Didgeridoo....Beanbags....Primitive and Postural Reflexes

By Brendan O" Hara

An analogy.....Imagine you are in a car as a learner driver for the first time.

Obviously there is no 'car co-ordination' or smooth control of the vehicle. Wondrously however, nature has provided you with a set of 'learn-to-drive-reflexes' (involuntary actions stimulated by either the movement of your head or by pressure to certain parts of your body).

And so, you sit behind the wheel.

As you tilt your head forward to look at the control pedals, your foot involuntarily kicks out and depresses the clutch pedal. This was not a conscious or a willed movement. In fact, every time you tilt your head forward this happens; it repeats many times.

A few minutes later another involuntary action commences. Each time you sit back and your shoulder blade touches the seat, your opposite hand reaches out, takes a hold of the keys and turns them, thereby starting the engine. For a while these actions occur concurrently.

After some time, as your foot depresses the clutch it causes your other hand to reach out, take a hold of the gear stick and shift into first gear. This too happens over and over.

None of these actions are voluntary. They are in fact **reflex actions** initiated by a movement of the head or the stimulation of a sensor pad (e.g. the shoulder blade).

It is through continuous and numerous repetitions that these actions become learned (voluntary actions that can be performed consciously and at will). As they, and others all combine, we learn control and acquire the ability to drive the car.

In other words, the brain and the body make the connections that allow the conscious decision to depress the clutch etc. As we gain control, the involuntary actions stop; the reflexes, having served their purpose 'integrate'.

....And so it is with the new born baby. Born with an innate, unconscious desire to walk and talk, we come supplied with a group of reflexes which emerge and unfold sequentially, run concurrently and then Integrate.

These reflexes are known as the **Primitive and Postural Reflexes** and are sometimes referred to as the Infant Reflexes. Besides enabling us to survive and gain nutrition for growing, **the reflexes facilitate our learning to move** by causing us to wriggle, lift and turn our heads, roll, sit up, rock, and crawl, stagger, walk, run, hop, skip and jump.

There are many Primitive and Postural Reflexes. The activities in this book focus on those reflexes which are particularly involved with balance, spatial awareness, co-ordination and vision.

If the reflexes don't emerge our neurological and physical development can be hampered, mild to severe problems can be the result.

For example, the Suck reflex is fully present at birth and ready to help extract the milk from Mum's breasts. The nipple touching on the baby's lips, activates this reflex. Involuntarily the lips pucker and the tongue, lips and jaw muscles all suck and extract the milk. Within a matter of weeks the baby learns control of these sucking muscles. The Suck reflex, having done its job, integrates, at about 3 months of age.

If this reflex didn't emerge or wasn't strongly developed, then the baby's suck could be weak or even non existent. Possible outcomes could be:

- a poorly nourished baby whose digestion is sluggish.
- constant dribbling and/or slow speech development.
- traumas associated with, even abandonment of breast-feeding.

The timing of the reflexes is also crucial. Imagine if the 'shifting gears' reflex was late, or didn't coincide with the 'clutch' reflex; the result would be grating gears, or worse, the car doesn't move at all. If the Suck reflex was late to develop Mum, feeling the full gambit of emotions from frustration to rejection to grief, will soon have put the breasts away and produced the bottle.

Or for example, if the Asymmetrical Tonic Neck reflex (ATNR) didn't emerge in time, we might find a baby is crawling before good balance has been established. This could have a negative effect on the crawling pattern. This in turn can affect learning and co-ordination. The ATNR amongst other things teaches us to roll over; thereby assisting the development of balance and vision. It's also crucial in developing our ability to work at and to cross the midline.

....And so, problems can (and do) eventuate when one or more reflexes are late, early, weak, or not fully present at the appropriate time.

It is of utmost importance that the reflexes integrate once they have done their job. If a reflex does not integrate it is said to be 'retained'. Basically 'retained' equates to difficulties, physically, mentally and eventually emotionally

Many of the Beanbag Games and activities are designed to assist the progress and integration of the reflexes; thereby helping behaviour, academic and intellectual development, along with posture, gross and fine motor co-ordination, vision and hand-eye co-ordination. All in all handwriting, reading, concentration and learning in general are assisted through these activities.

