot taping can help this injury. If it becomes chronic, it is one of the more recalcitrant injuries of the lower leg and may require injections of cortisone to ultimately recover (generally avoided in the young athlete).

INJURIES OF THE SPINE

The spine is a vulnerable structure in all sports activity. This is evidenced by the frequency of spine injuries in athletes being amongst the highest of all sports injuries. Additionally, spine injuries are often incapacitating and can have long-term ramifications in an athlete's career and personal life. For these reasons all activities in sports training should be spine protected. In volleyball the spine is exposed to great stress with twisting and bending movements, common in normal play. Hard landings when diving for a ball can traumatize the spine as well. All spine pain complaints from the neck to the low back need to be taken seriously and evaluated by a professional. The best prevention of spine injuries comes from adequate stretching before and after all practices and competition. Additionally proper technique is paramount to avoid chronic repetitive stress on the spine.

Spinal injuries include strains of the supporting muscles, injuries to the discs between the vertebra and injuries to the joints of the spine itself. Each of these requires specific treatment after a careful evaluation.

CHAPTER 8

Eating for Health and Performance

Good nutrition is an important component of any successful training program. Food is the fuel of athletic performance. Though you cannot control the food your athletes eat, you can guide them toward healthy eating. To do so, you must be acquainted with the basics of proper nutrition. This chapter is a primer to help you address some of the nutritional demands and concerns faced by your athletes.

Though success in sports is determined primarily by athletic ability and proper training, nutrition affects the athlete in many ways. Nutrition is important for normal growth and development and for maintaining good health. A healthy athlete feels better, trains harder, recovers more quickly, and is less susceptible to illness.

As a coach, you can have a positive influence on your athletes' attitudes about nutrition as well as their eating habits. Young athletes, in particular, respect, admire and seek advice from their coaches. The following sports nutrition information will help you guide your athletes toward better eating, and ultimately, better health and performance.

The Athlete's Diet

Coaches often want to know exactly what constitutes a "balanced diet." A balanced diet provides all the necessary nutrients and calories the body needs to function properly. These nutrients are carbohydrates, fats, proteins, vitamins, minerals and water. Just as there are many training strategies that achieve victory, there are a number of dietary patterns that provide good nutrition.

The Dietary Guidelines for Americans are national guidelines for healthy eating. Most nutritionists agree that the nutritional guidelines developed to promote health also establish a good foundation for athletes who desire peak performance.

USDA MY PYRAMID

The USDA My Pyramid (Fig. 8-1) serves as educational tool to put the dietary guidelines into practice. The pyramid shows the foods that should be included in a healthful diet, and in what amounts. Athletes should be eating heartily from the grain, vegetable and fruit groups since these groups have the highest recommended number of servings and are nutrient-rich sources of carbohydrate. Table 1 indicates what counts as a serving from each group.

The amount of calories a person needs to eat depends on his or her age, gender and level of physical activity. Daily recommendations from the USDA dietary guidelines for high school-age boys and girls from 14 to 18 years of age are listed by food groups in the following table, (with a limited use of fats and oils, kept at 5-6 teaspoons).

CALORIE REQUIREMENTS FOR ATHLETES

Calorie requirements vary greatly from person to person and are influenced by the level of physical activity, body size and age. Therefore, it is impossible to establish a universal daily caloric requirement for athletes. Weight loss, weight maintenance, or weight gain is a matter of energy balance. An athlete's body weight will stay the same when calorie intake equals calorie expenditure. To lose weight, energy expenditure must be greater than energy intake. To gain weight, energy intake must be greater than energy expenditure. If an athlete is maintaining his or her ideal competitive weight, adequate calories are being consumed.

A number of factors influence the body weight of adolescent athletes. Many young female athletes are concerned about their appearance and eat less than they should to appear thin. However, restricting calories can have a negative impact on performance and health. As calorie consumption decreases, so does nutrient intake. The minimum requirement for high school athletes should be roughly 2,000 to 2,200 calories per day. Athletes eating less than 1,800 calories a day probably do not consume adequate amounts of vitamins, minerals and protein. This can cause depleted fuel stores, muscle wasting, weakness, fatigue, stress fractures and impaired performance.

Some athletes have a hard time increasing their calorie intake because the volume of a larger meal causes them discomfort, especially if they are training soon after eating. Athletes juggling a heavy academic schedule with training and part-time job may have difficulty finding the time to eat. These athletes can benefit from eating several small meals and snacks throughout the day.

