How Can Low Muscle Tone affect our children’s academic performance and can Mind Moves® address this barrier?

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What is Low Muscle Tone (LMT)?

We all need our muscles to be able to function in everyday life. Our bones, tendons and ligaments connect to our muscles, which have a natural range of extension and contraction. This enables us to move our limbs, lie down, sit, stand up, walk and even run.

According to De Jager (2009:49), these repetitive movements that we do everyday help us to physically develop our bodies in such way that we can progress from the uncontrolled movements driven by our primary primitive reflexes (reflexes that start in utero and continue through the first year of life in order to assist the baby in the natural birthing process and to equip him/her physically to survive outside the womb) to more consciously controlled complex postural reactions (reactions maintaining the body against gravity, thus enabling the child to maintain an upright posture) later in life.

It is our natural drive to work against the force of gravity that facilitates achievement of developmental milestones from an early age. As postural reactions (as noted above) are built on the foundations laid by the primitive reflexes, it is therefore essential that the primitive reflexes do their job properly in order to support complete development of postural reactions and prevent developmental delays that may impact negatively on a growing child’s progress (De Jager, 2011:101).

It is our muscles that exert sufficient force against gravity to pull us upright; and it is our muscles that enable our postural reactions to maintain this upright posture and so prevent us from being injured. In order to do this optimally, however, our muscles need to be able to sustain a continuous and passive partial contraction or to resist passive stretch during the resting state, i.e. even in our resting state our muscles need to work against the pull of gravity. The ability of the muscles to do this is referred to as ‘muscle tone’. This tone is developed through movement and the higher the muscle tone in our core muscles, the more efficiently the muscles are able to support an upright posture (O’Sullivan, 2007: 233-234).

If opportunities for this essential movement-driven development are restricted, the risk of developing LMT is increased.
LMT, (also referred to as Hypotonia), may be identified in babies by the following symptoms;

- avoids lying down on the stomach,
- unable to hold the head upright (Fig 1)

![Fig.1](www.medicalimages.allrefer.com)

- weak suckling when breast or bottle feeding
- delayed milestone development
- a preference to drag themselves on their bum to get where they want to be, meaning no crawling action is developing. ([www.babytherapy.org](http://www.babytherapy.org))

**Can LMT affect a child's learning experience and academic performance?**

Yes, LMT may directly and negatively impact upon a child's learning experience and academic performance.

Due to the critical role muscle tone plays in maintaining upright posture, children with LMT usually battle to sit in an upright position at their school desk – they tend to rather slouch over the desk and may use their hand and arm to keep their heads upright while listening or writing (Fig 2).

![Fig. 2](www.the-special-needs-child.com/Low-muscle-tone.html)
As LMT can also impact on development of shoulder stability and thus strength in upper body, arms and hands, it can have a direct impact on the child’s ability to use an efficient pencil grip and produce neat, legible work. Activities on the playground or sports-field may also be more challenging.

But how does this impact on academic performance?

LMT can affect academic performance in a number of ways:

- Maintenance of upright posture should not be something that requires conscious effort and control. A child with LMT, however, will need to continuously and consciously monitor and control his/her posture and so uses mental energy needed for paying attention and learning to rather do this (De Jager, 2009: 49).
- To compensate for low tone in core muscles, children with LMT often use other muscles in order to help them in their day to day activities. As these muscles are not intended to do the job of core muscles, they fatigue quickly when used to maintain posture and a physically and mentally fatigued child is not able to concentrate and work quickly and accurately.
- Poor pencil grip can make it difficult for a child to produce neat work quickly; and children with LMT may, as a result, tend to work slowly and avoid taking notes or handing in work.
- As children with LMT often find it difficult to sit still and consciously and continuously fight the force of gravity, they tend to find movement the easier option and so may tend to fidget, rock and move about in their seats, further compromising their ability to pay attention in class.
- With these factors impeding the child’s ability to perform in the class room, the playground and on the sports field, children with LMT may also experience lowered self-confidence which may exacerbate the effects of LMT and result in a child being unwilling to attempt new tasks or activities.

With the direct impact LMT has on movement, concentration and speed of work, one can see how LMT could lead to a youngster being stereotyped as ADD / ADHD as a result of the associated behaviours.
How can Mind Moves help these children?

When a child presents with symptoms of Hypotonia, a Mind Moves Reflex Assessment is done to assess the developmental status of the primitive reflexes. In this way, the still-active primitive reflexes that are negatively influencing the development of postural reactions can be identified and addressed through specific Mind Moves exercises. These exercises are designed to complete the development of these primitive reflexes and so lay a solid foundation to support the further development of the postural reactions and thus core muscle tone and improved upright posture (De Jager, 2011:101). With improved posture, the child should more easily be able to sit up straight, pay better attention and move around less. He/she will therefore be less fatigued and thus able to concentrate on the actual process of learning rather than on fighting gravity to keep his/her body upright (www.ot-mom-learning-activities.com)

Here are a few very helpful Mind Moves from Mind Moves – moves that mend the mind by Dr. Melodie De Jager, that will make a difference to your child's muscle tone:

- **Core workout:**

  **Step 1:**

  Lie flat on your back; raise your left arm and left leg up simultaneously in a straight line, turn your head to look at the left side. Switch over to your right arm and leg do exactly the same. Repeat this action 10 times.
Step 2:

Remain on your back; do exactly the same, as in step 1, this time move your head in the opposite direction. Repeat this 10 times.

Step 3:

Still remaining on your back, this time cross your left arm with your right leg, touching elbow on knee cap. This time, no head movement though. Repeat this 10 times.

Step 4:

As soon as step 1 to 3 can be performed without difficulty, step 4 can be approached. Crawl on all fours, while turning your head to the left and right.

Why the core workout?

The core workout helps with: integration of the left and right brain hemispheres; developing the core muscles of the body (helping to improve low muscle tone); crossing the midline; developing the skills for reading, writing, reasoning and spelling.

The core workout exercise needs to be done more than the normal three repetitions to speed up gross motor integration.

- **Gravity crawl:**

The Gravity crawl exercise can be done, on the living room (classroom) floor or grass. Lie flat on your tummy and, using your arms and legs in a homo-lateral (arm and leg on the same side) movement, leopard crawl across the floor.

Why the Gravity crawl?

This exercise develops a child’s core muscles and overall muscle tone. It also promotes good upright posture and whole body coordination, helping with sports.
• **Prop up:**

Lie flat on your stomach, flex your arms and place your hands on the ground at shoulder width apart. Slowly try to straighten your arms, pushing your body away from the ground. Hold the position for 8 seconds. Breathe in slowly as you extend and breathe out slowly as you flex down towards the ground. Repeat this 3 times.

**Why the Prop-up exercise?**
This exercise strengthens the core muscles, and shoulder girdle for better hand-eye coordination. It also supports gross-motor development and whole-body coordination.

• **Spine stretch:**

The Spine stretch can only be done as soon as the prop up has been mastered. Lie flat on your tummy; breathe in slowly as you try to lift your head and upper body off the floor, freeing your arms and hands. Try not to lift up your legs. Hold for a count of 8

**Why the Spine stretch?**
This exercise promotes core muscle development, helping with low muscle tone, improving balance and helping with an upright posture.

• **Abs trainer:**

Lie flat on your back touching the opposite knee and elbow, while turning your head up, down, left and right. Repeat 10 times

**Why the Abs trainer?**
This exercise improves the core muscles, and posture. It also helps with crossing the visual midline, helping with reading, writing and drawing.
Bibliography:


Figures:

Figure 1:


Figure 2:


Figure 3: