How aberrant reflexes may influence the progression and treatment of Scoliosis

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The word Scoliosis, is derived from Ancient Greek, and directly translated, means “obliquity” or “bending” (Haper, 2008). In other words, when looking at the spine from a posterior angle in patients suffering from Scoliosis, the spine may look more like a “S” or a “C”, rather than a straight vertical line.

Image 1. X-ray of patient suffering from Scoliosis

Scoliosis can typically be classified as either Congenital Scoliosis (caused by vertebral abnormalities present at birth), Idiopathic Scoliosis (cause unknown), or Neuromuscular Scoliosis (having developed as a second symptom of another condition, such as Spina Bifida, Cerebral Palsy, Muscular Dystrophy or Trauma). An estimated 65% of Scoliosis cases have been found to be of an Idiopathic nature, 15% are Congenital and 10% are secondary to a Neuromuscular Disease (Wikipedia, 2012).

Therapists often come across children treated for neuromuscular diseases with associated Scoliosis, which poses other barriers to overcome, physically as well as emotionally. A person diagnosed with Scoliosis may generally present with the following signs and symptoms:

- A rib prominence and/or prominent shoulder blade, caused by rotation of the ribcage in some cases.
- Uneven hips, arm - and/or leg lengths
- Slow nerve reaction
- Poor equilibrium and balance (Yamada et al. 1971)
- Uneven muscle tone on either side of the spine
The presence of the active primitive reflexes, ATNR and Spinal Galant, causing the spine to curve.
Very severe cases of Scoliosis may result in diminishing lung capacity and increased pressure on the heart.

BARRIERS TO LEARNING ASSOCIATED WITH SCOLIOSIS:
- The inability to perform daily activities because of physical impairment
- Difficulty participating in the classroom, because of physical fatigue
- Learning difficulties because of physical impairment as well as active primitive reflexes
- Emotional and Social problems

Chiropractor, Dr. Carl Ferreri (1970), discovered more commonalities relating the Scoliotic adolescent resulting in learning difficulties:
- A balance problem involving the vestibular system
- A visual field deficit existing on the opposite side of the scoliosis.
- A Vestibulo-Occular Reflex Deficit

It is obvious that Scoliosis does not only physically effect posture and the curve of the spine, but it also has a direct effect on the ability to learn, as well as social and emotional development.

TREATMENT
The treatment-regime for scoliosis is generally focused on inhibiting the progression of Scoliosis, in order to prevent further deformity and loss of function.

Physiotherapy has been proven efficient in the treatment of scoliosis, correcting muscle imbalance and inhibiting progression of the curve.
Occupational therapy is very effective in assisting with self-care, quality of life, productivity etc.

Bracing can be used to prevent the progression of scoliosis.

Surgery is usually the last option because it may be potentially dangerous to the patient.

Additional treatment
There is, however, also a neurological approach to the treatment of Scoliosis, which may complement the existing methods and may further lead to better results in treatment.

Numerous studies have indicated that aberrant primitive reflexes, may cause the spine to curve, which can lead to, or aggravate Scoliosis. The two primitive reflexes which are directly linked to Scoliosis as well as several barriers to learning are:

- The Asymmetrical Tonic Neck Reflex (ATNR)  (Connoly & Michael, 1984)
- The Spinal Galant Reflex  (Shaw, 2010)

These above mentioned reflexes are of particular interest, because they have a tonic effect on the body’s muscular system, and are instrumental in the development and maintenance of the spinal arches. According to Shaw (2010), the understanding and recognition of these reflexes are essential because while active, it can hinder progression and negatively impact on therapy.

Mind Moves® is a program developed to inhibit primitive reflexes and develop neural pathways. When a patient is suffering from Scoliosis, it would be beneficial to refer him/her to a qualified Advanced Mind Moves Instructor who can conduct a Reflex Assessment for uninhibited reflexes and assist in further treatment.

It is my opinion that making Mind Moves part of the treatment-regime for Scoliosis by striving to inhibit the active ATNR and/or Spinal Galant reflexes, may contribute to faster and greater results in the prevention of further deformity and loss of bodily function as well as to addressing the barriers to learning in these patients.

The following Mind Moves (De Jager, 2009) can be suggested to address these uninhibited primitive reflexes:

- **Mind Moves to inhibit ATNR:**
  - **Core workout**
    - **Step 1**
      Lie on the back. Slowly move the left arm and leg as if tied together and turn the head to look at the left hand. Slowly move the right arm and leg as if tied together and turn the head to look at the right hand. Repeat 10 times.
  - **Step 2**
    Remain on the back and repeat step one, but slowly move the head in opposite direction of the extended arm and leg. Repeat 10 times.
Step 3
Still on the back, tie a blue ribbon to the left arm and right leg, and a red ribbon to the right arm and left leg. Bring the red arm and leg together and extend the other arm and leg without any head movement. Then bring the blue arm and leg together and extend the red arm and leg, without any head movement. Repeat 10 times. Relax.

Step 4
Once Steps 1–3 can be performed without difficulty (it may take weeks), crawl on all fours while turning the head to the left and right.

Step 5
Once step 4 is done with ease, ask child to stand up and do bilateral crawl while eyes turn up, down, left, right; focus near and far. NO head turning allowed.

🌟 Visual exercise
Face forward. Look at thumb held at elbow distance from the eyes. Move the thumb to the left (at nose level), and then slowly to the right. First do this with the eyes closed, imagining the position of the thumb. Open the eyes and check whether the eyes and thumb are in the same position. Repeat five times. Then repeat five times with eyes open. Rub the hands together briskly and place the warm palms over the eyes to relax.

🌟 Mouse pad
The eyes are to the brain what the mouse is to the computer. The eyes access different parts of the brain when turning up, down, horizontal, left and right. Focus on the thumb held at elbow distance from the eyes. Move the thumb upwards, first around the left eye and then around the right eye. Repeat five times. Change hands and repeat the same process, always first drawing a circle around the left eye and then around the right eye. NB!

- Mind Moves to inhibit the Spinal Galant reflex

🌟 Spine walk
Lie on the back and ‘walk’ with the hips and shoulders while the back stays glued to the floor.

🌟 Midline workout
Work in pairs, sitting with legs wide apart and feet touching. Hold hands and start rocking to and fro like a boat, until each partner leans back as far as possible.
References:


Images [online]
