

Paediatric Physiotherapy

Provided by Core Physiotherapy & Exercise
Centres



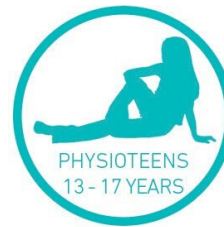
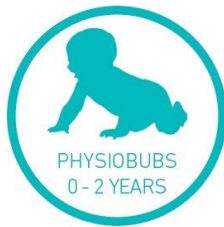
PhysioKids



M O V E M E N T

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MILESTONES



PhysioKids focuses on assisting children to reach physical milestones during key stages of development throughout childhood. Individualised Physiotherapy programs assist children in developing the physical and cognitive skills required for learning and growth.

Physiotherapy is also beneficial in the areas of fitness conditioning and exercise prescription as part of management of congenital and musculoskeletal conditions and post-surgical rehabilitation.

Through early intervention therapy and a proactive approach, Physiotherapy enables children to reach their full physical potential.

Potential Reasons for Physiotherapy Referral:

- Delayed milestone development (sitting, crawling, walking)
- Difficulty with gross motor activities (jumping, hopping, running, balance, ball skills)
- Reduced coordination and motor planning of movements
- Low muscle tone
- Musculoskeletal injuries
- Posture irregularities eg. Scoliosis
- Reduced proprioception and body awareness
- Toe walking and other gait irregularities
- Over or under sensory stimulation
- Positional plagiocephaly, torticollis, brachial plexus palsy in infants
- Physical impairments due to neurological disorders - Cerebral Palsy, ABI, Genetic Conditions
- Post-surgical rehabilitation

Private Health Rebates & EPC Plan Bulk Billing Options Available





DEVELOPMENTAL DELAY

Developmental Delay occurs when a child is developing their skills at a slower rate than other children of the same age across multiple areas of development, particularly gross and fine motor skills, speech and language. It can be the result of conditions such as ASD, Down syndrome, cerebral palsy, genetic disorders, hearing or vision irregularities or prematurity at birth.

Physiotherapy helps your child to develop the strength, balance and coordination needed to reach their physical milestones. Research has shown that the earlier the intervention, the more successful the outcome.

Movement is a good place to start with a developmental delay and an individualised gross motor program can be created by a paediatric physiotherapist to develop the skills that your child is having difficulty with as identified during an assessment.

MUSCULOSKELETAL CONDITIONS

Physiotherapists are able to diagnose and provide treatment intervention for a range of musculoskeletal conditions in children including posture irregularities, sporting injuries and post-surgical rehabilitation.

A thorough physical assessment can highlight the cause behind the child's presenting symptoms and aid in developing an intervention plan suitable for each individual child.

Physiotherapy treatments may involve:

- Manual therapy techniques to improve joint range of motion and relieve muscle tension
- Individualised exercise programs consisting of strengthening and stretching exercises to correct muscle imbalances
- Taping techniques to facilitate proprioception and muscle recruitment
- Advice for schools and successful return to activity



Musculoskeletal Injuries: Sports injuries in children and adolescents were by far the most common cause of musculoskeletal injuries treated in the Emergency Department, accounting for 41% of all musculoskeletal injuries.

Pediatric Emergency Care, DAMORE et al. 2003





MILESTONES

Babies will be able to sit when their head, neck and back muscles have developed enough to hold themselves up against gravity, which is typically around 6 months of age. Position your baby on their tummy for progressively longer periods of time as long as can be tolerated. Use favourite toys and talk to your baby from both sides to encourage them to lift their head and chest and turn their head from side to side. If your baby will not tolerate being on their tummy on the ground even for short periods, place them on your chest while you are laying on your back. Never leave your baby alone while they are on their tummy.

If your baby is having difficulty sitting independently by 9 months consult our paediatric physiotherapist for some more suggestions to allow them to achieve this movement milestone.



Crawling is an important form of movement for infants that develops postural muscle strength and bone growth through weight bearing. It promotes strength, stability of the shoulders which is required for sitting, standing and general posture.

Reciprocal movement of the arms and legs develops bilateral integration, or the ability to coordinate the right and left sides of the body.

It is typical for infants to begin their progression to crawling by scooting backwards on their tummy, to swimming (with both arms and legs moving off the floor), to “commando crawling” (sliding along their tummies forwards) to rocking back and forwards on their hands and knees, to eventual reciprocal movement forwards on their hands and knees. This progression begins with your child being on their tummy, therefore tummy time is the most important factor in the development of crawling, as well as sitting, standing, walking and general gross motor development.



Walking usually occurs between 12 and 15 months of age, but can begin as early as 9 months and as late as 18 months or more if dependent on other factors.

Generally, the age that a child walks depends on genetics, motivation, weight, ability to reach desired locations, any negative experiences and illnesses/conditions that may cause delay.

It is also important that your child follows the typical milestone development of crawling before they walk to ensure postural muscles of the shoulder are able to develop typically which assists in generating adequate core muscle strength required for standing/walking and other gross motor abilities.

Every child will begin walking at a different age and when they are ready. The more time a child spends on their tummy, the stronger their postural muscles that hold them against gravity are and the sooner they will be strong enough to move independently.



Research tells us that kids
actually spend about



Physical activity plays an important role in the health, well-being and quality of life of all individuals. Childhood is a critical time to prevent the onset of obesity and to support children's health-related behaviours (CanChild)

LOW MUSCLE TONE - HYPOTONIA

Low muscle tone, hypotonia, is a developmental condition in children that can cause them to appear “weak” or “floppy” and cause delays in movement and gross motor abilities such as coordination, balance and strength. The tone (or “stiffness”) of your muscles is controlled by the nervous system and can be the result of conditions such as ASD, Down Syndrome, Cerebral Palsy, genetic disorders or just a general developmental delay. Muscle tone influences the range of movement of a joint, therefore low muscle tone often goes hand in hand with hypermobility (excessive joint movement). It can also affect your sense of joint movement (proprioception) which lets you know where your body is in space (body awareness).

Low muscle tone and joint hypermobility can contribute to multiple developmental concerns including poor posture, “W” sitting, gross motor delay, muscle or joint pain, overpronation of feet, and rapid fatigue with exercise or sustained postures such as sitting.

An infant who is significantly delayed in meeting their movement milestones or a toddler or young child who appears “clumsy” in comparison to their peers may benefit from developmental assessment and intervention from a paediatric physiotherapist.

Movement is a good place to start when treating low muscle tone and individualised activity and exercise programs can be created by a paediatric physiotherapist following assessment.

A physiotherapist is also able to assist with orthotic prescription to correct foot alignment in a child who has overpronation (rolling in) and reduced stability of their feet and ankles, which is a common occurrence in children with low muscle tone. Correction of foot position will contribute to balance and motor planning improvement as well as reduce the risk of injury to knee, hip and back joints in the future.

Physiotherapists can also prescribe specialised seating or equipment to assist a child to sit on the floor or at a desk or stand when they do not have the postural strength to maintain the position themselves.





GAIT IRREGULARITIES

A Gait Irregularity is a term used to describe a child's walking pattern when it does not follow the typical development expected for the child's age. A child's walking pattern begins from around 12 months of age with a wide base of support and short quick steps, and does not resemble an adult walking pattern until after 3 years of age.

Some common types of gait irregularities include:

In-toeing (pigeon toed)

- When the child walks or runs, one or both feet turn inwards.
- This can be a result of a curve of the foot (metatarsus adductus), the tibia (tibial torsion) or the femur (femoral anteversion).
- This can be the result of intrauterine position and resolved with passive stretching techniques.
- Muscle imbalances at the hip can also influence medial rotation which may give the impression of an in-toed gait pattern.
- A paediatric physiotherapist can assess what is causing the in-toed position and prescribe a program to correct the underlying cause.

