Exercising body and brain

by Wendy Ellyatt

> "Movement is the door to learning."
>
> **Paul Dennison, Ph.D.**

Increasingly educators agree that learning is something that does not happen in the brain alone and that every nerve and cell in our bodies contributes to an overall network of learning potential. It is the sensitive capacities of our bodies that provide critical information to our brains and it is our movements that allow us to then express our understanding and abilities in increasingly complex ways.

I have just been re-reading a book called *Smart Moves* which documents the work of neurophysiologist and educator Carla Hannaford. In 1995 Hannaford presented for the first time her own thoughts about the body's role in thinking and learning. She had 30 years of teaching experience, including 20 years as a professor of biology and four years as a counsellor for elementary and intermediate school children with learning difficulties, and received many prestigious awards. In her book she speaks of her discovery of the work initiated by Paul Dennison who developed Brain Gym®. The programme involves the use of a number of very specific exercises based upon an understanding of brain function and a therapy called Kinesiology, which was developed in the 1960s and is now being applied to learning disabilities with some very interesting results.

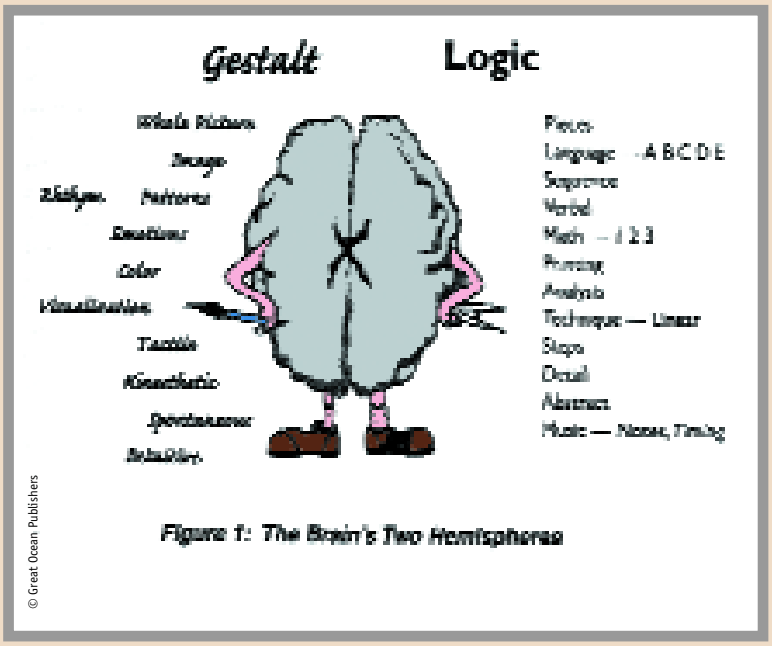

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Figure 1: The Brain's Two Hemispheres

The brain consists of three layers, each corresponding to a different evolutionary stage: the deepest layer is called the brain stem or 'reptilian brain'. In addition to basic body functions it controls movement, wakefulness and decisions about safety. The mid-brain, known as the limbic or 'mammalian brain', is in charge of emotions and storing long term memories.

The outermost brain layer is the most recent addition and is referred to as 'the human or neo-mammalian brain'. It is divided into two distinct hemispheres: the left brain and the right brain. The left brain's primary functions are opposite and complimentary to those of the right. The left side is concerned with 'doing', the right with 'being'. The primary characteristics attributed to left brain function are speech, literacy, abstraction and numeracy. The primary characteristics of the right concern images, holism (perceiving things in an 'all at once' fashion) and the reception of music.

Although there has been a lot of attention paid to whether children are left or right brained, it has become clear that what matters most is the degree to which the two sides mutually interact so that there is a balance in the way in which we interpret the world.

Brain Gym® therefore looks at the way in which our brains work for us as individuals by determining what is known as our 'dominance profile'. What this means is that each of us processes information through the brain in a different way and that this can be identified by looking at the way in which we use our senses. The lateral dominance of eyes, ears, hands and feet can then be related to the dominant brain hemisphere and provides a deep insight into how any individual processes information. Our dominance profiles change depending on what we are doing. However, under stress we rely on our most dominant senses and hemisphere.

