Dyslexia – A Neurodevelopmental Approach

By Jan Bedell PhD, M ND. October, 2008

In America the ability to learn is becoming a pressing topic of conversation in our homes, schools, the workplace, and even government agencies. Our nation worries about the education of its citizens. Companies are concerned about their workers' ability to learn. School budgets and limited staff struggle under the weight of federal mandates and the learning challenges of their students. Homeschool moms question their ability to teach. At the heart of the struggle is the debilitating diagnosis of dyslexia, affecting an estimated 5-15% or more of U.S. children, particularly boys. It has been called "the most frequently occurring learning disability and the most common disorder of childhood" (Richards et al, 1999).

What is Dyslexia?

Dyslexia, the word that strikes fear and dread in the hearts of thousands of parents each year, is a complicated and controversial diagnosis. Parents hear this devastating diagnosis and are typically told that teaching coping and compensating skills is the only answer. They see this proverbial "pile of bricks" loaded on their child's back and are told he has to carry it around for the rest of his life. A definition used to describe, identify and treat this malady was proposed by the World Federation of Neurology in the 1960s. It states: "Dyslexia is a disorder manifested by difficulty learning to read despite conventional instruction, adequate intelligence, and socio-culture opportunity." (Catts & Kamhi p. 58). This definition focuses more on what dyslexia is *not* rather than what it is. Nevertheless, it was used for decades to label hundreds of thousands of people.

Exploring the Symptoms

Over the past 100 years, dyslexic symptoms have been articulated by researchers, and include deficits in the areas of: phonological awareness, balance, motor control, visual discrimination, visual sequential processing, auditory processing, and listening skills. Problems are often characterized by reversing or transposing letters, clumsiness, figure drawing errors, and heightened emotionality. It seems that more research has resulted in less understanding – not scientifically sound. But what is to be made of unexpected reading failure in otherwise average-functioning students (Kavale & Forness, 1998)?

Many professionals seem to be guilty of the one-size-fits-all solution. In spite of the varied symptoms, the tendency to treat all dyslexics in the same way results in confusion and ineffective treatment. It seems clear that with so many different symptoms, many aspects of human development are involved. Solutions, therefore, must be custom-fit to the individual.

What Could Be The Cause?

Many hypotheses are proposed for the "cause". Some say it is a hereditary neurological disorder; others blame the structure and function of the brain. Still others trace the causes to auditory processing deficits, visual dysfunction and/or motor (cerebellar) dysfunction. Questions abound! Could primitive reflexes be interconnected? If so, could these interconnections be causing poor coordination of visual, vestibular and proprioceptive systems required for good feedback to the individual for reading? What influence do ear infections have? What is the role of cultural influences? The large amounts of time children have watched television and played video games, has caused them to stare straight ahead and try to read what is in the area of focus without moving their eyes (Corso, 1997). Also of concern is the resulting lack of physical activity (Healy, 1994 p. 171). This quagmire confuses parents and professionals alike.

Current Approaches

For many years the traditional treatment for individuals with dyslexia has been a phonological approach first introduced by Samuel Orton (The Orton/Gillingham Method). Since Orton himself noted multiple symptoms of dyslexia, the neurodevelpmental question that begs answers is whether or not his treatment approach was too narrow. After all, many symptoms not related to phonology were apparent. Although the evidence in favor of the phonological weakness of dyslexics has continued to dominate the scene recently, it does not diminish the importance of the visual perceptual problems that many dyslexics report (Stein, 1997) as well as the myriad of other symptoms with various causes.

The Neurodevelopmental (ND) Approach

It seems reasonable to NDs that dyslexia actually results from a combination of several different inefficiencies. Each case seems to have a unique set of causes that needs to be addressed. This involves looking at the child globally, developing specific activities based on the findings, in each case, treating the root causes. It is time to start looking at the whole child and focusing on the causes rather than the symptoms.

