Why Man Can't Live on the Moon.

By
Dr Christopher Reynolds

Since Neil Armstrong first stepped on the moon in 1968, people have dreamed that one day man (mankind) could live on the moon. Escaping from a polluted earth, retreat from a nuclear war, or establishing a moon base for future space exploration have all been serious considerations for moon settlement. Yet, for the past 40 years space travellers have been confined mainly to orbiting the earth. Living on the moon, we now realise, is a bigger problem than first envisaged. While the development and maintenance of sophisticated equipment has been a primary concern so has the maintenance of the software of the human brain.

Apart from questions of the expense of moon settlement or even the benefits of space tourism, the reality is that man can't live on the moon because the effects of weightlessness cause dyslexia.

In sending all those highly intelligent astronauts into space, NASA has discovered that their astronauts couldn't complete and properly record the results of the million dollar experiments they had planned. This, of course, caused problems. When big companies had paid big dollars to have complex experiments carried out in conditions of weightlessness, the last thing they wanted was for the experiments to be carried out by a serious dyslexic.

After some consideration of the matter NASA came up with a plan to stimulate brain activity through increasing sensory input. The astronauts were given a series of exercises to perform on a regular basis that would send messages along specific nerves and muscles to influence the vestibular system and the cerebellum in the back of the brain which manages the muscular coordination of the body.

Weightless, however, is not the only cause of dyslexia. Here on earth, many people suffer from dyslexia not because of weightlessness but due to problems arising from the malfunction sensory systems of the body – particularly the vestibular system. Thus, dyslexia can result from a combination of things and many people have been struggling with dyslexia including a number of famous people such as Thomas Edison, Winston Churchill, Richard Branston, Whoopi Goldberg, Cher, and even Albert Einstein is believed to have had a 'learning problem'.

For school age children, studies in both the US and the UK indicate that up to 15% of children have some form of dyslexia and it is just as high, or higher, in the Middle East.

Dyslexia is a language-based learning disorder that is biological in origin and primarily interferes with print literacy perception and performance – affecting mainly reading, writing and spelling skills.

Dyslexia is not an illness, malady or disease. It is a unique collection of symptoms whereby no two sufferers will have exactly the same symptoms or underlying causative factors. What this means is that a dyslexic child is better described as one with 'learning difficulties' for what is often diagnosed as dyslexia may well be a combination of dyslexia, dyspraxia, ADD, ADHD and OCD.

Accordingly, it is best understood as a unique collection of learning disabilities which are specific to the individual and, in itself, due to varying degrees of immaturity or under - functioning of specific areas of the neurological system.

To be more specific, dyslexia is essentially a malfunction in the body-mind communication system. It is the vestibular system working in partnership with the cerebellum which is critical to movement and thought processes necessary for memory and language skill development. The vestibular system tells us when we are moving. It gives us our sense of balance and a sense of body relationship to our environment. The vestibular system is the reference point against which other sensory input is measured. The kernel of the vestibular system is a set of receptors within the inner ear consisting of semicircular canals that respond to acceleration and deceleration of the head as well as angular displacement. The system is also sensitive to gravity (and weightlessness) as well as pressure (particularly experienced during diving).

Because our vestibular system gives us our sense of orientation – where we are in the world, and thus affects our auditory perception and visual perception, we can understand why working to correct the functioning of this system is so important.

It is also important to realise that dyslexia is not an intellectual inadequacy and tends to lessen as children get older, especially with appropriate therapy to integrate the sensory systems.

Parents may suspect that their child has one or more learning difficulties. Unfortunately, problems can be also seen by other children and teachers who, in an unknowing or unkind way, describe the child as ‘lazy’, ‘clumsy’, ‘naughty’ or a ‘day dreamer’. Often, it is because a child is quite bright but does not perform well in class, that teachers and parents come to realise there is something wrong.

So why do some children develop dyslexia and others do not? Research has shown that there is a genetic link. If, on the mother’s side of the family there is a history of any of the development disorders, then one or more of the offspring have a 37% chance of manifesting dyslexia. If there exists a history on the father’s side of the family the likelihood of the dyslexia trait rockets up to 67%.

