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## About the Tutorial

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Cycling is a very old sport where two or more individuals fix a source and a destination and whoever reaches the destination in minimum time is a winner. Now there many variants of this race has been made and racers can accordingly choose the variant in which they want to participate.

## Audience

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A person who wants to become a cycle racer or want to know about this sport can get broad knowledge through this short tutorial.

## Prerequisite

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A person should have the knowledge of different types of cycle racing in order to become an all-rounder or to become a champion for a particular type of race.

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# 1. Cycling – The Pedal Race

**Cycling** refers to a competitive pedal race of riding the bicycles by several cyclists. Bicycles were primarily introduced as means of transportation to cover distances in less time in the early 19<sup>th</sup> century. Eventually after the introduction of bicycles across many parts of the world different cycling competitions, challenges, and races developed and long distance cycle races became very popular in Europe, America, and Asia.

As the bicycles evolved in its design and structure in the similar way the cycling races took different formats. The pedal race sport is competed across teams and as individuals for various categories including men, women, and in junior segments.



## Formats of Cycling Competitions

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According to the International Cycling Union, the governing body of cycling sport held cycling race events across the world in different formats as listed below:

- Road Bicycle Racing
- Mountain Bike Racing
- Track Cycling
- Time Trailing
- Cyclo-Cross
- Cycle Speedway
- BMX Racing

Apart from Cycle races, there are many non-racing cycling sports as listed below:

- Free style BMX Cycling
- Artistic Cycling
- Mountain Bike Trails
- Cycle Polo

From this tutorial, you can gain knowledge about the rules of Cycling as a competitive sport, several competitions and championships held in the world and know about the renowned racers who were cycling towards their success.



## 2. Cycling – Participating Countries

Cycle competitions are held at an international level with cyclists from all over the world. Mostly bicycle races are held on paved roads where riders start at a point and finish the race at a designated finish point. These road bicycle races being participated by more than 80 countries where racers compete in events organized by UCI the International Cycling Union or Union Cycliste Internationale expanded as in French.

Cycling races are mostly competed in Europe and the west, with just few of the Asian countries taking part in these events. Japan has been quite popular in competing in cycle races with good number of riders winning the cycling challenges at international level.

Apart from Japan, China, Israel, Kazakhstan, South Korea, Lebanon, Mongolia, Qatar, Singapore, Thailand, Uzbekistan, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines and Vietnam have participated in cycling sport in various championships worldwide.

Although cycling has been a common recreational sport in India but has been unknown as a professional sport so far.



The non-Asian countries that participate in this sport include: Algeria, Andorra, Argentina, Australia, Austria, Belgium, Bermuda, Bosnia and Herzegovina, Belarus, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Ecuador, Denmark, Eritrea, El Salvador, Estonia, Finland, France, Great Britain, Germany, Greece, Guatemala, Guam, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Morocco, Moldova, Mexico, Macedonia, Netherlands, Norway, New Zealand, Poland, Portugal, Puerto Rico, Romania, South Africa, Russia, Rwanda, Slovenia, Slovakia, Serbia, Spain, Sweden, Switzerland, United States, Venezuela, and Zimbabwe.

# 3. Cycling – Playing Environment

## Road Bicycle Races

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Road races are usually held on open roads where the race begins from the start line of the road course and ends at finish line of the course already marked by the vehicular marshals. The open roads cycling route is predetermined or based on the distance of the race the laps are fixed. These road races are either stand-alone or can be a part of a cycling league where the competitions are held in series.



## Closed Road Circuit Races

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This is a variant of the road bicycle races on a traffic-free paved road built ideally for cycling challenges or other motor racing competitions. These closed road circuits have shorter distances but accompanied by more obstacles for the cycling race. The riders are tested on their cycling skills such as accelerating, slowing down, braking, and cornering.

## Track Cycling

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This bicycle race is held on specifically built velodromes which are oval shaped and have two 180 degrees curved bends connected to the straight ends. The indoor velodromes are wooden surfaced banked tracks. Track cycling as an indoor sport is held all-round the year irrespective of the weather conditions. This sport has entered Olympics at the very beginning and has been a part of almost every summer Olympic event. Track cycling racing events are usually held in sprint races where the riders need to complete 8 to 10 laps with less distance compared to the road races and is competed as individuals or as in teams.