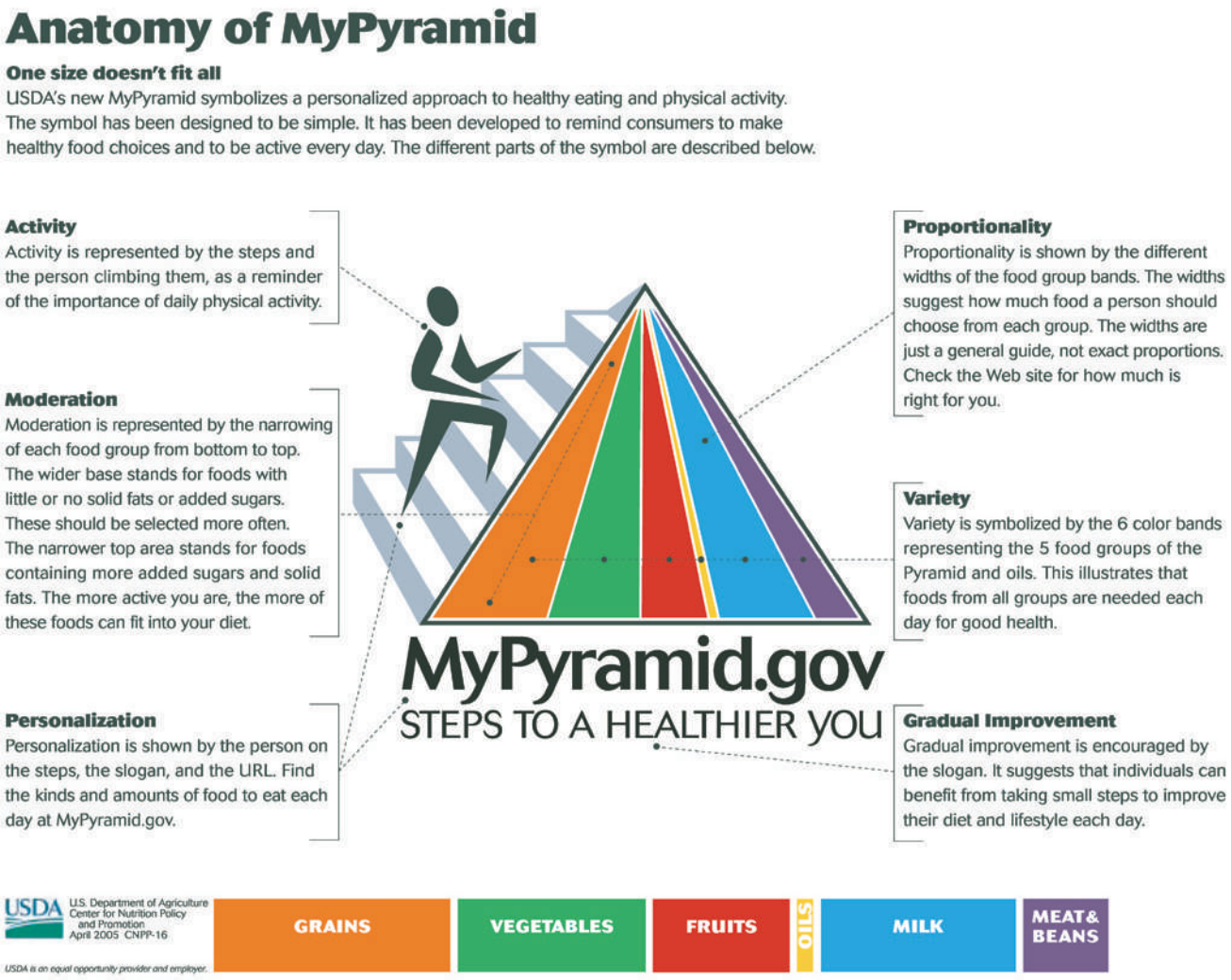


Fig. 8-1 The USDA My Pyramid

Food Group	Daily Servings	Size Equivalents
	6 - 7 ounces	1 ounce = • 1 mini bagel • ½ cup cooked oatmeal, 1 pkg. instant • 1 cup breakfast cereal, flakes or rounds • 1 ½ cup breakfast cereal, puffed • ½ cup cooked or 1 ounce dry pasta or rice • 1 small tortilla, corn or flour, 6" diameter
	2½ - 3 cups	1 cup = • 1 cup chopped or florets of broccoli • 3 spears broccoli • 2 cups raw leafy greens • 2 medium carrots • 2 cups raw leafy greens • 2 medium carrots
	1½ - 2 cups	1 cup = • 1 small apple • 1 large banana • 32 seedless grapes • 1 large orange • 8 large strawberries • 8 ounces 100% fruit juice
	3 cups	1 cup = • 1 cup milk • 8 ounces yogurt • 1½ ounces hard cheese (cheddar, mozzarella, Swiss, parmesan) • 1 cup pudding, made with milk • 1 cup frozen yogurt
	5 - 6 ounces	1 ounce = • 1 ounce meat, poultry, fish • ¼ cup cooked dry beans • 1 egg • 1 tablespoon peanut butter • ½ ounce nuts or seeds

Table 1 Serving Sizes

CARBOHYDRATES

Carbohydrates, such as sugar and starch, are the most readily available source of food energy. During digestion and metabolism, all carbohydrates are eventually broken down to the simple sugar glucose for use as the body's principal energy source. Glucose is stored in the muscles and liver as a substance called glycogen. A high-carbohydrate diet is necessary to maintain muscle glycogen – the primary fuel for most sports. When athletes do not eat enough carbohydrate, their glycogen stores quickly become depleted, resulting in fatigue or staleness.

Though the body uses both the sugars and starches for energy, a high-performance diet emphasizes nutrient-dense carbohydrates. Nutrient-dense carbohydrates such as whole grain breads and cereals, rice, beans, pasta, vegetables and fruit supply other nutrients such as vitamins, minerals, protein and fiber. Sweet foods that are high in sugar (candy bars, donuts and cookies) supply carbohydrate, but they also contain a high amount of fat and only insignificant amounts of vitamins and minerals.

Fruit contains the sweetest of all simple sugars – fructose. Since fruit is mostly water, its sugar and calorie content are relatively low. Like starchy foods, most fruits are rich in nutrients and virtually fat free.

As with calories, carbohydrate needs vary among athletes, depending on the intensity and duration of training and body size. To determine how much an individual athlete needs, divide his or her weight by 2.2 to get the weight in kilograms. Then multiply the number by 6 to 8.

For example:

- 130 pounds divided by 2.2 = 59 kilograms
- 59 kilograms times 6 = 354 grams of carbohydrate

The carbohydrate content of different foods can be determined by reading food labels. As a general guide, starchy foods and fruits provide the highest amount of carbohydrate (15 grams) per serving. Table 2 gives some examples of high carbohydrate foods.

Carbohydrate Food	Serving Size	Grams of Carbohydrate
Raisins	½ cup	57
Banana	1 whole	27
Apple	1 whole	21
Orange	1 whole	15
Orange Juice	½ cup	12
Grapes	½ cup	8
Cantaloupe	½ cup	7
Watermelon	½ cup	6
Corn	½ cup	17
Potatoes	½ cup	16
Green Peas	½ cup	11
Carrots	½ cup	8
English Muffin	1 whole	26
Whtite Rice	½ cup	17
Tortilla Shell	1 whole	1
Pasta	½ cup	15
Kidney Beans	½ cup	13
Wheat Bread	1 piece	13
Pancake	1 whole	9
Breakfast Cereals	½ cup	8-13
Crackers	1 whole	2-8
Plain Popcorn	½ cup	2
Flavored Yogurt	1 cup	42
Plain Yogurt	1 cup	16
Skim Milk	1 cup	12
Granola Bar	1 whole	67
Gumdrops	1 ounce	25
Regular Soft Drinks	1 cup	25
Jelly	1 tablespoon	13
Fig Bar	1 whole	11
Exceed Hi-Carb	1 cup	59
Gatorlode	1 cup	47
Nutrament	1 cup	30
Exceed	1 cup	17
Gatorade	1 cup	15

Table 2 Carbohydrates

PROTEIN

Protein is a major structural component of all body tissues and is required for muscle growth and repair. Protein is not a significant energy source during rest or exercise. Although athletes have slightly higher protein requirements than non-athletes, athletes usually consume enough protein unless they are not eating enough calories. Protein requirements increase when calorie intake is inadequate because the protein is used for energy rather than for muscle growth and repair.

Current research on protein requirements suggests that athletes need about 1.2 to 1.7 grams of protein per kilogram of body weight daily. For a 154 pound (70 kilogram) athlete, this represents 84 to 119 grams of protein a day. This amount is adequate for athletes who are involved in both endurance and explosive events. Table 3 gives some examples of high protein foods.

The proteins in both animal and plant foods are composed of structural units called amino acids. Of the more than 20 amino acids that have been identified, nine must be provided by our diet and are called essential amino acids. Meat, fish, dairy products, eggs and poultry contain all nine essential amino acids and are called complete proteins. Vegetable proteins, such as beans and grains, are called incomplete proteins because they do not supply all of the essential amino acids.

The body can make complete proteins if a variety of plant foods – beans, grains, vegetables, fruits, nuts, and seeds – and sufficient calories are eaten during the day. Since the body utilizes amino acids from foods eaten at different meals, vegetarians don't need to combine specific foods within a meal to achieve complete proteins.

FAT

Fats, or lipids, are the most concentrated source of food energy. One gram of fat supplies about nine calories, compared to the four calories per gram supplied by carbohydrate and protein. Fats are the body's only source of the essential fatty acids linoleic and linolenic acid that are required for growth, healthy skin and healthy hair. Fat insulates and protects the body's organs against trauma and exposure to cold. Fats are also involved in the absorption and transport of the fat-soluble vitamins.

Protein Food	Serving Size	Grams of Protein
Lean Beef	3 ounces	24
Chicken Breast	3 ounces	24
Pork Chop	3 ounces	22
Fish	3 ounces	21
Roasted Peanuts	½ cup	18
Macaroni & Cheese	½ cup	9
Whole Milk	1 cup	8
Skim Milk	1 cup	8
Yogurt	1 cup	8
Cheddar Cheese	1 ounce	7
Cooked Navy Beans	½ cup	7
Egg	1 whole	6
Luncheon Meat	1 ounce	5
Peanut Butter	1 tablespoon	4
Bran Flakes	1 cup	4
Green Peas	½ cup	4
Baked Potato	1 whole	3
Wheat Bread	1 slice	3
Broccoli	½ cup	2
Banana	1 whole	1
Orange	1 whole	1

Table 3 Protein

All athletes need a certain amount of fat in their diets and on their bodies. The challenge is eating a diet that provides the right amount. Most U.S. health agencies recommend consuming no more than 30 percent of calories from fat. Too much fat contributes excess calories in the diet, which can lead to weight gain. High fat diets can also increase the risk of heart disease and certain cancers. Also, athletes who eat too much fat often do not eat enough carbohydrate, which is detrimental to good health and optimum performance.