The Brain Gym® programme consists, therefore, of a series of exercises that activate both hemispheres, thus optimising our brain power to see both details and the whole picture. The techniques are a composite of many differing sciences and have been proven to be highly effective for all learners, as well as the 'learning-disabled'. There is even evidence that Brain Gym® can be used for psychological disorders as well. Many of its techniques are currently being tested by schools in the U.S., Canada, Germany, Switzerland, Russia, Poland, Denmark, South Africa, Australia, and New Zealand.

Here are a few of the exercises that are typical of the programme.

Drink Water (As Dr Carla Hannaford

says, "The brain is 90 percent water".) Having students drink some water before and during class can help 'grease the wheel'. Drinking water is very important before any stressful situation as we tend to perspire under stress, and dehydration can effect our concentration negatively.

'Brain Buttons' This exercise helps improve blood flow to the brain, to 'switch on' the entire brain before a lesson begins. The increased blood flow helps improve concentration skills required for reading, writing, and so on.

• Hold one hand so that there is as wide a space as possible between the thumb and index finger.

• Place your index finger and thumb into the slight indentations below the collar bone on each side of the sternum. Massage for about one minute.

• At the same time hold the other hand over the navel area.

'Cross Crawl' This exercise helps coordinate right and left brain by exercising the information flow between the two hemispheres. It is useful for spelling, writing, listening, reading and comprehension.

• Stand or sit. Move the right hand across the body to touch the raised left knee, then do the same thing for the left hand and the right knee in a slow conscious movement. Children may need to go faster because their balance isn't as well developed, but you can encourage them to go more slowly by making a game of 'who can go the slowest'.

• Do this either sitting or standing for about two minutes.

'Hook Ups' This works well for nerves before a test or special event such as making a speech. Any situation which will cause nervousness calls for a few 'hook ups' to calm the mind and improve concentration. It also activates the whole brain function.

• Stand or sit. Cross one leg over the other at the ankles.

• Cross one wrist over the other wrist (thumbs down) and link up the fingers.

• Bend the elbows out and gently turn the entwined fingers in towards the body until they rest on the sternum (breast bone) in the centre of the chest. Stay in this position while breathing deeply and evenly for a few minutes. You will be noticeably calmer after that time.

Educational Kinesiology – enhanced learning through movement – was created by Dr Paul E. Dennison and Gail E. Dennison through their extensive research in areas that include education, brain function, psychology, and applied kinesiology. The Dennison' insight into the learning process led them to develop the approaches to education now known as Edu-K and Brain Gym®. Brain Gym® exercises are enjoyable movements specially designed to enhance and ease all learning processes. They can easily be incorporated into school sessions and benefits are said to include improvements in learning, expression and movement abilities in children and adults. Teachers frequently report improvements in attitude, attention, homework performance, discipline, and behaviour for the entire class.

This area of brain research, and particularly the educational work of the Dennison and Hannaford, are things I suspect would have greatly interested Montessori as they re-affirm her own belief in the importance of movement and the involvement of all the senses in the learning process.

Current studies indicate that the results of introducing these simple exercises can be profound. They confirm that modern educators need to be aware that no two children are the same and that all young learners are unique in the way they receive and process information.

Children can learn almost anything if they are dancing, tasting, touching, hearing, seeing, and feeling information.

Paul Dennison ■

THE DIFFERENCES BETWEEN THE TWO BRAIN HEMISPHERES

LOGIC	GESTALT
Processes from pieces to whole	Processes from whole to pieces
Parts of language	Language comprehension
Syntax, semantics	Image, emotion, meaning
Letters, printing, spelling	Rhythm, dialect, application
Numbers	Estimation, application
Techniques (sports, music, art)	Flow and movement
Analysis, logic	Intuition, estimation
Looks for differences	Looks for similarities
Controls feelings	Free with feelings
Language oriented	Prefers drawing, manipulation
Planned, structured	Spontaneous, fluid
Sequential thinking	Simultaneous thinking
Future oriented	Now oriented
Time conscious	Less time sense
Structure oriented	People oriented
WHEN UNDER STRESS	**WHEN UNDER STRESS**
Tries harder, lots of effort	Loses the ability to reason well
Without results	Acts without thinking
Without comprehension	Feels overwhelmed
Without joy	Has trouble expressing
Without understanding	Cannot remember details
May appear mechanical, tense, insensitive	May appear emotional or spaced-out

"Cross-lateral movements actually improve the nerve communication between the two sides of the brain."

C. Hannaford, Ph. D.

Wendy Ellyatt is a freelance writer and consultant specialising in early years education.

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