The integration of retained reflexes can even be helpful in the removing of neck and back pain, and other postural problems.

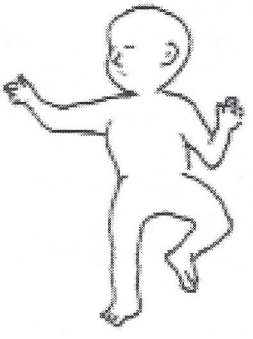
The Asymmetrical Tonic Neck Reflex, if retained is a barrier to the midline; if integrated it enhances our ability to work at and across the midline.

The ATNR works like this. Head movement away from the midline causes extension on one side and flexion on the other side of the body. When the head turns to the right, the right arm comes up and extends, and the right leg straightens. The left arm and leg flex.

When the head turns to the left the opposite occurs. The left arm and leg

extend, whilst the right arm and leg flex.

This reflex emerges at 18 weeks in utero. It integrate at around 6 months of age. It is the cause of the **"kicking" in the womb,** assisting the development of the vestibular system, balance and muscle tone. All this continues until birth when, in conjunction with the Spinal Galant reflex, these head and limb movements **help the baby** on its journey along the **birthing** canal.



Once out of the womb the ATNR continues to assist the development of **balance, vision, co-ordination and spatial awareness.** It also ensures that the infant has an unobstructed passage of air when prone (on its stomach).

When supine (stomach up), the symphony of this reflex is remarkable. The head turns and the arm and leg extend. The opposite leg flexes, its heel rocks, and the **baby rolls** ...over the extended arm. As the baby comes over onto the stomach, the opposite, flexed arm is there to steady and cushion the 'fall' and thereby save the baby from banging its face on the floor.

Let's add an object to this equation. The head turns, the arm goes out, the hand opens and then grasps (the object), the baby rolls, and hey presto, here are both the hands ready to play, explore and research ...at the midline. This aspect of the ATNR assists the development of vision and hand-eye co-ordination. Even before rolling is developed, as the baby's head turns and its arm extends, the little hand grasps. It is then brought to the mouth for investigation, research and learning. Through this kinesthetic activity the baby learns distance and vision. By feeling the boundaries and texture of the object, the baby sees the object.

Many years ago my massage teacher said, "Close your eyes Brendan, and 'look' through your fingers.

The ramifications of a **'retained'** (staying too long) ATNR are many ranging from poor balance and vision to hand-eye co-ordination problems, from reading and writing difficulties to a propensity for neck and shoulder problems, (and even minor car accidents).

Please note a distinction here. 'Crawling' in Australia (and in this article) refers to being up on hands and knees, defying gravity. In some countries this is known as 'creeping'. Dragging yourself along on your stomach, Australians call 'commando crawling', whilst some others refer to this as crawling.

If the ATNR stays too long, for example, and is still present when the baby wants to crawl, often **correct crawling will be hindered,** causing the baby to develop homolateral (one sided, or one side at a time) crawling. Later when walking, running or swimming any movement of the head off centre will cause arms and legs to extend and flex involuntarily. This produces awkward rather than smooth, fluid, graceful movements; poor co-ordination, often on the sports field, being the result.

I once met a man, Jack, playing tennis. Whenever the ball was hit to his left side, Jack would reach out and strike a return shot with his **left-hand forehand.** If the next

shot went to his right the racquet was deftly transferred to the right hand and the ball was returned by Jack's **right-hand forehand** ...and so on. Everybody said, "Hey isn't it great, Jack is **ambidextrous!**" "No", thinks I, "he just can't cross the **midline.**" For a backhand you have to cross the midline. ...And by the way, he can't cross the midline because he has a retained ATNR.

Herein lies the problem with handwriting. To write fluently with our thoughts flowing freely to the pen, we need to be able to cross the midline.

Have you ever seen **handwriting** that starts tight, even cramped on the left side of the page and then falls away. Literally sloping downwards or upwards, or both, as the pen moves left to right across the page. Often the writing will become larger, scrawly and unevenly sized ...the lurking ATNR.