To lower fat intake, athletes should choose lean meat, fish, poultry, and low-fat dairy products. Fats and oils should be used sparingly. Fried foods and high fat snacks should be limited.

VITAMINS

Vitamins are metabolic regulators that help govern the processes of energy production, growth, maintenance and repair. Vitamins do not provide energy, although vitamins are important for the release of energy from carbohydrates, fats and proteins.

Vitamins are divided into two groups: water-soluble and fat-soluble. Fat-soluble vitamins include A, D, E and K. They are stored in body fat, principally in the liver. Taking a greater amount of vitamins A and D than the body needs over a period of time can produce serious toxic effects. Vitamins C and the B complex are soluble in water and must be replaced on a regular basis. When athletes consume more water-soluble vitamins than needed, the excess is eliminated in the urine. Though this increases the vitamin content of the urine, it does not help performance.

Athletes should try to consume the amount of a nutrient recommended by the Recommended Dietary Allowance (RDA) or Adequate Intake (AI). The RDA and AI are the amount of a nutrient that meets the estimated nutrient needs of most people. To avoid toxicity, athletes should not exceed the Tolerable Upper Intake Level (UL) for a nutrient.

Generally, athletes who consume more than 1,800 calories a day get enough vitamins from their food. However, a vitamin/mineral supplement supplying 100 percent of the RDA or AI may be appropriate for athletes with extremely low calorie intakes or for those who avoid foods groups.

MINERALS

Minerals serve a variety of important functions in the body. Some minerals, such as calcium and phosphorus, are used to build bones and teeth. Others are important components of hormones, such as iodine in thyroxin. Iron is crucial in the formation of hemoglobin, the oxygen carrier within red blood cells.

Minerals also contribute to a number of the body's regulatory functions. These include regulation of muscle contraction, conduction of nerve impulses, clotting of blood, and regulation of normal heart rhythm.

Minerals are classified into two groups based on the body's need. Major minerals, such as calcium, are needed in amounts greater than 100 milligrams per day. Minor minerals or trace elements, such as iron, are required in amounts less than 100 milligrams per day. Calcium and iron deserve special attention because of their importance in an athlete's diet.

Iron is crucial for athletes because it assists in oxygen transport in the blood and utilization by the muscles. A lack of iron hurts performance by decreasing the capacity of the muscle to use oxygen. Young female athletes in particular are at risk of iron deficiency due to increased iron losses through menstruation and typically low iron intake. It is recommended that coaches see that their female athletes have hemoglobin levels checked at least once a year.

If one of your athletes appears to be iron deficient, you should consult your team physician for diagnosis and treatment. Supplemental iron may be prescribed for individuals whose lab tests indicate iron deficiency. However, a routine use of iron supplements by all athletes is not recommended.

The RDA for iron is 18 milligrams for women and 8 milligrams for men. Animal iron sources are better absorbed than vegetable iron sources. Vitamin C-rich foods (orange juice) enhance iron absorption. Iron-enriched or fortified cereal/grain products provide additional iron. Beans, peas, split peas and some dark green leafy vegetables are good vegetable iron sources. Table 4 lists good sources of iron and the milligrams of iron each provides.

Iron Food	Serving Size	Milligrams of Iron
Pork Liver	3 ounces	17.7
Chicken Liver	3 ounces	8.4
Oysters	3 ounces	6.9
Beef Liver	3 ounces	6.6
Dried Apricots	½ cup	5.5
Turkey	3 ounces	5.1
Prune Juice	½ cup	4.9
Dried Dates	½ cup	4.8
Pork Chop	3 ounces	4.5
Beef	3 ounces	4.2
Dried Prunes	½ cup	3.9
Kidney Beans	½ cup	3.0
Baked Beans w/Pork & Molasses	½ cup	3.0
Hamburger	3 ounces	3.0
Soy Beans	½ cup	2.7
Raisins	½ cup	2.5
Lima Beans	½ cup	2.5
Dried Figs	½ cup	2.2
Spinach	1 cup	2.0
Mustard Greens	½ cup	1.8
Peas	½ cup	1.4
Eggs	1 large	1.2
Sardines packed in oil	1 ounce	1.0

Table 4 Iron

An adequate calcium intake is important not only to prevent osteoporosis (bone deterioration), but because calcium also helps to maintain bone density and prevent stress fractures. An athlete's calcium needs are greatest during adolescence, when the bones are growing. Young women athletes who develop amenorrhea (absence of menses) have increased bone loss. This is a serious health risk, since once bone mass is lost, it may never be fully replaced.

The AI values for calcium are 1,300 milligrams for youths and adolescents ages 9 to 18. If an athlete does not consume four servings of calcium rich foods such as milk, cheese, yogurt, or green leafy vegetables each day, a calcium supplement may be necessary. One glass of milk contains 300 milligrams of calcium. Table 5 lists good sources of calcium and the milligrams of calcium each provides.

WATER

Water is the most essential of all nutrients for athletes. At rest, athletes need at least two quarts of fluid daily. An adequate supply of water is necessary for control of body temperature during exercise, for energy production, and for elimination of waste products from metabolism. Dehydration – the loss of body water – impairs exercise performance and increases the risk of heat injury.

Consuming adequate fluid before, during and after exercise is vital for safeguarding health and optimizing athletic performance. Athletes should drink 14 to 22 ounces of fluid two to three hours before exercise. During exercise, athletes should drink 6 to 12 ounces of fluid every 15 to 20 minutes. Fluid intake should closely match the fluid loss from sweating to avoid the detrimental effects of dehydration. After exercise, athletes should drink at least 16 to 24 ounces of fluid to replace every pound of body weight lost during exercise.

Thirst is not an adequate guide to fluid replacement. Most athletes replace only 50 percent of their fluid losses during exercise. Encourage athletes to replace fluids by drinking according to a time schedule rather than in response to thirst.

Sports drinks containing carbohydrate and sodium are recommended during intense exercise lasting longer than an hour. The carbohydrate helps to delay fatigue, improve fluid absorption and replace glycogen following exercise. The sodium helps to stimulate thirst, increase voluntary fluid intake and enhance fluid retention.

Calcium Food Sources	Serving Size	Milligrams of Calcium
Plain Yogurt	1 cup	415
Skim Milk	1 cup	296
Whole Milk	1 cup	288
Cottage Cheese	1 cup	282
Swiss Cheese	1 ounce	248
Mozzarella Cheese	1 ounce	207
Cheddar Cheese	1 ounce	204
Ice Cream	1 cup	175
Oysters	1 cup	343
Salmon w/ Bones	1 ounce	86
Sardines w/ Bones	1 ounce	74
Turnip Greens	½ cup	184
Mustard Greens	½ cup	183
Collard Greens	½ cup	152
Spinach	½ cup	83
Broccoli	½ cup	67
White Beans	½ cup	50
Cabbage	½ cup	49
Kidney Beans	½ cup	48
Lima Beans	½ cup	38
Carrots	½ cup	37
Prunes	8 large	90
Orange	1 medium	62
Tangerine	1 large	40
Almonds	½ cup	152
Walnuts	½ cup	60
Peanuts	½ cup	54
Pecans	½ cup	43

Table 5 Calcium

Pre-Competition Meals

The primary purpose of the pre-competition meal is to provide energy and fluid for the athlete during the game. Carbohydrate-rich foods provide the quickest and most efficient source of energy, and unlike fatty foods, are rapidly digested. Since many athletes experience abdominal discomfort if they have food in their stomachs during competition, the timing of the meal is important. To avoid potential gut distress, the calorie content of the meal should be reduced the closer to exercise the meal is consumed. A small meal of 300 to 400 calories is appropriate an hour before exercise, whereas a larger meal can be consumed four hours before exercise.