## Time Trailing

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As a very early emerging sport, cycling competitions have different variants. Apart from competing with other riders over the race distance, a concept of competing against time has become more exciting for the riders. Road races with time trailing assess the rider's endurance levels against the time with standard predetermined distances such as 10, 20, 25, 50 and 100 km should be covered in 12 or 24 hours.

## Cycling Distances

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The Bicycle race distances keep varying depending upon the championships and categories. Usually the distances range from 5 km to 300 km for a cycling race. The road races held on a single day for men and women categories will be from 20 km to 200 km. Track cycling and closed circuit races are held in laps where cyclists start from a start point and finish after certain set of laps covering the total race distance which is also termed as " **criterium** ".

## 4. Cycling – Equipment

Cycling race though looks much simpler but there is a huge list of equipment to be ready with for the rider. This sport is held on a racing bicycle or also known as bike so the most important of all is the bicycle and the bike gears. Apart from the racing cycle the rider's safety gear, shoes and clothes to suit the weather and avoid any discomfort are quite essential.

### Bicycle or Bike

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A racing bicycle or bike is manually driven by the rider by pedalling with no mechanical or electrical machinery attached. It is completely human powered and is the most important equipment to begin the cycle race. The racing bike driven by the cyclist should meet all the UCI standards before starting the race. The UCI has standardized the important characteristics of racing bike in order to easily determine the winner and recognize the efforts of the cyclist. The characteristics of the racing bike are as follows:

- The maximum length of the bicycle - 185 cms,
- The maximum width – 50 cm,
- The total weight should not be less than 6.8 kgs,
- The diameter of both the wheels should be equal, ranging between 55 cm to 70 cm with minimum of 12 spokes in each wheel,
- The seat saddle position should be between 24 cm to 30 cm,
- The bicycle frame must be built around a triangle with tubular elements enclosing in a straight line. The height of the frame should be 8 cm to 16 cm with maximum thickness of 2.5 cm.

### Rider Gear

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In all the formats and categories the riders need to put on some basic clothing layers as listed below:

**Bib Shorts** – The light weight, colored and skinny shorts made out of lycra material with additional seated padding to avoid discomfort while being seated till the completion of race.

**Base Layer Suit** – In order to maintain the body temperature and manage moisture due to change in the weather condition, the rider has to wear a thermal base suit layer made up of fine fabric. The base layer suit is designed for men and women which is worn by the cyclists on top of the bib shorts.

**Jersey** – The short sleeved skin tight nylon made, colorful jerseys are ideal for the cycle racing conditions. The color of the jersey represents the identity of the rider and the nation he/she comes from.

**Gloves** – The hand gloves help to hold the handle bar with proper grip. According to UCI standards, the cyclists are not allowed to cover their fingers during road races. To cover the fingers mitts are used. Hand gloves provide the rider an aerodynamic advantage of speeding up the bike.

**Socks** – Depending upon the weather, there are two types of cycling socks. The thermo lite fabric socks for chill weather and air mesh socks for enhanced breathability in hot temperatures. They are specifically designed to avoid pain and fatigue from the rider's feet while doing the leg work.



**Cycling Shoes** – Pedalling shoes are specially designed foot gear with custom made soles just apt for pedalling. The thick soles help to hold on the pedals providing proper grip and comfort to the cyclist. Other athletic shoes do not give a grip on the pedal which ultimately leads to injuries and accidents.

**Helmet** – Out of the entire rider's safety gear the helmet is the most important safety gear to help reduce the risk of head and face injuries of the rider. The cycling helmet has an EPS foam inner layer to manage the crash or absorb a shock while cycling, the outer shell is made out of high quality plastic material and is layered with special fiber to give extra protection to the rider.

**Glasses** – The single lens glasses are ideally used during road races to protect rider's eyes from all the weather changes of rain, sun, wind, dust and any foreign particles. The cycling glasses are designed to resist the movement of the rider.