The ND Approach could be described as relating to *neuroplasticity*, the brain's natural ability to change and modify itself in response to changes in or enrichment of the environment (Ratey, 2001 p. 167) (see article online) Plasticity is present as long as a person lives, otherwise stroke victims would have no hope of regaining function. ND is the study of the brain's plasticity to make advancements regardless of the current condition of the individual. There is an understanding that abilities can be enhanced with brain stimulating activities when applied with specific keys: frequency, intensity, and short duration (see related article online) over a particular period of time. NDs believe that these three keys to input, used in the stimulation of an individual's auditory, visual, tactile, manual, language and mobility systems, are the solution to causing low or non-functioning parts of the brain to gain function, thus reducing dyslexic symptoms.

The unique perspective of The ND Approach relies on creating the right environment for the brain to heal the faulty wiring which causes dyslexic symptoms. Theoretically, The ND Approach views learning difficulties as symptoms of incomplete development and inefficient communication between brain and body. For instance, if an infant is not allowed to move from the stages of random movement into more specific coordinated movement and experience cross patterning activities gained through normal progression of crawling and creeping; the organization of the brain will be left in an incomplete state. A surprising 75% of students with diagnosed learning difficulties never crawled (Corso, 1997). Crawling promotes a new level of brain organization, as indicated by more organized EEG brain-wave activity in the cerebral cortex.

Other Key Elements

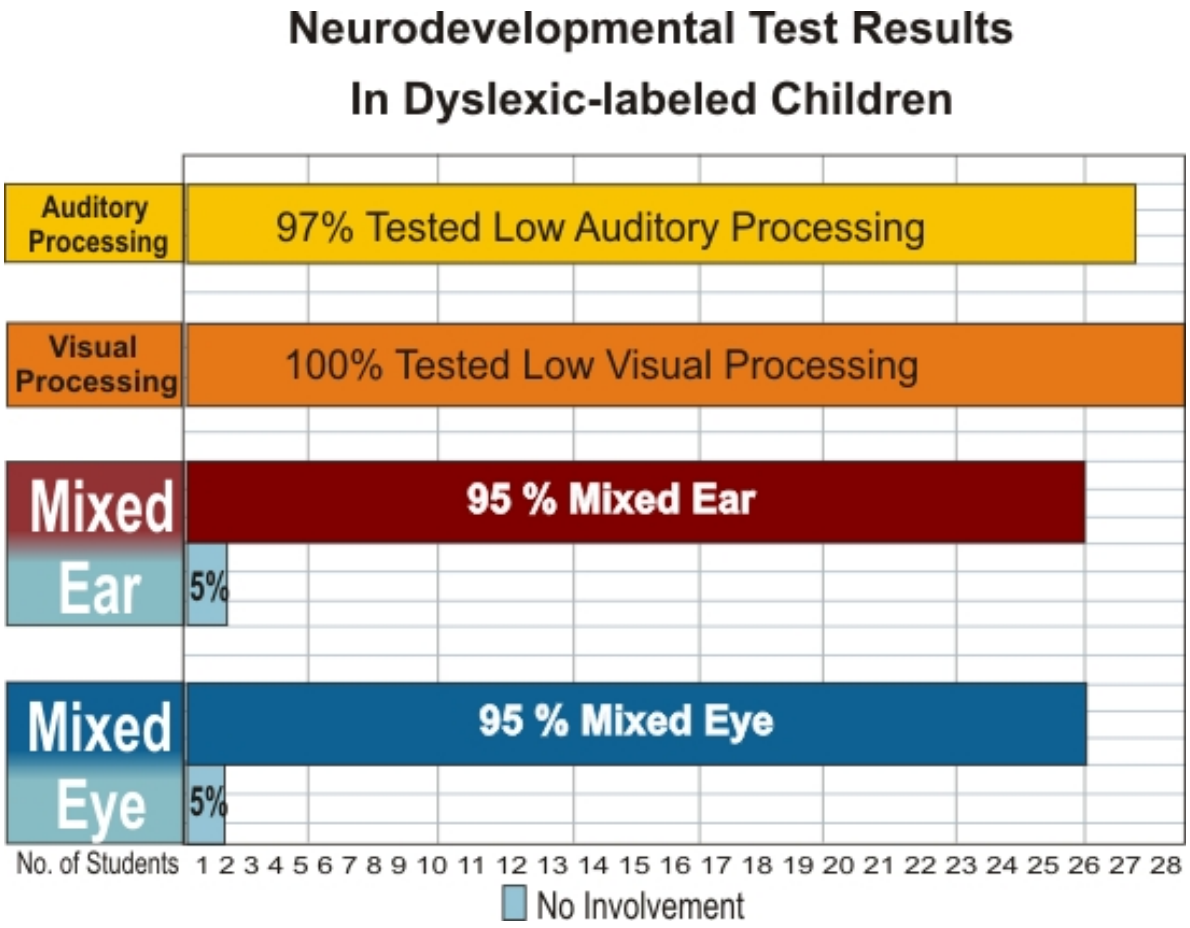
NDs are keenly aware of the auditory system and the important role that it plays in the acquisition of reading skills. Auditory memory refers to the ability to take in pieces of information, hold them in your mind and manipulate them in the short-term (Ness, K. 1999). There is an understanding that language skills such as speech, reading, writing, and spelling develop only if the child has learned to listen (Goddard, 2002 p. 106). The auditory system is a major aspect of phonology. All auditory deficits negatively affect phonological processing. This explains why many dyslexics make slow or minimal progress from phonetic instruction, while others benefit greatly. Phonics is an auditory system that requires decoding and holding sounds together to achieve words. Because of this fact, it would follow that the better an individual's auditory processing ability, the easier it would be to utilize phonics. However, developing auditory skills is a challenge in a society which has become primarily visual. Developing advanced auditory processing is highly recommended by NDs to enhance the ability to decode unknown words as well as to hold concepts which enhance reading comprehension. When low auditory processing exists, a different reading strategy is required until the auditory deficit can be remediated.