The athlete's foods and fluids should be well tolerated, familiar (tested in training) and palatable. Athletes may have to do some planning to ensure they have access to familiar foods before competition. They may need to bring their lunch/snacks in a small cooler rather than choosing from the school cafeteria's entrees or a restaurant menu. Encourage them to bring any foods that they believe will help them win.

Experimenting with a variety of pre-exercise meals in training helps athletes determine what foods they are most likely to handle before competition. Athletes should never try an untested food or fluid before competition. The result may be severe indigestion and impaired performance.

Fueling During Competition

During tournaments or meets, athletes require fluids and carbohydrate throughout the day. Some athletes may be reluctant to eat and drink because they have to compete again. However, failing to refuel and replace fluid losses can cause their performance to deteriorate, particularly toward the end of the day. Bringing along a cooler packed with familiar high-carbohydrate, low-fat meals and snacks keeps athletes from then being dependent on the high-fat fare typical of concession stands.

Since everything an athlete eats before a competition may be considered a pre-event meal, it is important to consider the amount of time between competitions. If there is less than an hour between games or events, athletes can consume liquid meals, sports drinks, carbohydrate gels, fruit juices, and water. When there is an hour or two between games or events, athletes can consume easily digestible carbohydrate-rich foods such as fruit, grain products (fig bars, bagels, graham crackers), low-fat yogurt, and sports bars in addition to drinking fluids. When games or events are separated by three hours or more, the athlete can consume high-carbohydrate meals along with drinking fluids.

Achieving Ideal Competitive Weight

Some athletes fight to keep pounds off; others struggle to keep pounds on. Genetics, age and training all influence body weight. Food intake and lifestyle also play important roles. Athletes will perform at their best if they achieve their competitive weight (while adequately hydrated) either in the off-season or early in the season. Allowing for an increase in lean tissue and decrease in body fat during training, the athlete should try to maintain that weight throughout the season.

Young athletes with busy schedules tend to have irregular eating habits and sleeping patterns. As a result, gaining weight or keeping it on can be a problem. Athletes who have difficulty gaining weight generally aren't eating enough calories. Athletes can increase calorie intake by changing the amount and type of food eaten, and increasing the frequency of meals and snacks. To gain weight, athletes should eat five to six times a day.

To lose weight, athletes need to reduce their calorie intake. Increasing activity in addition to reducing calories helps promote weight loss. The recommended rate of weight loss is one-half pound a week, which requires a caloric deficit of 250 to 300 calories per day. Paying attention to the amount of and types of food eaten is important. Eating fewer high fat foods such as fried foods, gravies, sauces, high fat snacks and deserts can significantly reduce calorie intake.

A safe level of caloric restriction depends on the athlete's normal dietary intake. Males should not consume fewer than 2,000 calories per day. Females should not consume fewer than 1,800 calories per day. Extreme caloric restriction can disrupt physiological function, nutritional status, hormone levels, bone mineral density, psychological function and, for young athletes, growth rate.

Eating Disorders

Losing weight to achieve the "ideal" weight, percent body fat, or appearance can become an all-consuming obsession for some athletes. As a result, athletes may develop eating disorders that jeopardize both performance and health. Although recognition of these life-threatening disorders is growing, appropriate intervention and treatment lag far behind the problem.

Eating disorders such as anorexia nervosa (self-imposed starvation) and bulimia nervosa (binge/purge syndrome) are defined as severe disturbances in eating behavior. Female athletes are at greater risk for eating disorders than are female non-athletes or males. Eating disorders are more prevalent in sports where appearance is judged, in weight-classification sports, and in sports that emphasize leanness to enhance performance.

Abnormal eating patterns do not always mean the athlete has an eating disorder. There is, however, cause for concern if an athlete shows the following signs or behaviors:

- Dramatic weight loss or extreme fluctuations in weight
- Claims to feel fat at normal or below normal weight
- Preoccupied with food, calories and weight
- Amenorrhea (loss of menstruation)
- Often eats secretively – avoids eating with the team
- Often disappears after eating, especially after a large meal
- Mood swings
- Excessive exercise that is not part of training regimen.

Do not attempt to diagnose or treat an athlete with an eating order. Anorexia nervosa and bulimia nervosa are very complex problems and require treatment by medical professionals. Your role should be to help the athlete contact a medical professional that specializes in treating eating disorders. If the athlete denies having a problem, but the evidence appears undeniable, consult with a physician who will assist you with the situation.

Several risk factors or triggers have been identified that are associated with the development of eating disorders in athletes. Compared to other athletes, athletes with eating disorders began both sports-specific training and dieting earlier, and felt that puberty occurred too early for optimal performance. Other triggers included prolonged periods of dieting, frequent weight fluctuations, a sudden increase in training volume, and traumatic events such as injury or loss of a coach. Many athletes who began dieting to improve performance reported that their coach recommended they lose weight. The risk for eating disorders was also increased when the weight loss was unsupervised.

While sports do not cause eating disorders, it is possible for an eating disorder to be triggered by a comment from a person who is very important to the athlete. All members of the athletic team family – coaches, trainers, athletic administrators and especially teammates – are significant people in an athlete's life. Consequently, these individuals have the power to be a helpful or harmful influence on susceptible adolescent athletes.

A great deal of caution must be given to the process of weigh-ins. The risk of triggering an eating disorder is increased when the numbers are used to set unrealistic weight goals for rapid weight loss, to browbeat or ridicule the athlete for gaining weight, or to impose excessive pressure on the athlete to show immediate weight loss.

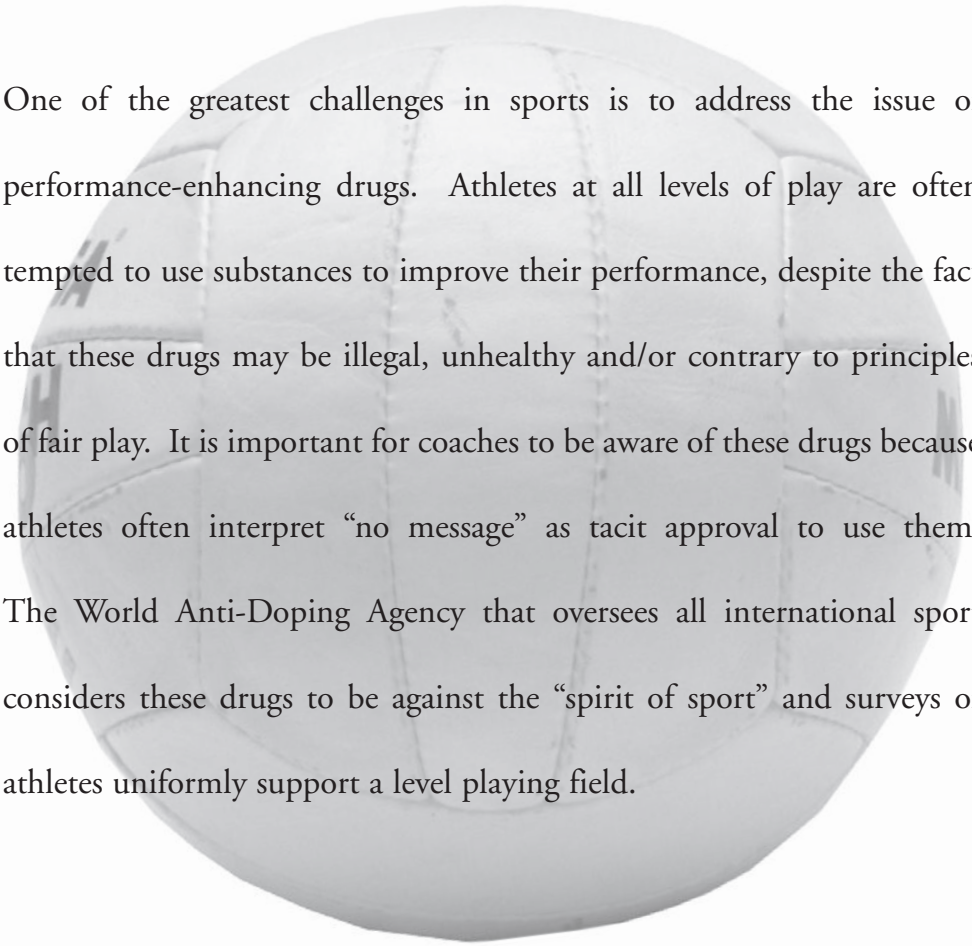
Coaches and trainers must realize that their opinions and remarks about body weight can strongly influence an individual's eating behaviors. Commenting on someone's body size or need for weight loss (without offering guidance on how to do this healthfully) may trigger the development of an eating problem in vulnerable athletes.

As a coach, you can play an important supportive role in helping your athletes deal with the emotional and physical stresses of training and maintaining weight by:

- Providing your athletes with the basic nutritional information that appears in this chapter
- Not overplaying the impact of weight on performance
- Emphasizing that long-term, good eating habits and sensible weight control will optimize athletic performance
- Providing appropriate advice regarding weight loss/gain, rate of weight loss/gain, and target weight range.

CHAPTER 9

Performance-Enhancing Drugs & Supplements



One of the greatest challenges in sports is to address the issue of performance-enhancing drugs. Athletes at all levels of play are often tempted to use substances to improve their performance, despite the fact that these drugs may be illegal, unhealthy and/or contrary to principles of fair play. It is important for coaches to be aware of these drugs because athletes often interpret "no message" as tacit approval to use them. The World Anti-Doping Agency that oversees all international sport considers these drugs to be against the "spirit of sport" and surveys of athletes uniformly support a level playing field.

Anabolic-Androgenic Steroids

Anabolic-androgenic steroid use in athletes has been documented since the 1950's and the effects on muscle building and performance are well known to athletes and body builders. Anabolic-androgenic steroids (AAS) are a classic performance-enhancing drug and have almost no legitimate therapeutic indications in athletes. In sport they are used almost exclusively to gain a competitive advantage. Although often called "steroids" or "anabolic steroids", they should properly be referred to as "anabolic-androgenic steroids" because they are testosterone or testosterone-like synthetic drugs that result in both anabolic (increased muscle mass) and androgenic (develops male secondary sex characteristics) effects. Although athletes use AAS for their anabolic results, all AAS have varying amount of androgenic effects that are responsible for most of their adverse reactions. The result is that athletes who take AAS for their anabolic properties, to increase lean body mass or strength, cannot avoid the undesired and often harmful androgenic properties of AAS use. Finally, it is important to distinguish AAS from anti-inflammatory steroids that are called corticosteroids or cortisone. Corticosteroids are legitimately used to treat asthma and other medical conditions, as well as in the form of joint injections to treat inflammation.

AAS can be divided into two categories: exogenous and endogenous steroids. Endogenous AAS are those that are naturally produced by the body in some amounts and can be made into drugs and consumed by athletes. The most commonly used endogenous AAS is testosterone that is made by the testes and is necessary for normal male function. Although it cannot be taken in pill form, testosterone can be injected into a muscle, absorbed through the skin by a patch or gel, or across the lining of the cheek in the form of a pellet. Studies have demonstrated that injections of testosterone in high doses can increase muscle mass.

The other types of AAS are the exogenous or synthetic drugs. These are not produced by the body and are altered in the laboratory to change how a drug behaves in the body. For example, adding certain side chains to testosterone allows the drug to be absorbed orally. Other additions increase the potency of the drug or attempt to decrease side effects. The past few years has seen the appearance of "designer" AAS that were specifically developed to avoid detection by drug testing. Some of these are tetrahydragestrinone (THG), norbolethone and madol (DMT).

The 1990 United States Anabolic Steroids Control Act classified AAS as a Schedule III drug and limited the legitimate therapeutic reasons for using them. Due to the

increased availability of newer AAS, the 2004 Anabolic Steroid Control Act was passed and this increased the number of AAS that were considered Schedule III drugs and tightened the definition of AAS. Included in the 2004 Act were THG and norbolethone, as well as many former dietary supplements that include androstenedione, androstenediol and 19-norandrostenedione. As of this time, DHEA is still considered to be a dietary supplement and can be sold over-the-counter.

While there is no debate on the fact that large doses of AAS can increase muscle mass, the effects on actual performance are less clear. In many sports, performance is difficult to measure as it is influenced by factors other than strength alone. Despite the widespread use of anabolic steroids in athletes, there is little data to support its effects on performance. Studies have been limited to obvious targets such as weight lifting and measuring acceleration in sprinters. In addition to strength changes, there are additional AAS effects that may contribute to efficacy in athletes. Many have attributed AAS strength gains to increases in aggressiveness that encourages intensity in both training and competition. Although there are AAS receptors in brain tissue, it is unclear as to their role. Regardless of the actual mechanism, it is clear that athletes believe that AAS improve performance and have continued to use them.

Any discussion of the adverse effects associated with AAS are complicated by the fact that scientific studies use doses of AAS far below what has been reported by athletes. As a result, it is likely that medical studies underestimate the full extent of side effects from AAS use. These studies do not begin to approximate the doses used by athletes that may be 10-40 times the therapeutic dose and in multiple combinations. AAS affect virtually every organ in the body and their effects can be divided into organ system effects, psychological effects, sex-specific effects and potential effects on immature individuals.

The two systems that have been most studied are the cardiovascular and gastrointestinal systems. AAS affect the cardiovascular system by increasing total cholesterol, LDL (bad) cholesterol and blood pressure, while lowering HDL (good) cholesterol. When these are combined with the potential clotting effects of AAS, the risk of coronary artery disease dramatically increases and the possibility of heart attacks. Indeed, there are multiple reports of relatively young AAS users suffering heart attacks. There have also been reports of AAS-induced cardiomyopathy (heart enlargement) following continued use of very high doses of these drugs.

The liver is the main target organ for gastrointestinal effects of AAS with case reports of hepatocellular dysfunction, peliosis hepatitis (blood-pooled cysts) and hepatocellular adenoma and liver cancer. Almost all reports of serious liver problems are the result of the 17-alpha alkylated AAS designed to be taken orally. Reports from the former East German Republic revealed three deaths due to liver failure and several cases of severe liver damage under their AAS program.

