

understanding **DEVELOPMENTAL MILESTONES – PART 3**

Previous articles in this series have dealt with rooting and suckling, and head control. Part 3 focuses on core stability – strong tummy and back muscles.





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Once the neck is strong, the third developmental milestone is the development of core stability. Core muscles are the crucially important basic muscles that enable the baby to move and develop vision, balance and an upright posture.

A baby that suckles with ease is a happy and growing baby. But growth alone is not enough – baby also needs to develop. Because a baby develops physically from top to toe, a developing baby needs to be able to hold the head up and turn it from side to side to start making contact with the world around her.

The core muscles are the tummy and back (abdominal) muscles as well as the stabilising muscles. These are the muscles a Pilates instructor would be most likely to target initially, because they act as the foundation for all other muscle groups. The muscles of the shoulders, arms and hands and the hips, legs and feet can only develop once the core is strong and stable. Core stability is needed before a baby can roll over, sit, crawl, feed itself or walk.

Muscle tone

Muscle tone is the natural tension in the muscles that forms the basis for movement

‘Core muscles are the most important and most basic muscles that enable the baby to move, develop vision, and achieve balance and an upright posture’

The ability to hold the head up starts with the combined effort of the neck and shoulder muscles. These muscles are strengthened by the baby's repeated attempts to control the floppy movement of the head. Once the neck is strong and the head stable, the baby is no longer satisfied to engage only through touch, smell, taste and hearing. Her curiosity to know what is further afield stimulates the eyes to work together. To enable the baby to see further, the core muscles need to develop.

CORE STABILITY

‘Core’ means the most important and most basic.

and balance. It opposes the pull of gravity and develops through repetitive movements prompted by primitive and righting reflex reactions. When a baby has low muscle tone, she tends to lack sufficient stability to assume and maintain a posture or perform activities that require movement. Two kinds of muscles are needed to bring about core stability: muscles close to the skeleton that assume and maintain posture against gravity, and the more superficial muscles that are involved in movement. If tone is low in the muscles close to the skeleton, the surface muscles increase in size to compensate and give support. That is why many children with low muscle tone

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appear to have an athletic build, while muscle tone in the supporting muscles close to the skeleton is still low.

Core stability and the eyes

Have you noticed how babies turn their whole bodies when they want to follow you walking across the room? Initially the baby's whole body is involved in controlling the eyes. It is the combined team effort of baby's inner eye muscles and core muscles that allows her

what it sees and leads to learning problems and avoidance of reading later on.

The relationship between the eyes and the brain may be illustrated by the interaction between a computer mouse and computer software. When the eyes turn, they access different programmes or parts of the brain.

- When the eyes turn upwards, they 'click on the button' to access vision.

‘When the core is **stable** the eyes work like a video camera on a **sturdy** tripod that sends clear pictures to the **brain**’

to follow you with her eyes. For this reason optometrists often recommend a back and stomach muscle exercise programme to improve vision.

Babies who are constantly supported by reclining chairs, push chairs, walking rings or pillows, or otherwise restrained in their movements, do not have the freedom to develop their core muscles. Unsupported rug-time is crucial for free movement, which stimulates core muscle development.

The complex functioning of the eyes needed for reading, writing and spelling starts when the baby moves unhampered while lying flat on her back or tummy. When the core is stable the eyes work like a video camera on a sturdy tripod that sends clear pictures to the brain. If the core is unstable, the eyes send wobbly pictures that lack clarity and focus. This makes it very difficult for the brain to pay attention to

- When the eyes turn sideways towards the ears, they click on the button to access hearing.
- When the eyes turn downward, they click on the button to access inner awareness.

WHAT CAN I DO?

- Allow baby to play and explore on his back and tummy.
- Let baby lie on your lap facing you. Gently take his hands and pull him into a sitting position. This is similar to the sit-ups and crunches adults do in the gym, and it will strengthen the core muscles that support eye movements. Remember to carry this exercise out smoothly, because jerky movements won't be beneficial. In the beginning you will do all the work, but gradually baby will start helping to pull himself up.
- Put baby flat on his back on a rug. Bend his knees a little and keep the shoulders flat on the rug. Gently rock the knees from side to



side to create some flexibility between the hips and shoulders. After a few days you may notice that baby becomes familiar with these movements and starts participating actively.

WHAT MAY HAPPEN IF MY BABY DOES NOT GAIN CORE STABILITY?

Without core stability, baby may not attempt to move and milestones may be delayed. Low activity levels mean that a baby will not use enough energy and will gain too much weight. A growing body without developing muscles and increased movement activities leads to low muscle tone and poor performance at school. Such a child may later experience the following:

- poor body posture
- battles to sit upright
- slides down the chair or fidgets
- needs to support the head when sitting up
- tends to use the whole body when writing
- has a slow work tempo and task completion
- can't stand up, leans against objects for support
- dislikes movement (gross and fine) and tires easily
- has poor pencil grip and handling of other tools
- avoids sport and rather watches TV or plays electronic games.

What can I do if my child displays three or more of these indications?

It is never too late to mend the mind and to address these challenges. Jumping on a trampoline for 15 minutes a day and horse riding are superb fun activities for core development as well as for building confidence.

The following simple but practical Mind Moves exercises have been found helpful to develop core stability in an older child.

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CHILDREN'S CORNER

Trunk rotator. Lie flat on the back, spreading the arms wide and raising the knees to hip level. Slowly rock the knees to the left until the left knee touches the floor, and then to the right until the right knee touches the floor. The shoulders and lower back should stay flat, as if glued to the floor. This movement strengthens the core muscles while separating the shoulder action from the hip action to promote sitting, focus and concentration. It also forms the basis for crossing the lateral midline.

Spine walk. Lie on the back and 'walk' with the hips and shoulders while the back stays glued to the floor. (Be careful of carpet burns!) This movement strengthens the core muscles, inhibits the spinal Galant reflex, and promotes sitting still, sitting upright, focus and concentration.

Midline workout. Work as a pair, sitting with legs wide apart and feet touching. Hold hands and start rocking to and fro like a boat, until each partner is leaning back as far as possible. This movement stimulates balance, hip flexion and core muscle development. It also promotes task completion and expression by crossing the participatory midline, integrating the front and back brain. ●

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