NDs also agree with prominent researchers in learning disability history who noted issues with the visual system of dyslexics from eye-hand coordination to tracking and teaming, to central detail vision issues, etc. The visual system does not act alone but relies on the vestibular and proprioceptive systems for accurate information, confirming The ND Approach. An individual is indeed an integrated whole with different systems interacting and affecting each other. Eye dominance (a subject too extensive for discussion here, see "Learning Disability" article online) has proven a key factor in correction of dyslexic symptoms. Orton (1938/1989), said that "eyedness… is not so widely recognized as handedness, but it is probably of equal importance" (p. 30). NDs have found that when eye dominance coordinates with the dominant hand and additional inefficiencies are addressed, dyslexic symptoms diminish and often disappear entirely. Refer to a bar graph, which shows the percentage of individuals (presenting to the author as previously labeled dyslexic by other professionals) that had mixed dominance as well as low auditory and visual sequential processing.

Conclusion

Despite longer school calendars, enhanced buildings, better teacher training, advanced methods and curriculum, home schooling or other one-on-one or tutoring type interventions, the percentage of students with reading disabilities still persists and even grows each year. It is the author's opinion that it is time for a paradigm shift and a fresh look at these challenges through the lenses of the latest research in cognitive neuroscience! Individuals using The ND Approach have discovered that specific activities done each day address root causes of the symptoms of dyslexia. As the symptoms are addressed successfully, functional ability is realized. When the brain can function more efficiently, the symptoms of dyslexia are rare.

A complete list of references and related articles can be found online at www.littlegiantsteps.com – articles – Dyslexia, The Neurodevelopment Approach



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Little steps in development = Giant strides in academic achievement

Dyslexia Unmasked

By: Jan Bedell PhD, M ND. January 2013

Hello again! The original Dyslexia post here was taken from my thesis as my master's in Special Education was being completed. After reading the first article, you were able to understand that Dyslexia had been unmasked as nothing more than a group of symptoms. It has now been revealed that Dyslexia is not some sort of "incurable disease" or malady passed down from generation to generation that requires compensating skills for a lifetime.

Dyslexia is typically diagnosed from diagnostic tests and questionnaires consisting of a list of symptoms. But instead of "labeling" a particular group of symptoms, you have to look for the root causes of these symptoms and find the right kind of stimulation (different activities and influences from the environment) that when given to the brain with enough frequency makes changes in the brain's wiring system. No, this is not brain surgery! The correct stimulation takes the existing connections in the brain, resembling "dirt paths" and causes them to become "super highways" in transporting information from brain to body for better overall function.