There are several other bodily systems that are affected by AAS use, such as the musculoskeletal system and skin. There are multiple reports of tendon ruptures that have been associated with AAS use and some animal studies have demonstrated structural changes in tendons following AAS use. It may be that AAS increase the risk of tendon rupture through muscle enlargement without a corresponding increase in tendon strength. The skin will often be the most obvious organ affected by AAS use and will display acne, striae (skin stretch lines), or abscesses, the latter from injectable use.

The psychological effects of AAS have also been reported with such conditions as the inducement of personality disorders, hyperaggressiveness ('roid rage) and addiction. Although there has been a great deal of conflicting studies, a 2005 review found that AAS could cause aggressiveness, rage, delirium, depression, psychosis, and mania. As with many other AAS effects, the psychiatric conditions appear to be dose dependent, meaning that the more you take, the greater the risk of side effects. Dependency on AAS is also controversial, but some studies have determined that 75% of AAS users met the criteria for dependence and addiction. Whether or not there is a true addicted state is controversial; what is clear is that it can be very hard for some AAS users to stop. Finally, there have also been several unfortunate cases reported in the media of teenagers who became severely depressed shortly after discontinuing AAS use and committed suicide.

Endocrinological effects are generally dependent on the amount of natural testosterone produced. For example, males produce about 7 mg of testosterone per day and females about one-tenth that amount. Men will thus experience decreased or absent sperm counts as well as gynecomastia (male breast enlargement) due to an excessive amount of AAS that is metabolized into estrogens that disturbs the androgen/estrogen balance. Females will experience all of the virilizing effects of AAS including male pattern alopecia (baldness), clitoromegaly, hirsutism, breast atrophy, as well as menstrual disturbances. There is also some evidence that AAS reduce thyroid function and make the user hypothyroid.

There are also many other miscellaneous effects from the use of AAS that may be idiosyncratic. There are reports of constitutional growth delay in youths, reduced immune function, and unusual tendon ruptures, such as the iliopsoas and triceps muscles. If AAS are taken by injection, the risks associated with needle use include contracting blood borne infections, such as hepatitis B, C and HIV (AIDs). Due to their illegal nature, some athletes have been known to utilize AAS from the black market. These have a serious risk for contamination with impurities, false dosages, a high risk of infection or other dangerous risks.

Allegations of AAS use in sport have been present for at least 40 years and seem to be ingrained in athletics. It is clear that they have the ability to increase muscle mass and thus significantly alter the competitive landscape in many sports.

Other Performance-Enhancing Substances

HUMAN GROWTH HORMONE (hGH)

hGH is a polypeptide hormone of 191 amino acids that is produced in the anterior pituitary. Several different isoforms are naturally produced with the predominant one being a 22 kD monomer and about 10% being the 20kD form. Due to its structure, hGH is only effective by injection and cannot be taken orally. hGH is naturally increased by exercise, stress and slow-wave deep sleep. This has led athletes to try drugs such as gamma-hydroxy butyrate (GHB) to stimulate slow-wave sleep and thus, hGH, with often disastrous results. GHB and the related compounds gamma butryolactone (GBL) and butanediol (BD) are banned by the Food and Drug Administration, but are still found illegally. There have been several deaths and serious illnesses associated with these compounds and they should be avoided.

It is not surprising that improvements in drug testing for AAS encouraged athletes to explore alternatives for strength enhancement. There have been several reports of athletes using hGH including Ben Johnson's 1988 admission of combining hGH with anabolic steroids, the discovery of large amounts of hGH in a Tour de France support vehicle in 1998 and the confiscation of hGH from the baggage of Chinese swimmers prior to the 2000 Sydney Olympics. The effects of hGH are felt to be as a "partitioning" agent whereby protein synthesis is favored over fat synthesis. This is opposed to AAS that is a direct inducer of muscle growth.

Evidence of performance enhancement with hGH are limited because athletes take much larger doses than can be given ethically in research. One small study demonstrated some improvement in lean body mass, but no studies have definitively demonstrated increases in strength or athletic performance.

There are significant adverse effects of hGH when used in healthy adults. Short-term use can result in fluid retention and muscle edema, while long-term use can cause arthralgias, diabetes, muscle disease, carpal tunnel syndrome and acromegaly. Acromegaly is a disease of growth hormone overproduction and can result in musculo-skeletal changes, especially to the skull, jaw, hands and feet. The other concern with hGH is black market contamination. Although hGH is now biosynthesized, there is still likely some hGH on the black market that was extracted from the pituitary glands of cadavers. This has the possibility of causing infections, such as the virus responsible for "Mad Cow Disease." Due to its popularity and difficult availability, there are a great number of counterfeit products claiming to either be hGH or increase hGH secretion. Many of these products are pills and powders to be taken by mouth and since hGH cannot be absorbed orally, their claims are dubious at best.

While there are a few studies and anecdotal reports of hGH use in healthy adults, there is no data on its use in children and adolescents. Growth hormone is used in the treatment of growth hormone deficient children and some conditions of short stature. When hGH became available, physicians were flooded with requests from parents of normal children asking for the drug so that their children could achieve extraordinary height. It would be expected that attempts to alter the growth hormone-pituitary system would result in significant risks to children and adolescents. Although there is currently no effective test for hGH, researchers are working on several different methods of detection and it is likely that a drug test will soon be available. There is significant temptation to use hGH in the youth population, not so much for muscle gain, but for height enhancement.

ERYTHROPOIETIN (EPO)

EPO is a hormone that is produced in the kidneys and is responsible for regulating the red blood cells (hemoglobin) in the body. EPO, and its related compound darbepoetin, have been synthesized through recombinant manufacturing and are available for the medical treatment of anemia. Athletes in endurance sports, such as cycling or long-distance running, began abusing EPO in order to increase endurance. This is because the amount of red blood cells determines how much oxygen can be deliv-

ered to exercising muscle. Unfortunately, too many red blood cells in the circulation can cause the blood to thicken and result in heart attacks and strokes. In fact, the suspicion is that several cyclists died in the 1980's as a result of excessive use of EPO. There is no evidence that EPO can increase muscular strength. In 2000, an effective test was developed to detect EPO and that has been commonly in use since.

STIMULANTS

Stimulants are a broad class of drugs that are related to naturally occurring adrenaline. These drugs act either directly or indirectly on the sympathetic nervous system and are available in foods (coffee, sodas and energy drinks) over-the-counter, prescription drugs or as illegal recreational drugs on the black market. They have a wide variety of actions in the body and the effect of a particular drug in this class depends on which receptor it favors. For example, some stimulants like an albuterol inhaler that is used in the treatment of asthma relax smooth muscle and open the pulmonary tree. In general, almost all drugs in this class act to speed up the heart rate, increase blood pressure and cause all of the effects of adrenaline, the "fight or flight" hormone. Some examples of stimulants include ephedrine, pseudoephedrine, caffeine, Ritalin, Adderal, albuterol, amphetamines, methamphetamine, cocaine, phenylephrine and phenylpropanolamine.

There is evidence that athletes have used stimulants since the Roman Gladiators in 600 B.C. At the 1960 Summer Olympic Games, a Danish cyclist died during competition from an overdose of stimulants. Today's athletes use stimulants for a variety of reasons. Some use them for their stimulants properties to feel more energetic, alert, to fight fatigue and improve performance. This is despite the fact that although you may feel more energetic, there have never been any controlled studies to definitively demonstrate performance enhancement. In sports where thinness is valued, such as gymnastics and wrestling, athletes use them as diet aids to decrease appetite, burn calories and lose weight. Athletes may also legitimately use stimulants to treat diseases, such as asthma and attention-deficit disorder (ADD or ADHD). Finally, athletes use stimulants as a recreational drug to get high in the form of drugs such as methamphetmine.