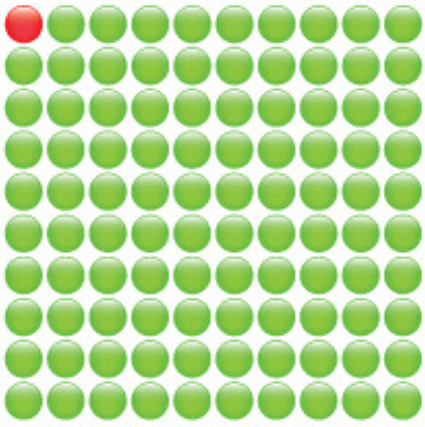
Toe Walking

- When a child walks or runs on their tip toes.
- It can be part of a typical development if a child walks on their toes for brief periods after learning to walk until about 2 years of age.
- It can be the result of reduced dorsiflexion of the ankle and tight calf muscles, sensory related, or often the reason is unknown.
- A paediatric physiotherapist can prescribe activities and exercises to reduce toe walking and give advice regarding footwear and orthotic heel wedges to help.

Knock Knees (Genu Valgum)

- When a child's knees touch but feet remain apart when standing and walking.
- Typically starts at around 2 years of age, peak at around 3 ½ years of age and resolve by 6-7 years of age.
- An in-toed or flat footed gait pattern may be seen with walking, which may benefit from orthotic correction.
- Balance may be affected which can be assisted in developing through exercises from a paediatric physiotherapist.





1 in 100 Children have Autism

Autism Spectrum Australia, 2003

AUTISTIC SPECTRUM DISORDER (ASD)

ASD is a name given to a group of developmental conditions that typically present with developmental delay in multiple areas across gross and fine motor, speech and language, and social emotional abilities. Children with ASD also display varying sensory processing difficulties across varied sensory areas including hearing, vision, touch and movement. Each child's presentation of ASD is different.

Common difficulties seen in children with ASD that can be assisted with Physiotherapy include:

- Posture concerns ('W' sitting, inability to "sit still")
- Low muscle tone
- Reduced body awareness (proprioception)
- Delay in reaching motor milestones – crawling, walking
- Difficulty with gross motor skills – balance, coordination, ball skills
- Over or under sensitivities to noise, touch, movement

Early intervention therapy has shown to have significant improvement in these areas in children with ASD.

A paediatric physiotherapist can provide one to one therapy and home exercise programs to help develop these areas that a child with ASD is having difficulty with.

School visits can also be organised to observe a child in their educational setting and work with teachers on ways to help a child attend better in the classroom with sensory strategies, improve posture with movement breaks, and develop gross motor skills.



CEREBRAL PALSY

Cerebral Palsy is the most common of all childhood motor disabilities

Cerebral palsy is a developmental condition resulting from damage to the developing brain before or during birth that can significantly affect movement in the areas of muscle tone, motor planning, reflexes, balance and posture.

There are 4 different types of CP (Spastic, Dyskinetic, Ataxic, and Mixed) and they are classified into which area of the body is affected (Quadriplegia, Diplegia, Hemiplegia). The severity is then classified by a scale into 5 categories that can predict the outcome of development called the GMFCS.

GMFCS Level I	Walks without limitations
GMFCS Level II	Walks with limitations
GMFCS Level III	Walks with adaptive equipment assistance
GMFCS Level IV	Self mobility with use of powered mobility assistance
GMFCS Level V	Transported in a manual wheelchair

Physiotherapy intervention can assist children with CP throughout their development by:

- Maintaining range of movement in joint affected by muscle tone through positioning
- Improve balance and coordination
- Improving posture
- Developing gross motor skills
- Strengthening weakened muscles and stretching tight muscles
- Advice and support on orthotics and AFOs
- Hydrotherapy for muscle stretching and strengthening with reduced effects of gravity
- Post surgical intervention
- Assisting with applications for equipment funding

Approximately



One in 400 Children
born in Australia has Cerebral Palsy

have Cerebral Palsy





PLAGIOCEPHALY

- A common craniofacial problem in infants
- Positional or deformational plagiocephaly suggests an asymmetrical (uneven) head shape, presenting as a flattened spot at the back or side of an infant's head.
- Newborns may have an altered head shape at birth due to the position of the baby in the uterus or from the birth itself, particularly if forceps or suction was used for delivery. This should resolve within 6 weeks after the birth.
- The cranial bones of a newborn are thin and flexible so may change shape easily if a baby spends a lot of time on their back with their head in one position.
- Persistent plagiocephaly, if not treated, may cause uneven growth of their face/head as the bones become fused together with development.