We have seen children and adults, already labeled with Dyslexia that had these and other symptoms in common:

- 97% had low auditory processing – auditory short term memory
- 100% had low visual processing – visual short term memory
- 95% were mixed dominant in their eye and ear - storing information in the wrong hemisphere of the brain by using the opposite eye and ear from the hand in which they write. The main symptom is, knowing something one day and not knowing it the next. Oh, the aggravation for teacher and student!
- 100% had lower level brain disorganization - when this situation exists, the person must work twice as hard to think things through, or figure things out. It's like having an anchor they must pull around each day, tied to their thought processes. It's frustrating, exhausting, and often creates many behavioral negatives.

When I reflected on my experiences while working with families whose members had a Dyslexia label or any label for that matter, it reminded me of how I felt all those years ago, when I searched for help for my daughter who was developmentally delayed. As a mother, I mourned over the struggles my daughter faced but God brought me hope. He reminded me that we are all fearfully and wonderfully made and He introduced me to the understanding that the brain has great ability to change. It's called brain plasticity. God lent His comfort as I grew in my knowledge of what to do to stimulate my daughter's brain to produce better function. In addition to the comfort I received, I found that He is in the business of setting the captives free (those trapped in disorganized brains) which can mean the physical, emotional or spiritual needs of a person. Before I found the help I sought, I often felt helpless to make a difference for my daughter. I continued to search and in His providence He brought me to The Neurodevelopmental Approach (ND) where my daughter experienced life-changing results. That was the first time that anyone looked at her as a "whole person" instead of under a microscope of a certain expertise. That perspective produced a multi-pronged approach which is needed in addressing the root causes of the symptoms that combine to give labels like Dyslexia, ADD/ADHD, SI, PPD, OCD, ODD and a myriad of others.

So what is a mom to do? The situation is more involved than just stimulating the right or left brain or knowing your child's learning style as some propose. You have to think of it differently and find out what can make a real difference by peeling the proverbial "onion" to find the root causes to innumerable symptoms. This can take some education on your part as you take that step to change your paradigm about your child's current situation and learn how it can be transformed.

Articles and free webinars are available to help you start this education process. One key factor that is known to affect a large number of Americans, especially the ones with labels, is low auditory processing which is the ability to hold auditory information in short term memory. When children or adults have difficulty with auditory processing their lives are adversely affected. They often have difficulty following directions, staying on task, comprehending what is read or said and often have poor conceptual thinking (big picture – there are consequences) just to name a few symptoms. Does this sound like someone you know? A free Auditory Processing Test Kit is available to test everyone in your family. With this new-found knowledge you can begin to "see" them differently. Actions you thought were discipline issues or character flaws are revealed as brain inefficiencies in need of a tune-up. This "free" test kit includes the explanation of a simple exercise done twice a day for two minutes that can have a life-changing affect on you or your loved ones.

Now, perhaps for the first time, you have heard there is another approach to the seemingly debilitating diagnosis of Dyslexia. In this discovery process you have taken the first step toward unmasking its root causes and eliminating its affect on people you know and love! The adventure begins as you discover the root cause of those specific symptoms that are currently holding them hostage.

From time to time, ND tips will be posted here for your consideration and exploration. This information can lead you to the understanding of root causes as well as solutions for unleashing a person's full God-given potential.

At Little Giant Steps we have seen that Dyslexia does not have to be a lifetime label! When you take little neurodevelopmental steps it can result in giant strides in academic achievement and overall function. You now have access to 1) A tool in your tool belt of ND activities - daily auditory processing sessions 2) Articles and free webinars 3) Other resources available on our website that will help you determine additional root causes of the symptoms of Dyslexia. www.LittleGiantSteps.com

May God lead you on your new adventure!

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Dyslexia Screening by Jan Bedell, PhD, M.ND

This is a screening that gives indicators of Dyslexia. The "possible causes" in the last column are what a neuro-educational specialist would consider when looking for the root causes of these symptoms which can be changed with proper stimulation to the brain.

Parent Check List

Please Answer the Following:	Yes	No	Possible Root Causes
Does your child have difficulty with reading, writing, or spelling?			Visual dominance, proprioception, visualizing skills and too many others to list here
Is your child able to blend words into sounds?			Low auditory processing
Does your child hesitate to read to you?			Fear of not getting help
Does your child reverse letters and groups of letters in words?			Mixed dominance
Does your child read slowly?			Visual issues, mixed dominance, low auditory processing, eye tracking
Does or did your child have trouble learning the names of letters and their sounds?			Possibly mixed dominance or poor visual discrimination
Does your child have difficulty recalling the names of familiar objects, colors, or letters of the alphabet?			Possibly mixed dominance or poor visual discrimination
Does your child expressing himself/herself clearly?			Mixed dominance, low auditory processing
Is your child disorganized?			Lower level brain disorganization
Does your child have directional confusions (left/right, before/after)?			Mixed dominance
Does your child appear to have a short attention span?			Low auditory processing
Does your child often forget or lose assignments?			Mixed dominance, neurological disorganization
Does your child have difficulty copying accurately from printed or written materials?			Visual acuity, visual convergence issue, central detail vision, near point/far point accommodation
Does your child confuse similar words such as "with" and "which"?			Poor central detail vision
Does your child have difficulty following directions?			Low auditory processing
Does your child spend more time than is appropriate on homework?			Neurological disorganization
Does your child appear disruptive in school?			Low auditory processing
Does your child appear to need instructions repeated often?			Low auditory processing

Traditional advice often given by professionals in this field (Coping Skills):

- **Be supportive.** Having difficulty learning to read may affect your child's self-esteem. Be sure to provide love and to support his or her talents and strengths.
- **Talk to your child.** Explain to your child what dyslexia is and that it's not a failure on his or her part. The better your child understands this, the more likely he or she will cope with and compensate for this learning disability.

Steps of Hope Advice: Don't accept a list of current symptoms to define your child's future. Find the root cause and fix it!

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THE NEURODEVELOPMENTAL APPROACH TO DEVELOPMENT

By Linda Kane, Neurodevelopmentalist, Sound Therapy Specialist

The Neurodevelopmental Approach is like no other approach to human development. It is unique in its approach of looking at the whole individual, not the separate pieces. Taking the individual pieces without an understanding how they interrelate will severely impede the success you have working with individuals.

Whether you have received a label, should receive a label, or are searching for a label for your child; whether the labels are due to learning concerns, genetic disorders, or brain injury sustained, I encourage you to understand labels. Labels are nothing more than symptomatic identifications of problems or concerns. Labels do nothing but limit, nothing but lower expectations. The potential of any individual is based upon the opportunities presented them. If appropriate, specific opportunities are presented, there will be greater outcomes. If opportunities are not offered, often due to the limitations set forth by the self-fulfilling prophecy of the label expectations, less will be achieved.

Learning disability labels are interesting in nature. Most believe they are unchangeable conditions you must learn to live with. They are treated as diseases. The term disease gives one the impression that there is nothing you can do to change the situation. Left unchecked, Dyslexia, ADD, ADHD, etc. seldom see much change. Dyslexia, ADD, ADHD, etc. are not diseases. When you understand the root cause of symptoms of these learning disability labels, you can treat the cause and alter the symptoms. Often, you can eliminate the symptoms, and thus eliminate the label entirely. If not eliminated, you can improve the situation immensely. Treating some of these conditions with medication is nothing more than treating symptoms. Learning how to cope and compensate with these conditions will never bring you to the point of eliminating them. Only by addressing the root causal level will freedom from labels, with all their frustrations, pain, and limitations, be achieved.