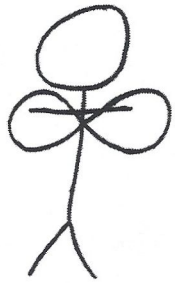
As the hand moves across the page from left to right, the head moves turns to the right, only slightly, but enough to trigger the reflex action, causing the right arm to extend and the hand-writing to slew. The opposite can occur for the left-handed, the left arm flexing as the head turns right.

Post Script: The ATNR Car Accident: Head turns to the right, right arm extends and the left arm flexes. Because the hands hold the steering wheel, the resulting action is the car veering to the left; opposite to where we are looking ...Oops! (sometimes a hand will let go; result: moving unintentionally where we are looking ...oops again!) ...Nasty sound that.

Well, let's delve into a bit of handwriting, shall we? Below is a group of Beanbag Games (activities) which help to integrate the ATNR

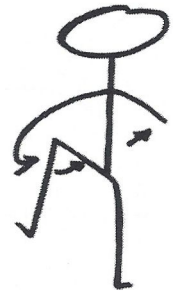
Integrating Activities for ATNR:

- ATNR Eyes
- ATNR Eyes and knees – standing, prone, supine.
- Di Diddly Bom Bom Shew
- Earthoid Spirals
- Heart 8's. Tone.
- Over the falls
- Rainbow
- Round and round my tummy
- Shewie Shewie Back Hand Toss
- Slide
- Under the Leg and in the Air
- Waves



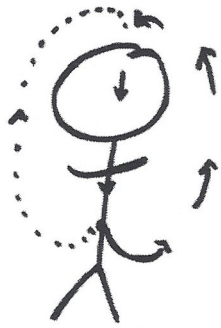
Heart 8's.

Round and round
My tummy

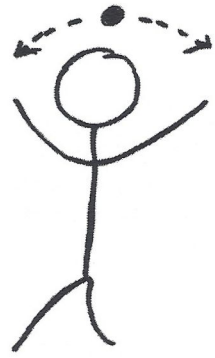


Under the Leg
and in the Air

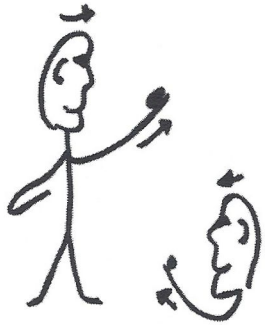
Over the falls



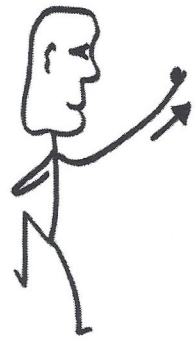
Waves



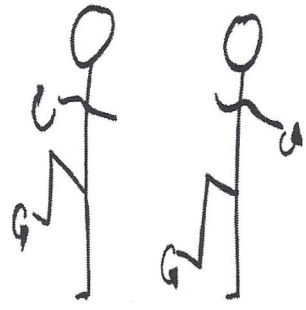
Rainbow



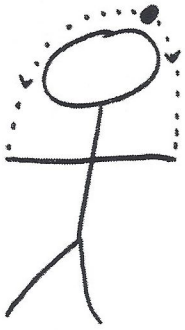
ATNR Eyes



ATNR Eyes & knees



Earthoid Spirals

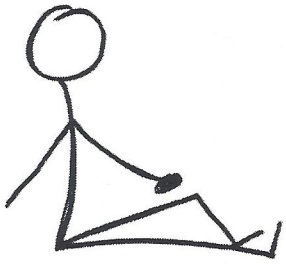


Shewie Shewie

Back Hand Toss

DiDiddly

Bom Bom Shew



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Extract from The Beanbag Games Book - by Brendan O'Hara.
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Since 1986 Brendan O'Hara has combined his musical talents with Kinesiology, and has been introducing children (and grown-ups) to Kinesiology through song and dance. He is a natural presenter with a huge passion and enthusiasm for his work.

His is the author and producer of "Movement and Learning' (The Children's Music Book and CD), Wombat and his Mates Book and CD and The Beanbag Games Book, all being Kinesiology based resources for parents and teachers.

Notes: