



PREVENTATIVE
MUSCULOSKELETAL
HEALTH
FOR YOUR
CHILD

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ABOUT NORTHWEST PHYSIOTHERAPY GROUP

Northwest Physiotherapy Group was first established as Essendon and Moonee Ponds Physiotherapy Clinic in 1990. We have over 50 years combined experience in muscle and joint conditions, and a fully equipped, purpose built facility with state of the art pilates studio and rehab gym.

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PREVENTATIVE MUSCULOSKELETAL HEALTH FOR YOUR CHILD

Children are full of energy and always ready to play unless they don't feel good. Growth is associated with various physical problems which can prevent your child from enjoying his favourite sporting and recreational activities.

Symptoms like pain or stiffness not attributed to sudden injury (e.g. fall, accident) generally occur as a result of accumulated strain in the body. This strain can lead to "dysfunctions" including muscle tension, joint stiffness, lack of flexibility, nerve tension and muscle weakness. These dysfunctions can build up in a child's body from an early age and may be related to:

1. Sudden changes in activity levels with poor or reduced recovery periods between sports or activity sessions;
2. Lack of warm up and cool down before and after sports;
3. Poor posture in standing or sitting, including slouching on sofas and chairs;
4. Inappropriate footwear.

Many of these dysfunctions can be detected well before they cause symptoms (e.g. pain). If detected early, they can be fixed with relevant exercises, postural awareness strategies and appropriate treatment. This will prevent pain arising at a later stage.

Common conditions that children and adolescents face which can be prevented include:

1. **Patello-femoral syndrome:** anterior knee pain around or "under" the knee cap resulting from muscular imbalance altering the motion of the knee cap during knee bending or straightening especially while weight bearing.
2. **Growth plate and apophysitis conditions:** bony overgrowth resulting from repetitive stress where the tendon attaches to the bone. The increase in stress is due to repetitive loading (jumping, running, etc.) and lack of flexibility¹.
3. **Recurrent ankle sprains:** Ligament damage following excessive torsion of the ankle resulting from stepping on an unstable surface or landing with an incorrect position of the foot. Ankle sprains are more frequent with hypermobility, lack of motor control and poor balance(proprioception).
4. **Back pain, neck pain and headache:** Strain along the spine resulting mainly from lack of core stability, lack of flexibility and poor posture which can lead to vertebral joint stiffness, pain and headaches.

The main factors leading to musculoskeletal problems and pain as well as simple ways to prevent further issues are listed below.

¹WILSON, J, RODENBERG, R. Jr. (2011) *Apophysitis of the lower extremities, Overtraining or traumatic injury can exacerbate tension on the musculoskeletal system of young athletes. Tailoring treatment to the site of the apophysitis is key to getting them back in the game.*

POSTURE

Even if school aged children between 6 and 12 years old have a slower growth rate than pre-school aged children and teenagers, a few postural issues can arise in this age group:

Scoliosis is a lateral deviation of the spine looking like an “S”. Some slight deviations are normal as nobody is perfectly symmetrical, but if a child starts showing this kind of deviation, it is important to monitor and consult as needed. Scoliosis can be structural which relates to bones and vertebral joint impairment or functional which relates to muscles weakness or tightness, poor motor control and joints stiffness. The latter can be managed by early intervention to restore muscular balance.

Flatfeet relate to a low plantar arch and can cause problematic leg alignment. However the plantar arch is still in development until puberty so if your child doesn't express discomfort while walking or running, no intervention is required at this age. If there is pain in the legs or back, an assessment should be done. Having the children playing barefoot is an easy way to stimulate plantar arch development and prevent further problems.

Genu valgum or **knock knees** are knees with an inward alignment, although a “true” genu valgum has a structural cause associated with various developmental disorders. Most genu valgum found in healthy children is due to weakness and lack of mobility around the hips which can be fixed simply by addressing the problematic area.

Rolled forward (protracted) shoulders

and **Forward head posture** in school aged children are usually associated with postural habits and motor control which can be improved by postural awareness and motor control exercises. These postures are

especially associated with prolonged computer or video game use. If uncorrected, these postural faults can lead to pain, headache and decreased mobility by increasing tension in the muscles at the back of the neck and in the shoulders.



Another important factor related to poor posture is the lack of awareness and ability to maintain a good posture.

But what is a good posture? An optimal posture refers to a position which can be held with minimal tension or strain on the muscles and joints throughout the body. The best posture varies between individuals according to their morphology and needs to be specifically assessed to prevent pain relating to sustained postures. Below are a few key points to maintain a good posture which helps in relaxing the important muscles that are often excessively tight (upper trapezius, back extensors, levator scapulae, hamstrings).