When genetic labels are a concern, you have to reach beyond the expectations which have been set based on past observations. An example would be a label of Down Syndrome. The genetic condition of Down Syndrome was first identified by Dr. Langdon Down. Once Dr. Down identified the twenty-first chromosome abnormality, he began assessing the commonality of individuals who shared this condition. The individuals he observed were all people he worked with in the institutions. The assessment was made on individuals who had very limited opportunity presented to them. I would suspect any one of us would have far different outcomes had we spent our lives institutionalized. I challenge you to look beyond the expectations and reach for typical, normal function. You will never achieve typical, normal function for your brand new baby with genetic concerns if you have subnormal goals. No one really knows how much a person with a genetic condition can achieve. Without any question, though, normal function will never be achieved if that is not at least the targeted goal. Most all the individuals we have worked with have far surpassed the predictions and expectations their genetic conditions offered.

In the case of brain injury, roughly the same scenario occurs. Limited opportunity produces limited results. Traditional methods of dealing with the injury are typically insufficient to create the stimulation needed to produce change. The brain is a magnificent piece of creation. Modern science is now beginning to understand what Neurodevelopmentalists have known since the 1930's. The brain is not hard wired. There is incredible plasticity and redundancy of the brain. If you stimulate, with appropriate stimulation, you can improve function. If you stimulate with appropriate frequency, intensity, and duration there will be improved function. It has been erroneously thought that structure determines function. However, the truth is that function determines structure. By inputting the proper function, you can improve function, and thus alter and improve structure. With proper stimulation, appropriately administered, you can have healthy parts of the brain take over the function of damaged, unhealthy parts of the brain. It is a matter of knowing what stimulation is needed. Traditional methods for working with brain injury do not follow the normal developmental progression.

Bypassing levels of development will only limit success. A typical example would be putting a non-walking child into a stander prior to that child going through crawling and creeping stages of development. Crawling (on the stomach as an army crawl) and creeping (on hands and knees) are the only activities that organize the lower levels of the brain. Bypassing these steps will make a very weak foundation for higher brain level function. A child is not born with their hip sockets developed. The activity of crawling and creeping develops hip sockets, in order to properly bear weight. If those imperative steps of crawling and creeping are missed, standing in a stander will put the hips and related structure in jeopardy. Correctly working with tone (whether high or low) is another area that is often misdirected. Ranging of muscles generally will cause high tone to increase; similar to stretching a rubber band. You may get that band to stretch out further. However, when the pressure is released it snaps back even tighter than previously. By knowing how to release the lower bodies own reflex system, you can work spastic leg muscles without risking injury to them.

Autism Spectrum Disorder is a concern with wide ranging problems. It is usually determined by a check list. When a certain number of symptoms on this checklist are associated with an individual, he will receive this label. Differing symptoms within the checklist will also determine if the label also includes Aspergers, Pervasive

Developmental Disorder (PDD), or high functioning Autism. Most often, when working with children with this label, you are primarily working with children who have sensory dysfunction and metabolic problems. Getting to the root of the problem and aggressively addressing the sensory distortions can result in significant improvements, and in some cases, complete recovery for the individual.

From the time of birth, brain cells die. Every second, every minute, every day, brain cells die. Although brain cells continue to die, the brain does increase in size. The increase in size and weight of a maturing child's brain is a reflection of the growth of the connections between the brain cells. The brain grows those connections through stimulation, specific stimulation. There is a paramount difference between specific stimulation and random stimulation. Much of what is done is random stimulation. This will not produce change quickly or efficiently. It produces change almost by accident. A kindergarten classroom is usually covered with loads of stimulation. Colors splash across bulletin boards and posters. Items hang from the ceiling, and the walls are full. Unfortunately, the stimulation does not produce learning as it is too scattered and random. A room which offers little stimulation actually is far more successful in endeavors for learning.

Stimulation needs to be given with proper frequency, intensity, and duration. Frequency means having enough opportunity and repetition in order for the stimulation to produce a change in the brain and become learned information. Often, we are testing for output without ever properly putting in the information. Intensity refers to the strength of the input of the stimulation. Is the stimulation at a level where the individual is actively engaged with it, or have they tuned out because of lack of intensity? You can drag an individual through an activity, but without a high level of involvement and interaction, change or learning will not occur. Duration has dual meaning. It refers to the time the stimulation is being given. Usually the shorter the duration the higher the intensity. Five or ten minutes of mathematics will have a far greater impact than dragging a child through an hour of math. Duration also refers to staying with the stimulation for however long it takes to produce change. Specific stimulation will produce change. It may take time, though. Many times the stimulation is creating, developing, and building new pathways to the brain. Usually that work produces internal changes that are not always seen. Just because immediate improvements are not evident does not mean it is time to stop offering the stimulation. Again, specific stimulation does produce change, but one must stay in for the duration needed to see the outward changes, which brings us back to the Neurodevelopmental (ND) Approach. By knowing what is specific, through the ND Approach of looking at things, you can have significant change.