Physiotherapy Treatment may include:

- Stretching techniques to maintain full neck range of movement and prevent secondary complications such as Torticollis (wry neck).
- Education on positional techniques that still allows your baby to sleep on its back to reduce the risk of SIDS, but will alternate the position of your baby's head to reduce the amount of time spent on the flattened side.
- Prescription of activities to help reduce the amount of time that your baby spends on its back and increase tummy time.

TORTICOLLIS

- Congenital muscular torticollis aka wry neck
- Seen in infants
- Due to tightness of the sternocleidomastoid muscle (SCM) of the neck, presenting as head tilted to the affected side and chin rotated to opposite side of the shortened muscle
- Caused by intrauterine malposition, birth trauma, positioning after birth
- Risk increased with use of forceps during delivery and Plagiocephaly (head flatness) after birth
- Other conditions to be ruled out by paediatrician include cervical abnormalities, infections, tumors

Physiotherapy Treatment may include:

- Gentle stretching to SCM muscle to achieve normal range of movement
- Gentle strengthening of neck and shoulder muscles to develop stability and achieve neutral neck position and development of balance reactions
- Gentle massage to SCM muscle
- Monitoring of physical milestone development to prevent developmental delay





“FLAT FEET” AKA PES PLANUS

- A condition of the feet where the arch on the medial side of the foot collapses inwards, known as excessive pronation
- Foot arch normally develops in children between 3 and 6 years, but in some children it fails to develop
- Persistent flat feet may be asymptomatic but can lead to altered walking patterns, impaired balance and coordination, and pain in the foot, knees and hips later in life
- Contributing factors include hypermobility in the ligaments of the ankle and foot, tightness of the calf muscles, reduction in stability of the knees and hips
- Can be associated with other conditions such as low muscle tone, hypermobility, tibial torsion, increased hip anteversion (medial rotation)

Treatment

- Flat feet early in development with no coexisting conditions require no intervention and should resolve itself when the arch develops between 3 and 6 years
- Persistent flat feet by 5-6 years with no other coexisting conditions may require intervention in the form of advice regarding supportive footwear, prescription of orthotics to correct the heel alignment, stretching exercises for tight muscles and strengthening exercises for weak muscles
- Physiotherapy can correct foot alignment, improve balance and coordination ability, improve walking patterns and prevent pain and risk of secondary joint problems

SEVERS DISEASE

- Cause of heel pain in children typically between the ages of 9 and 14
- Result of a disturbance of the final development of the heel growth plate
- Inflammation and pain occur as a result of the excessive force the Achilles tendon creates by pulling on the calcaneus (heel bone)

Treatment

- Will resolve as skeletal maturity is reached
- Physiotherapy can assist to relieve symptoms
- Pain management techniques
- Exercise prescription
- Foot biomechanical assessments and correction with orthotics or heel wedges
- Deloading taping techniques
- Footwear recommendations
- Activity modification advice and assistance to return to activity

Symptoms

- Pain in the lower calf and heel area
- Pain exacerbated with activity, particularly running or jumping
- Pain may increase when pressure applied to both sides of heel
- May affect gait pattern, causing a limp if severe
- Can be bilateral (both sides)





Specialists In:

- Developmental assessments and treatments
- Gross motor development
- Physio 4 ASD- Sensory motor programs
- Strength and fitness training for youths
- School assessments and consultation
- Hydrotherapy
- Equipment prescription and applications

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