- Unlocking knees (avoid hyperextension) in standing;
- Keeping a slight arch in the lower back;
- Relaxed shoulders and drawn slightly toward the back to “open” the chest;
- Head straight and trying to be tall rather than stooped.

Having an awareness of good posture is essential to maintain it, move easily and play freely. When the spine is well aligned, the arms and legs are in better positions and it improves mobility, strength, balance and coordination.

FLEXIBILITY

Good flexibility is essential to avoid injuries and improve motor control. It becomes an issue mainly with growth spurts, especially in the legs for children and also around shoulders for teenagers. Lack of flexibility increases compression and stress in the joints as well as causing compensatory movements which can lead to injuries or pain. Regular gentle stretching of arms and legs after physical activities is a good way to maintain a good flexibility and prevent tightness.

STRENGTH AND MOTOR CONTROL

Good core stabilisation achieved by the deep stabilizer muscles of the neck and back is essential to prevent injuries and allow proper patterns of movement. Deep muscles need endurance and good control since they are always slightly contracted to ensure stabilisation of all joints throughout a movement. Strength is mostly important for the large global muscles that move every body part. Weakness or poor control at this level often results in compensation by other muscles which can affect the pattern of movement and can lead to overuse of the other muscles and pain.

JOINT MOBILITY

Children should have a good mobility in every joint and hypermobility tends to be more of a concern during school age years. They should, for example, be able to touch both hands behind their back, bring their knee to their chest and sit on the floor with crossed legs (both inwards and outwards). Children should avoid movements over the normal range for prolonged periods like W-sitting on the floor, hyperextending the elbows or hyperextending the back.



1. W-sitting

(<http://www.childrenshospital.vanderbilt.org/services.php?mid=21>)

BALANCE AND COORDINATION

School aged children should have developed all the minimum skills to practice sports such as running, jumping, throwing, catching, skipping, kicking and hopping. Around 6 years old, these skills still need refinement, at 9 years old eye-hand coordination has improved considerably helping the child to accomplish more complex tasks².

NEURAL MOBILITY

The neural system is the most important structure in the body with the nerves forming a network throughout the body to transmit information from the body to the brain and from the brain to the body. When some restrictions or impairments occur, the whole body tries to protect the neural system which usually causes muscle tightness, joint stiffness and pain³. Neural testing can be done quickly to pick up dysfunction and intervention can be provided according to the findings.

² BERK, L. (2012) *Child Development*, 9th Edition

³ BUTLER, D. (1991) *Mobilisation of the nervous system*

WHAT'S THE BEST WAY TO PREVENT MUSCULOSKELETAL PROBLEMS?

The best way to promote children's development and a healthy body is to encourage them to move. Any sporting activity they like should be encouraged since the different learning opportunities will influence their body and motor skill development. At school age, any sporting activities should be introduced as a game. Having fun while playing will keep your child moving and promote an active lifestyle in the future. Physical activity helps musculoskeletal development as well as all the other systems in the body. Therefore it is important to balance sedentary activities (TV, reading, computer, video games,) with sporting activities every day.



Because most musculoskeletal problems build up slowly over time, it is difficult to know exactly how healthy your child is without careful and thorough assessment. Outward symptoms only occur after sufficient build up of strain in the body, so that our brain then needs to alert us there is a problem. This is where we can help. Based on our years of training and experience and working with people from all ages and levels of health and fitness, from elite to amateur, we have developed a *screening tool* that can identify these areas of weakness, imbalance, motor control and movement restriction. It's called a Musculoskeletal Assessment, and it is part of a comprehensive 60min assessment session.

There are no fancy gimmicks, just a thorough physiotherapy assessment which includes posture, strength, flexibility, muscle activation, neural mobility and joint movement. Because we are examining the whole musculoskeletal system in one session, we can identify the areas of the body most likely to lead to pain and dysfunctions as your child grows. This approach aiming to prevent musculoskeletal problems has been proven effective to reduce accumulation of strain throughout the body.

The assessment outcomes will then be used to give recommendations in a report and implement the appropriate treatment and exercises as required to prevent further injuries.

So if you would like to prevent any musculoskeletal problem arising during your child's growth and ensure an optimal development, simply call us and we will book your child for his physiotherapy assessment.

Phone: **9370 5654**

You can also book through our website (<http://www.nwpg.com.au/appointment>).

* Please bring all reports/scans with you and wear comfortable loose clothes (eg shorts and singlet)

We are looking forward to help your child achieving optimal and pain free musculoskeletal development.

The NWPG Team

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