The ND Approach uses a developmental profile to look at two primary areas. The first area addresses sensory input. In the area of sensory input, auditory, visual, and tactile function is identified. The second primary area addresses motor output. In the area of motor output, gross motor, fine motor, and language function is identified. You can not have good output without good, clean input. It is important to look at the whole individual. If the tactility is not developed, you can have problems in all the other areas. If an individual can not feel their feet, they will not stand unaided, no matter how many hours are spent in a stander. If an individual can not feel their hands, it is hard for them to write. If an individual does not use their central detail vision properly they have a hard time formulating language, coloring within lines, and doing anything that requires detailed vision. They also can have many problems that develop through having an enhanced peripheral vision. An individual who does not process sequential information auditorily will have many problems. They will be limited in their ability to follow directions, stay on task, and keep up with normal conversational language. They will have problems with distractibility and conceptual thought processes. Language problems encompass looking at the tactility of the mouth, oral motor control, control and utilization of the lips, vital capacity, resonation, phonation, sinus passage development, auditory sequential and tonal processing, auditory processing rate, health, and the condition of the ears (ear canal, inner ear, middle ear, eardrum). All pieces need to be evaluated in order to effectively design a treatment program.

Most families desire to take primary responsibility for their children's welfare. Sadly, too often the family feels the least equipped to take on that role. They are overwhelmed by the needs of their child, the newness or complexity of the diagnosis, the medical community, and/or the educational community. The ND Approach gives the power back to the family, the true experts of their children. The ND Approach was created to equip the parents with the knowledge, expertise, and exact "how to" for working with their children. Once equipped, the family has the ability to make wise choices for their child. Families will have the on-going support of the Neurodevelopmentalist, as well as a network of parent's internationally who are actively guiding their children in the pursuit of reaching their maximum potential.

For more information regarding the Neurodevelopmental Approach to Child Development, please contact:

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Learning Disabilities

By Cyndi Ringoen, BA. BS, Neurodevelopmentalist, copyright 1999

Someone you know or love has been labeled "learning disabled." What does this mean? What are you to do now? The first and most important thing you can do is try to find out and understand what exactly does this label mean. It absolutely does not mean that someone has a disease. It does not have anything to do with how intelligent a person is. And it does not mean you have to accept it and live a life learning how to 'cope' with this problem. You need to try and find out what exactly the underlying inefficiencies are and then start eliminating them.

Eliminate it?? Yes, learning disabilities can be eliminated. But in order to do that you must identify the causes, and create a plan of attack to address each of them. The reason that more learning disabilities are not eliminated has to do with how they are perceived. Often they are viewed as static, meaning they do not have the ability to change. In essence, they are what they are and nothing you can do will impact them. This is an incorrect view. Other times, professionals become microscopic in their assessment of learning problems. Each professional sees only within a very small, narrow scope, the width of their profession and expertise. If I5 clients with reading problems came to be assessed, it is likely that such a professional would find somewhere between one to three reasons why the person was having a problem. The worst part is after you have paid for an assessment, often the professional identifies a problem or two and sends you on your way without the most important piece of information that you need: THE SOLUTION! In reality, if I5 clients came to me with a reading problem, it is likely that I might find 30 or more reasons, or combination of reasons, as to why reading was not working for them. After identifying the major underlying problems, it is then necessary to develop an individualized plan for addressing each area of inefficiency. Identifying and addressing each inefficiency is the key to eliminating the learning problems.

The organ that you use to learn with is your brain. Therefore, if learning is a problem it becomes necessary to take a look at the brain and how it is functioning in order to pinpoint possible problem areas. According to the Information Processing Theory, the components necessary for learning are the ability to receive, process, store and utilize information. By looking at each of these, we may be able to find areas of weakness that are causing learning problems.