Depending on the particular drug, stimulants can have a great many adverse effects. In general, they can cause anxiety, heart palpitations, rapid heart rate and arrhythmias, tremors, stomach upset, and insomnia. Since stimulants often increase the metabolism, there is a real concern about athletes exercising in the heat and the stimulants

contributing to heat illness. Several prominent athletes have died while exercising due to the effects of stimulants. In addition, many of these substances are addictive with the need for increasing doses and then requiring a depressant, such as marijuana or alcohol in order to slow down afterwards.

Stimulants are readily available in our culture and while small amounts of drugs like caffeine are usually not harmful, the concern is when large doses or multiple drugs are used. For example, an athlete may have 2 cups of coffee in the morning, several caffeinated soft drinks throughout the day, caffeine-containing energy drink (e.g. Red Bull®) before practice, over-the-counter pseudoephedrine and dietary supplements containing guarana or Citrus Aurantium. All of these contain varying amounts of stimulants and the combination can cause serious problems. It is imperative to be aware of the total amount of stimulants that an athlete may be consuming.

NUTRITIONAL SUPPLEMENTS

The 1994 Dietary Supplement Health and Education Act (DSHEA) unleashed a whole host of dietary supplements on the American consumer. These include vitamins, minerals, amino acids, plant derivatives and other natural and synthetic substances that come in a variety of forms, including powders, tablets and liquids. While this creates a great deal of confusion, one thing is very clear: dietary supplements are aggressively marketed to athletes.

Despite all of the conflicting information on supplements, there are a few facts that are worth noting:

1) Dietary supplements are not regulated by the same laws as over-the-counter and prescription drugs. There is very little regulation of dietary supplements and many studies have found that many supplements do not contain what is on the labels. As a result, it is difficult to know with 100% certainty if what is on the label is really what you are taking.

2) Supplements can be contaminated with impurities that will result in a positive drug test. Whether unintentionally or intentionally, some athletes have tested positive from taking contaminated supplements.

3) Most supplements have not been subjected to rigorous studies that prove their positive effects. Due to labeling laws, the only restrictions on dietary supplements are that they cannot claim to treat a disease. Other than that, they can legally make a

wide variety of claims without medical proof.

4) Most of the substances that are available as dietary supplements can be easily and more cheaply obtained from the diet through good nutrition.

There are a tremendous number of dietary supplements on the market with more appearing every day. Athletes are often approached to try a new product. The best advice is to check with a certified athletic trainer, physician or registered dietician before taking any dietary supplement. As a rule of thumb, if a product claims to "build muscle" it may contain a form of AAS. If it claims to "increase energy" it may contain a stimulant.

Although it is impossible to provide details on every supplement, here are a few popular types.

DHEA

Dihydroepiandrosterone (DHEA) is the only relative of AAS that was left off the 2004 Anabolic Steroid Control Act and continues to be sold as a dietary supplement. DHEA is metabolized in the body to androstenedione, which is metabolized to testosterone. It is worth noting that while very little DHEA is converted to testosterone in men, DHEA does get converted to estradiol (a female hormone) as well. There are no studies demonstrating either performance enhancement with DHEA or strength gains in normal males. Because only a small amount of testosterone results from taking DHEA, it is likely that its greatest effects would occur in females and developing adolescent males.

CREATINE

Creatine is one of the most widely used nutritional supplements by athletes and has been touted for its ability to increase strength and power. Creatine comes from three sources: it is a natural substance found in foods, the body is able to make it, and it can also be prepared synthetically as a dietary supplement. The average diet contains 1-2 grams/day of creatine from protein-rich foods such as meat and fish. It is also naturally produced by the liver, pancreas and kidneys from the amino acids methionine, glycine and arginine at a rate of 1-2 grams/day. Although 90% of creatine is stored in skeletal muscle as free creatine and phosphocreatine, it is also found in the brain and testes.

The initial justification for oral creatine supplementation was the 1992 study of a 20% increase in skeletal muscle creatine following a 7-day loading dose. Skeletal muscle phosphocreatine is rapidly depleted during 10-20 seconds of maximum exercise, but half is resynthesized after 60 seconds with full restoration in 5 minutes. Theoretically, taking oral creatine can potentially increase phosphocreatine stores and thus power.

Whether creatine supplementation actually provides performance benefit has been the subject of great debate. Most data suggest that oral creatine could only increase performance in repeated 6-30 seconds bouts of exertion where there are recovery periods of 20 seconds to 5 minutes. They found no benefit in the other situations. There is little evidence that these gains found in a laboratory or in research translate into improved athletic performance.

Another factor complicating creatine is the variation in individual response. Muscle-biopsy studies demonstrated that subjects with lower levels of both muscle creatine and phosphocreatine tended to have greater increases in creatine and phosphocreatine after taking creatine supplements. One factor is that skeletal muscle act as a "creatine bank" and cannot exceed a creatine concentration of 150-160 mmol/kg. Thus, athletes who consume less dietary creatine, e.g. vegetarians, may benefit more from creatine supplementation. That also means that once your creatine banks are full, taking additional creatine is of little benefit. There is also likely little value to high-dose creatine supplementation. If creatine is to be used, most authors recommend 0.3 g/kg/day (0.15 g/pound/day) loading for 5 days, followed by 0.03 g/kg/day (0.015 g/pound/day) maintenance. Increasing the dosage will not increase the positive effects. As with other substances, there is a direct correlation between excessive dosage and the risk of side effects.

Another area of controversy is that of adverse effects. Creatine causes water to be retained by the muscles, thus pulling water away from the circulation where it is needed and giving the potential for dehydration, muscle cramping and heat injury. Although there are anecdotal reports, controlled studies do not seem to support a large increase in these symptoms nor related gastrointestinal cramping. Another fear was that once creatine muscle stores were saturated, excess creatine would unduly tax the kidneys and result in kidney problems. While urinary creatine and creatinine excretion does increase with oral creatine supplementation, there have been few reported incidents of kidney failure in subjects with normal kidney function.

However, it would seem sensible that athletes with kidney disease or other health problems should not take creatine without physician supervision.

The most worrisome complication from creatine use is the development of lower-extremity compartment syndromes. Studies have demonstrated increased muscle size due to water retention and there are reports of acute compartment syndromes and rhabdomyolysis (muscle damage). This is an important concern given the large numbers of creatine users.

As with other supplements, there is very little information about the manufacturing and purity standards of creatine. There have also not been any studies on the interaction of creatine with other supplements or medications.

EPHEDRINE AND CITRUS AURANTIUM ("Bitter Orange" or "Zhi Shi")

Ephedrine, a sympathomimetic amine, has been implicated in the deaths of several athletes and this has prompted a closer examination of ephedrine. Until 1994, ephedrine was mainly consumed in over-the-counter decongestants and prescription drugs and the biggest concern was that it could be used to manufacture methamphetamine. The United States Dietary Supplement Health and Education Act (DSHEA) of 1994 ushered in a new era for nutritional supplements and herbal ephedra has been advertised as both a weight-loss product and an energy booster. Due to the high number of adverse effects, the US Government banned ephedra in 2003.