Studies done by the Mayo Clinic in the US in 2003 confirm the genetic origin of most dyslexia but also revealed that boys were 2 to 3 times more likely to suffer from dyslexia than girls.

To understand why boys are more likely than girls to develop learning problems, it needs to be realised that male and female brains are different, and so are the processes of sensory integration development. Even before a male is born, his brain has undergone a different process of development than a female.

From the time a baby is born, male and female brains are different. Indeed, from 6 to 7 weeks after conception, embryos designed to be male receive a ‘hormone bath’ of testosterone which influences the development of the brain. The testosterone actually damages the walnut-shaped brain and alters its structure and even its colour. The left cortex grows slower than the right but with the presence of testosterone in the blood stream, the left cortex of the brain in boys grows slower than in girls. Indeed, oestrogen, the hormone predominant in the bloodstream of girls, makes the brain grow faster. As the right half of the brain grows, it is tries to make connections to the left. In boys, the left half isn’t ready as early as in girls and thus the nerve cells reaching across from the right can’t

find a place to connect and therefore they turn back toward the right side and 'plug in' there. As a result, girls have better connection between right and left brain thinking, while boy's right-brain is richer in internal connections.

The difference in the brain of boys and girls means that boys and girls learn differently and have different learning needs and this has a profound affect upon their learning capacities and development.

In general, girls have better connection between right and left brain thinking and thus develop communication skills, including their reading and writing abilities, much earlier than boys. On the other hand, boys tendency to excel at certain skills such as problem solving, maths and science which is directly linked to how their brain is hardwired and to the presence of testosterone.

In an effort to treat the problem there have been a variety of proposed remedies. Some dyslexia suffers take Effalex (fish oil) which is claimed to help the brain's nerve cells. Some people advocate sea sickness pills, which, of course, affects the vestibular system and the brain's sense of coordination.

When George Bush was informed that the men NASA was sending into space were developing dyslexia, his simply replied "Well, just send women."

NASA's approach has not been to send more women into space (for they would develop dyslexia too) but to introduce an exercise programme to stimulate the vestibular system.

It is true that the right exercises can stimulate the vestibular system and the brain's activity the danger, of course, is to believe that one exercise programme can have the desired effect or suite the precise malfunction that needs to be addressed. Professor Maggie Snow of the York University says "It is naïve to think that there is one cause of cerebella immaturity and one treatment for correcting it would be effective for children with dyslexia, dyspraxia and affection deficit hyperactivity disorder." (Times Education Supplement, February 8, 2002)

If we see that a child is struggling with their school work, there can be a number of reasons for problem, and may be a combination of several things. But the process to solving such problems must begin with a proper assessment. To use labels like 'dyslexia' doesn't really tell us a lot. An assessment of the vestibular system and cerebellar performance by an occupational therapist will identify the nature and degree of any dysfunction, and, what needs to be done to correct the problem. Clearly, the objective of therapy for children is to stimulate the sensory activity and sensory integration in order to accelerate or correct neurological development.

Finding the right therapist, however, can be as difficult as finding the right therapy programme. In a city such as Dubai where professional paediatric services are still developing, or arriving, as the case happens to be, there are many 'self taught professionals' offering their wares. Understandably, gaining the help of non-professionals, or un-professionals, for children and their families can cause more harm than good. Many people have suffered throughout their life believing they were intellectually deficient for no other reason than a seemingly well meaning teacher, or even psychologist, labelled them with some unprofessional term such as 'slow', backward', or even 'stupid'.

It is very important that children get the right diagnosis for their learning difficulty. While more women may be trained to travel into space and orbiting astronauts learn to bounce around their spaceship like its teletubbies, one thing seems certain, mankind wont be living on the moon. Inevitably, we would all become lunatics. To avoid dyslexia it is safer to stay here on earth.

If you happen to believe your child may have a learning difficulty, the good news is that there are now an increasing number of professionals in Dubai who can help.