## 5. Cycling – Common Terms

Here is a list of some common terms frequently used in Cycling:

- **Bike** – The bicycle used in the racing is also known as the bike.
- **Jersey** – A colorful bicycle shirt usually representing the nation or the team of the racer, identity of the racer, and the sponsor's label.
- **Cadence** – The cyclist's rate of pedalling the bicycle calculated as the feet revolutions per minute to pedal the bicycle.
- **Tuck** – The cyclist riding position during the races for best aerodynamics and to improve the speed.
- **Sprint** – It is referred to as a racing tactic applied by the racer in high speed to reach the finish line before other competitors.
- **Drafting** – To ride closely behind another competitor in order to reduce the rider's pedal effort.
- **Block** – A racing strategy applied by the racer or team of racers. They slow down their speed right in front of the competitors to disrupt the other racer's speed.
- **Attack** – When a rider suddenly accelerates his bicycle to move ahead of the nearest competitor in the race.
- **Jump** – A racing technique of quick acceleration applied by the rider to keep up the pace in the race.
- **Kick** – A quick burst of acceleration just before the finish line to compete and finish off first.
- **Crosswinds** – Due to the wind conditions in the course, a crosswind situation occurs when the shadow position of the front rider is altered and the competitor takes advantage of the crosswinds in drafting the rider.
- **Paceline** – A group of cyclists riding at a very high speed draft together and take turns to resist against the wind
- **Echelon** – A line of cyclists positioned downwind and diagonally to the side of another rider. The line of riders is referred to as Echelon.
- **Peloton** – The main group of racers in a race are collectively referred to as peloton or a pack
- **Gap** – The distance between a rider and another competitor is termed as gap.
- **Stage Race** – A bicycle race format with several races or stages of the same race held on different race courses in the same place for a couple of days is termed as Stage Race. The racer with least cumulative time of all the stages is the winner of the stage race. The events such as Tour de France, Giro d'Italia, Tour of California and other similar tours are stage races.
- **Criterium** – Referred to as a cycle race on a closed circuit with a short distance course and multiple laps.

- **Time Trail** – Another format of bicycle race in which the cyclists start off individually at certain intervals and race a set distance against the time.
- **Cyclo-cross** – A relatively challenging form of bicycle racing on short distances with varying surfaces like on wooden trails, hills, grass, mud, and the rider has to pass through all the difficulties to win this race.
- **Keirin** – It is another form of track cycling group event where the group of riders follow the motorized riders until certain distance and pull off the track. At this point of time the cyclists should maintain the same speed and sprint to finish line.
- **Abandon** – When a racer quits the race abruptly due to any mishap or accident and cannot race further, the racer abandon's the race.
- **Sitting in / sit on the wheel / sitting on** – When a rider is riding the bicycle very closely behind other competitor to save his energy. If the judge notices that the rider is sitting on the wheel, the rider gets penalized.
- **DNF** – "Did not finish" is a code to indicate the rider's status in the race.
- **DNS** – "Did not start" is a code during stage races. If the racer opts for DNS then they are not allowed to continue the racing further on that day.
- **Off the back** – When a rider is not able to keep up with the pace of the main group and lag behind in the race it is called of the back.
- **Off the front** – Indicates to a situation when a racer moves quite forward or break's away with the main group.
- **Wipe out** – At the time of mishap or crash, the rider is said to be wiped out.



## 6. How to Compete in Bicycle Races?

The Cycling competitions start off when all the cyclists assemble at the starting point. These championships are held in different formats as a league or series where a team or individual cyclists can participate.

### Getting Ready

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The road race begins when all the riders and their sport directors assemble at the starting point to sign the starting sheet. The cyclists take their respective positions at the start line 15 minutes before starting the race, the cautions are given before start and on "flying the flag" the race begins.

The event organizers place permanent panels with the distance markings indicating the kilometer or lap marking. Ideally the markings start from "Kilometer Zero" at the real start point and the panel gets updated of first five distance markings. Later when the race is half done the distances from the finishing line to be achieved is marked on the panel for easy understanding.

### Quick Glimpse of the Race

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The road bicycle race often referred to as the pedal race as the rider cannot lose contact of his hands from the handle bar and should keep on pedalling. The cycling sport does not follow any typical racing game formats such as quarters, rounds or periods but just continues with the race until the finish.



There are no stringent rules applied to the cyclists in this sport but just cycling with an aerodynamic mechanism. The riders usually are relaxed and cycle at a slow pace when the race starts but only in the last one third of the race the competitive leg work starts

and the cyclists make strategic moves and win over the opponents. The winner is declared when that particular cyclist crosses the finish line before the other opponents taking less time to cover the total race distance.