It is important to distinguish between pharmaceutical-grade ephedrine and herbal-extract ephedra sold as a dietary supplement. The latter has been available in China for thousands of years as Ma Huang and although its active ingredient is ephedrine (one of many ephedra alkaloids), it also contains pseudoephedrine, methylphenedrine, methylpseudoephedrine and norpseduoephedrine (cathine). The presence of multiple compounds is further exacerbated by lack of governmental oversight due to DSHEA. As with other supplements, studies of ephedra-containing herbal supplements found that half exhibited major discrepancies between content and the labels with significant lot-to-lot variations among products. This demonstrated that ephedra labels are not a reliable indicator of content.

Ephedrine is an adrenergic stimulant that causes vasoconstriction (tightening of the blood vessels), bronchodilation (opening of the lung passages), and tachycardia (fast

heart rate). As such, it has been associated with cerebrovascular events (stroke), heart attacks, major psychiatric symptoms, and death. At least 100 cases of death or severe reactions have been definitely or possibly related to ephedra in the United States. In about half of these cases, the individuals were less than 30 years old. There is also a concern in that athletes may use multiple types of stimulants, such as caffeine and pseudoephedrine (pseudophed) in combination and this may increase side effects. Lastly, stimulants such as ephedra increase heat production and when athletes exercise in hot weather, this puts them at increased risk for heat illness and heat stroke.

Although athletes frequently consume ephedra products, there are no studies using ephedra-containing dietary supplements for performance-enhancement. The only related studies are a small number that used pharmaceutical ephedrine alone or in combination with caffeine. Most of these utilized military recruits as subjects and measured short-term use. Ephedra is also marketed as a thermogenic for weight loss and this appeals to athletes trying to lose weight.

Reports of adverse reactions have led supplement manufacturers to promote "ephedrine-free" products and many interpret this to mean "stimulant-free". In actuality, these products usually contain Citrus Aurantium, otherwise known at Bitter Orange of Zhi Shi. The main ingredient is likely synephrine, but it also contains octopamine and tyramine. Synephrine is a close relative of ephedrine and has similar effects and will likely result in similar adverse reactions as the number of users increases.

L-ARGININE OR NO2

Nitric oxide has become a popular dietary supplement due to its purported use as a "hemo-dilator". It is touted to increase blood flow to exercising muscle, prevent heart disease, treat male infertility and kidney disorders. In reality, these supplements contain the amino acid L-arginine that is widely available in the diet. L-arginine is also synthesized in the liver and can be taken as a dietary supplement. Its popularity stems from the fact that animal studies demonstrate that increasing L-arginine in the diet can increase the formation of nitric oxide and changes in blood vessels. A small study of L-arginine revealed that although L-arginine levels increased, there was no change in the nitrate levels. Further more, 80% of the subjects in the study complained of adverse effects, including diarrhea, vomiting, headache and nosebleeds. As with other supplements, it appears that L-arginine has limited positive effects and possibly significant side effects. L-arginine is not considered a prohibited substance.

CONCLUSION

There is often intense pressure for athletes to perform and for coaches to win. Performance-enhancing drugs are readily available and there is a large temptation to use these substances. It is imperative that coaches send a clear message about discouraging the use of these drugs and recognize signs of their use. If a coach or parent does not have accurate information about drugs or nutritional supplements, it is essential to consult a professional, such as a physician, certified athletic trainer or registered dietician.

Glossary

VOLLEYBALL TERMS

ACE: An ace is a served ball that lands inside the opponent's court and is untouched by the receiving team. It scores a point.

ANTENNA: A boundary marker that determines the boundaries of the court on the net.

BLOCK: A block is an attempt by one or more players to stop the ball at the net, in the air. The players have jumped at the net.

BUMP: Also called an underhand pass or a pass. It involves the technique of playing the ball with the forearms with the hands together.

CARRY: A carry is a fault called by the referee. It is called if a player causes the ball to come to rest.

CENTERLINE: The centerline divides an indoor court in half. It is directly below the net.

COURT: The volleyball court is an area divided into two equal halves by a net. It is 18 meters (59 feet, 0.75 inches) long and nine meters (29 feet, 6.375 inches) wide. The net is 2.24 meters (7 feet, 4.125 inches) high for women and 2.43 meters (7 feet, 11 inches) for men.

COVERAGE: Coverage refers to playing defense around the hitter so that if the ball is blocked back, the team will be able to play it up. (Hitter Coverage)

DIG: A dig is a ball played up by the defensive team. Usually it is from a spiked ball.

DINK: A dink is a short shot by an attacker. It is more often called a "tip".

DOUBLE CONTACT: A fault called by the referee. A ball has hit the passer/digger twice. This is rarely called on a hard driven (spiked) ball.

EMERGENCY TECHNIQUE: This usually refers to a defensive move that involves a dive, roll or sprawl.

ENDLINE: The base line or boundary marker that runs parallel to the net, at the end of the court.

FLOAT: A float serve is a ball that moves like a knuckle ball in the air. It does not have spin but wobbles in the air as it travels.

FOOT FAULT: When a server steps on the endline while serving. The server may step on or over the line after the ball has been contacted.

FOREARM PASS: A technique for playing a ball using the forearms with the hands together. Also called a bump or a pass.

HIT: Usually a spike or standing spike.

HITTER: Attacker, spiker, etc.

JOUST: A confrontation between a hitter and a blocker at the net.

KILL: A spiked ball that results in the end of a rally giving one team a side out or point.

LIBERO: The position played by a defensive specialist who is free to substitute any time the ball is dead. The second referee does not record this substitution. A Libero cannot serve, attack the ball above the height of the net, overhand set to an attacker from in front of the three-meter line and may not block or attempt to block.

LIFT: A fault called by the referee. The ball has come to rest or played with a sloppy contact where the ball did not quickly rebound off of the player.

MIDDLE HITTER/BLOCKER: A player that specializes in the front court in the middle position. The middle blocker/hitter is usually a taller player or an especially good blocker.

OUT OF BOUNDS: A ball is out of bounds when it lands outside of the court. Should it touch the line it is considered good or in. If it touches an antenna it is out of bounds.

OFF BLOCKER: A front row player that is not involved in the block. The player pulls off of the net and becomes a down defensive player.

PASS: A ball played with the forearms. Also called a bump or underhand pass.

RALLY: The exchange between two teams, initiated with a serve and resulting in a point or side out.

RALLY SCORE: A scoring system that gives a point to the team that has won the rally. In this system a point is scored on every rally.

REPLAY: A referee's call in which no point or side out is awarded. The rally is re-played.

ROTATION: The clockwise movement of a team each time it wins the serve.

RUN THROUGH: Playing the ball with the forearms (digging or passing the ball) while moving or on the run.

SCREENING: Blocking the receiving team's vision so that they cannot see the server.

SERVE: The act of putting the ball into play.

SETTER: The person or position that is responsible for the second contact. The setter runs the offense and sets up the hitters.

SHAG: Collect or pick up the volleyballs.

SHANK: A ball passed so poorly that no other team members can get to it. It results in an automatic point for the serving team.

SHOT: An attack that is not hard driven.

SIDELINE: The side boundaries of the court.

SIDE OUT: The receiving team wins back the serve.

SIX-PACK: A spike ball that hits someone in the face.

SUBSTITUTION: One player is replaced by another.

SWITCH: Players change positions after the ball is served.

TIME OUT: A break in play requested by a team's captain or coach.

TIP: A tip is a short shot by an attacker. It is sometimes called a "dink".

TOPSPIN: Forward spin on a ball.

THROW: A fault called by the referee. A throw refers to a set ball that has been contacted unevenly or "stuck" in the player's hands.