

Enhance Motor Skills by Applying Theoretical Knowledge of Motor and Postural Control into Practice

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This session will:

1. Introduce a theory of motor development, the meaning of motor and postural control.
2. Identify abnormal motor and postural control in children with cerebral palsy
3. Identify treatment strategies to promote motor skill from a physiotherapist's perspective.
4. Share treatment strategies from music therapists, by observation of music therapy sessions on video and by audience discussion and participation

Background:

The ability to move is a basic function of life. We take our movements for granted and perform activities with very little thought. It is quite amazing how highly tuned our bodies can become. Elite athletes can perform extraordinary feats of balance and coordination but consider the simple act of standing up, walking, running, throwing and catching a ball, picking up a glass of water or just standing still, these are also amazing feats. These so called simple movements of everyday life involve a complex organization of many systems working together in harmony.

The topic of motor development, motor and postural control is still not fully understood. The stages of motor development are well documented. Motor milestones are often used to determine level of development, e.g. Is the child rolling, sitting, walking, running, jumping hopping, skipping etc. But why and how the skills emerge are areas of ongoing study. There are current theories that give insight. If we can understand the 'how' and the 'why', then this will give a framework for therapy that can help promote motor function and improve motor skill.

There was a well-established theory of motor development which was based on a **hierarchical model**, a 'top-down' approach. Motor development followed a 'blueprint' and occurred as the brain and nervous system matured. Control of motor behaviour was from the cortical area, the higher centres of control. This theory was a well accepted, without challenge, for many years. It did, however, give a narrow view and it did not consider all the variables that can impact on motor development. A more current theory is based on **Dynamic Systems**. This looks at the interaction of all subsystems, not just one area being the driving force but all areas having importance in the acquisition of motor skills and each having an impact on the other. The efficiency of the motor behaviour depends upon the integrity of all the interacting subsystems.

The holistic approach of the Dynamic Systems Theory considers not only the person, but the environment and the type of motor task. It provides a more useful theoretical framework for therapists. It gives a framework to assess the limiting factors for motor behaviours and decide on appropriate treatment strategies to enhance motor skills. It reinforces the need for motor experiences; the importance of sensory information and interpretation; the importance of emotional well being, attention, drive and motivation and it reinforces the need to look at motor performance in different scenarios.

Session Content

Understanding concepts of normal motor and postural control will be gained by a practical session. Motor tasks such as sitting to standing; reaching, grasping, rolling, sitting in different positions and walking will be performed and analyzed. Understanding concepts of abnormal motor and postural control will be gained in the practical session and by viewing a video.

Two children with cerebral palsy will be shown on video. One child is four years old and he has spastic quadriplegia. He has very limited active movement, poor postural control and abnormal muscle tone, he is unable to sit independently and is dependent for many of his needs. He is a young boy who shows a lot of interest and a desire to participate, he enjoys the feeling of movement and enjoys music. The video will show two music therapy sessions, one with a Music Therapist and one with the Music Therapist and a Physiotherapist working together.

The other child is eight years old and he has spastic diplegia. He is able to walk independently but he has poor balance and control. He has difficulties with attention and on keeping on topic. He shows a lot of interest in music and he enjoys singing. The video will show a Music Therapist working with the child and will demonstrate increased cooperation with the use of music and how a gross motor goal can be incorporated into the session.

Interpretation of the children's movement difficulties will be presented and treatment strategies identified using the Dynamic Systems Model as a framework.