## Rules of Cycling

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The bicycle race is conducted on open roads, closed road circuits and tracks. The rules of the sport are mostly similar in all types of cycle races. The cycling rules defined and regulated by the UCI for the riders are listed below:

- **Bike gearing rules** – The riders before beginning the race should have a bike gear check and the chief commissioner checks the rider's bicycle meets the standards mentioned by the UCI.
- **Race course rules** – The rider should know the exact route of the race course if it is an open road cycling competition and at any point of time during the race until the finish the cyclist cannot deviate from the race route. In case of any deviation of the race route the rider is withdrawn out of the race. Usually the race is held on challenging road courses with turns and curves till the last 200 meters. The last 200 meters from the finish line should be hassle free without any turns and curves to enable the rider to progress faster towards the finish line.
- **Positioning of the Rider** – In cycling the most important rule of the road racing is that the rider can never lose contact of his hands from the handle bar of the cycle. The tuck positioning, the rider's forearms while holding the handle bar must be parallel to the ground in the entire race. The rider who tends to remove his hands from the handle bar during the race is penalized by the chief judge. To keep up the aerodynamic movement of the cycle the rider needs to maintain a high saddle position, forearms parallel to the ground and a forward back bend with a head facing the road at a steep angular position termed as tuck position.
- **Speed of the Rider** – Experienced cyclists develop good bike handling skills to ride the bicycle in high speed even though the other riders are close by in a peloton or echelon. An individual racer can ride their bike at 110km/h during the road race and while crosswinds and descending position will maintain a speed ranging from 60 to 80 km/h.
- **Free Lap Rule** – For the closed circuit bicycle races and track cycling the distance of the race is covered in number of laps. The competitors should cover the race distance even though there are mishaps or accidents in the race. If rider has minor injuries then he is still qualified to make up the race on his ability. In that instance the chief judge announces a grant of one or two free laps for the rider. In some cycling races the organizers declare ahead of the race of "No Free Lap" and despite of mishaps or accidents no free laps is given to any rider to finish the race.
- **Drafting** – The racing tactic where a rider reduces the pedal effort just by following the other rider in the front. Usually a peloton or the main group of cyclists is being followed by the other riders to save their effort and energy in forward cycling motion. Drafting however is not permitted in Time trial but allowed in other racing formats.
- **Breaks** – This is another racing technique where a relatively small group of riders breaks away with the peloton to have a winning advantage. Out of the break group by attacking and blocking the sprinter usually finishes the race first.

- **Finish line** – The finish line perpendicular to the race course is marked at the end of the set distance on the road with black color which is ideally 4 to 6 cm of width to make the line visible to the rider.
- **Finish of the Race** – A rider is said to finish his cycling race when the front tip of the rider's bike crosses the finish line. The cycle judges keep note of the cyclists ranking according to the order of the finish.

## Types of Riders

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The cycle racers are held in different formats and the riders have unique strengths and weaknesses in cycling across in a race. Depending upon their cycling skills the racers tend to choose a race format suitable for their skill set. The riders are classified as follows:

- **Sprinter** – A type of racer who can finish the race by accelerating to out-and-out high speed while reaching the finish line.
- **Climbing Specialist** – A climber can maintain good speed even while riding on an inclined plane and create an aerodynamic advantage to race on the inclined road.
- **Time Trialist** – This type of racer can ride in great high speed for a longer period and can improve his performance in the race. Usually Time trialists are specially trained to compete against the time.
- **All-rounder** – The racer who excels as a climber, sprinter and time trialist is said to be an all-rounder. These racers are chosen as a team leader for a team in stage races.

## 7. Cycling – Championships

Cycling has been one of the earliest games being held at Olympics in different categories and variants. The International Cycling Federation (UCI) organizes cycling championships and events around the world.

