



Good Vibrations

by Alan R Heath

Using music to enhance sensory processing

Ben had serious balance and mobility issues and delays in his language development. Having Neurofibromatosis (NF1), such developmental delay is often seen. In June 2007 he began The Listening Program® using the relatively new addition of bone conduction stimulation. Mum Helen, comments in May 2008 that “*Very quickly, Ben’s language skyrocketed. He began to speak in 4-7 key word sentences with much more accurate sound reproduction.*”

Many other children and adults with a range of conditions including ASD, Dyslexia, Dyspraxia and ADHD also find the processing and integration of sensory information a challenge.

The results of hearing and sight tests may well be normal but it cannot be assumed that our listening and visual processing abilities will also be normal. For example, looking at the auditory system, we not only need to be able to hear sound clearly, there are many individual auditory processing skills that will directly impact upon our ability to actively listen in different environments including:-

- Separating what we want to listen to from background noise.
- Understanding about timing and pattern of sounds.
- Processing the subtle frequency changes important in language

Auditory processing skills impact upon our ability to learn and process language, develop phonological skills or even learn a second language. If we have challenges with the sequencing of information this can impact upon our ability to sequence numbers or letters, or to follow a list of instructions.

Learning is often considered only in terms of the five senses: sight, sound, touch, taste and smell. However, there are a number of ‘internal’ senses that play a vital role in the processing of sensory information. Two of these are proprioception and the impact of the vestibular system.

In essence, proprioception is the internal sense of where the parts of our body are in relation to each other. Proprioception is what allows you to touch your nose with your finger when your eyes are shut!

The vestibular system is contained within the inner ear and plays a vital role in balance, co-ordination and also affects many other systems within the body. It is the vestibular system that allows us to be still and upright. It plays a crucial role in stabilising vision as well as impacting on our spatial awareness. It provides us with a fundamental awareness of left/right, up/down and back/front within our body.

It becomes clear then, that these different sensory systems combine to help us move around our environment. They are also vital to stabilise posture for writing or other hand to eye co-ordination tasks such as catching. More abstract representations such as learning to tell the time, sequence numbers and the recognition of ‘b’ and ‘d’ are based on this fundamental awareness. The degree to which these different sensory systems are integrated will directly impact upon our ability to understand and interact with the outside world. Paying attention and focussing on a teacher’s voice can be very challenging if we are unable to sit

still and ignore other visual and auditory information in a classroom.

Remember that the vestibular system is within the ear. This is why, when using sound stimulation programmes, we see the accelerated development of fundamental skills. Many connections exist between the ear and the brain via the auditory pathways and the non-classical pathways to the limbic system and cerebellum. There are also many connections between the ear and the body via cranial nerves. The vagus nerve, the 10th cranial nerve, for instance, also affects many organs in the body and transmits vibrations via the ear.

Music is known to greatly affect the brain and body. You may have heard about the improvements in spatial performance through listening to music known as 'The Mozart Effect'. Neuroscientist, Professor Daniel Levitin discusses in his book, *'This is Your Brain on Music'*, (Dutton, 2006) how "research has revealed long-term effects of musical activity". It is often agreed that the ideal music to work with comes from the baroque period; this is due to the structure and simplicity of the music. Many classrooms now play such music quietly in the background to assist learning.

In the field of auditory stimulation however, music is used in a much



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more therapeutic manner. Specialised programmes, such as The Listening Program®, use techniques to enhance the ability of the music to help with sensory processing. Many schools worldwide now use The Listening Program and see improvements in reading, balance, co-ordination, language development and other areas.

A pioneer in the field of sound stimulation, Dr Alfred Tomatis, developed the use of modified music along with bone conduction. Born in France, in a career spanning over 40 years, he was an Ear, Nose and Throat specialist who worked with many children and adults with a variety of learning problems. Advanced Brain Technologies further developed this technology into a system offering bone conduction stimulation that can be used at home or school in as little as 15 minutes per day. It simply requires listening via headphones with no active response needed.

The Listening Program® can be delivered using a set of good quality air conduction headphones. Using bone conduction simply requires the use of a special set of headphones with a bone conductor in the headband. This sits on top of the skull and provides an added form of stimulation to the vestibular system and body. It is also ideal for children with middle ear problems as bone conducted sound bypasses the middle ear and is transmitted direct to the cochlea. This is often seen to achieve faster results than the use of air conduction stimulation only.

For children with learning and sensory processing problems, such a programme can help them to organise and develop these vital abilities. This in turn can help them to develop speech and language abilities, gross and fine motor skills and help them to access the curriculum.

For Ben this has had a major impact; "Movement patterns are almost normal; climbing and crawling are no

longer major obstacles. He now runs confidently! His proprioceptive system has been really boosted; he will pick his feet up over obstacles without having to look down. I cannot tell you what a major achievement and health and safety bonus this has been!" says Mum, Helen.

Many other families are seeing the benefits of this type of stimulation. Tom was diagnosed with autism at age 2 and completed bone conduction listening from the age of 5. After around 6 months of listening he had made great progress in "terms of his level and quality of interaction, his eye contact, his flexibility, language and just his general interest in people". On Valentine's Day, Tom even gave his Mum a card saying "I love you Mummy, love TOM."

Professionals working with children and adults with sensory and learning problem may train to use this programme to support their existing work. Parents interested in learning more about The Listening Program® can find their nearest trained Certified Provider on www.thelisteningprogram.com or by contacting Learning Solutions. **S**

Alan is the founder and Director of Learning Solutions, an organisation based in Yorkshire, UK that for over 12 years has been dedicated to helping children and adults maximise their learning potential. He is an accredited Brain Gym® Instructor, NLP Practitioner and the UK and Eire trainer for The Listening Program®. He works extensively in schools in the UK and internationally, training teachers in auditory and sensory processing, accelerated learning and Brain Gym®. He is the author of *'Beating Dyslexia A Natural Way'* published in 1997 and runs a consultancy service for children with a range of learning and sensory difficulties combining sound stimulation and movement work.

www.learning-solutions.co.uk