Given below is a list of some major championships in Cycling:

- Grand Tours (combination of three races: Tour de France, Giro d'Italia and Vuelta a España)
- UCI Road World Cup
- UCI Track cycling World Championships
- UCI Mountain Bike Marathon Championships
- UCI World & Pro Tour
- World Master's Track Cycling Championships
- Olympics Mountain Biking Men & Women's Category
- Olympics Track Cycling Men & Women's Category
- Olympics Road Race Men & Women's category
- Olympics Time Trial Men & Women's category
- Olympics BMX Men & Women's Category

## 8. Cycling – Champions

There are many hall of fame racers who have been successful in cycling races, the most popular all-time favorite riders are tabled below:

### Men's Category

In men's category, we have the following champions:

Road Race			Time Trail		
Racer	Nationality	Year	Racer	Nationality	Year
Alfredo Binda	Italy	1932	Fabian Cancellera	Switzerland	2006
Rik Van Steenbergen	Belgium	1957	Tony Martin	Germany	2011
Oscar Freire	Spain	2004	Michael Rogers	Australia	2005
Greg Lemond	USA	1984	Jan Ullrich	Germany	1999
Andre Darrigade	France	1959	Bradley Wiggins	Great Britain	2014
Alejandro Valverde	Spain	2014	Chris Boardman	Great Britain	1994
Paolo Bettini	Italy	2007	Serhiy Honchar	Ukraine	2000
Mark Cavendish	Great Britain	2011	Abraham Olano	Spain	1998
Peter Sagan	Slovakia	2015	Santiago Botero	Colombia	2002
Erik Zabel	Germany	2006	Vasil Kiryienka	Belarus	2015

### Fabian Cancellera

He is an excellent bicycle racer from Switzerland; Cancellera discovered his interest in cycling at a very young age of 13. He had participated in the junior cycling races and has started his professional career from the year 1998. He has won seven medals at an international level and two medals in the 2008 Olympics for both road race and time trail. Cancellera has been actively participating in the





cycling events this year and in the middle of an event he sustained with lower back fracture and had to abandon the race.

### Oscar Freire

He is a former Spanish cycle racer and a top sprinter. Freire has become world champion three times equalling with Alfredo Binda and Rik Van Steenbergen. He started his cycling career in the year 1998 and now he has retired. He has won several medals at an international level competing in the cycle races as an individual and in a team.



### Sir Bradley Wiggins

He is a British professional road and track racer. Wiggins began his cycling career with track cycling but later realizing his skills as a time trail specialist shifted his focus towards road racing. He has won several medals in Olympics in time trail and track cycling as an individual and team pursuit. He started his career in 1998 and is still active competing in stage cycling events and preparing for 2016 summer Olympics.



## Women's Category

In women's category, we have the following champions:

Road Race			Time Trail		
Racer	Nationality	Year	Racer	Nationality	Year
Jeannie Longo	France	1995	Jeannie Longo	France	2001
Yvonne Reynders	Belgium	1966	Judith Arndt	Germany	2012
Marianne Vos	Netherlands	2013	Kristin Armstrong	USA	2009
Beryl Burton	Great Britain	1967	Karin Thurig	Switzerland	2005
Genevieve Gambillion	France	1974	Leontien Van Moorsel	Netherlands	1999
Leontien Van Moorsel	Netherlands	1993	Linda Villumsen	New zealand	2015

Road Race			Time Trail		
Giorgia Bronzini	Italy	2011	Zulfiya Zabirova	Russia	2002
Susanne Ljungskog	Sweden	2003	Lisa Brennauer	Germany	2014
Lizzie Armitstead	Great Britain	2015	Karen Kurreck	USA	1994
Emma Johansson	Sweden	2014	Joane Somarriba	Spain	2003

### Jeannie Longo

Longo is one of the most popular female racing cyclists from France. Starting her cycling career in 1981 she was competitively participating till 2011 and even today she is considered active in cycling. She has been world cyclist champion 13 times winning 11 medals in UCI world championships both in Road Racing and Time Trail. She has played seven Olympic Games in her cycling career and won four medals for France.



### Marianne Vos

One of the finest racers of all times is Marianne Vos from Netherlands. She has started her cycling at the age of eight with cyclo-cross in junior's category and has been excelling as a racer in all the cycle race formats. She has won eight medals in the international championship in road racing became world champion three times. Apart from road racing she is a seven times world champion in cyclo-cross and is very competitive in the track cycling.



### Judith Arndt

The professional German racer competes in cycle races as an individual and in a team named GreenEDGE-AIS cycling team. Arndt started her career in 1995 and is still continuing and winning accolades from all over the world. She won 18 international medals and was three times world champion in road racing and time trail. As a team racer she has been very successful is getting good UCI ranking.