RECEIVE:

It makes sense that in order to learn anything you must first be able to receive the information. We take in information in two major ways- visually (through the eyes) and auditorily (through the ears). If there are any problems with the information coming into our brain, it will stop or decrease our ability to learn. It is necessary to check out the eyes and make sure that everything is working well. Some common problems with the eyes receiving information properly are: acuity (seeing well enough), convergence (the eyes working together), enhanced peripheral vision (seeing too much from the sides of the visual field), underdeveloped central/detail vision (not seeing enough of what is right in front of you) and various other eye sensitivities.

Common problems with the ears are: hypersensitivity to sound, causing a defensiveness to sound, hearing, and listening; tinnitus (ringing or sounds in the ear); and ear fluid problems. Fluid in the ears is a major developmental problem in that it causes inconsistency in the ability to hear good quality auditory input. The consistent hearing and processing of auditory input is necessary to develop good auditory processing skills.

After assessing how the information is being received, the next step is to take a look at the processing ability.

PROCESSING:

Processing is the ability to hold information in your short-term memory.
We have two types of short-term memory- auditory and visual. The average ability to hold pieces of

information in our short-term memory appears to be age related early on. This means an average two year old can hold two pieces of information, a three year old three pieces, etc. But the average for our society from 7 years up to adult is 7 pieces. A short-term memory of 7 is average, but it is not great. You can test your own family at home. Slowly (at one second intervals) and in monotone say 6 -4 -1 -9, then have the person repeat it back to you. If they can do it correctly they have an auditory short-term memory of 4. Continue in this fashion until you reach the highest level they can complete successfully. This indicates their auditory digit span or auditory short-term memory capacity. You can also test this visually by holding up a card with a sequence of numbers on it. You hold the card for about 3 seconds, take it away and have the person repeat what they saw. If anyone over 7 years of age has a short-term memory less than 7, they are working with an inefficiency. The greater the discrepancy, the greater the inefficiencies will be.

For younger children, you may test the auditory memory by saying words that they can repeat back. For example, you say (slowly) dog -cat and have them repeat back. If you have a nonverbal child you can say simple directions and see if they can respond. For example, you can say "Touch your nose and hair." If they follow the directions they have an auditory sequencing ability of two. You can continue increasing the number of objects, words, directions or numbers until they reach their maximum success level.

If a person is found lacking in their short-term memory, it is likely to cause many learning and behavior problems. Improving the processing ability will improve the overall function of the individual. One exercise that appears to be useful is to repeat the above process several times a day for about I -3 minutes each time. Over time the brain is able to hold more and more pieces of information, and this will be reflected in an increase in the number of sequential pieces recalled.

STORING:

Storing information is the same as long-term memory. As opposed to short-term memory, which is only from 3-20 seconds long, long-term memory is for use at a much later time. Many researchers believe that all or almost all of the information that makes it to long-term memory is in fact there. The problem becomes one of retrieving the information at will. It appears that the most efficient way to enable a person to retrieve information is by ensuring that a person has established laterality or dominance of their hand, eye, ear and foot. This means that if a person is right-handed they should also be right eyed, right eared and right footed. The difference between storing information in a brain that has established laterality and one which has not can he understood easier through the following example:

You write down the name and number of a very important person (which you will need at a later date). You walk to the file cabinet, file it alphabetically under the last name and close the file drawer. In about a week you need the number. You go to the file drawer and easily retrieve the name and number. This is an efficient way of storing and retrieving information, as opposed to--- You write down the name and number of a very important person (which you will need at a later date). You walk to the file cabinet where you discover the entire contents have been emptied out and thrown around the entire room. You toss your paper onto the entire mess. In about a week you need the number, so you go to the file, which is all over the room. You begin searching frantically for the information. Maybe you find it, but probably you will not; if you do it might be too late to use anyway.

One of the major components to not having established dominance is inconsistency. You never know if the information will be there or not. Sometimes parents interpret this as the child purposefully withholding information. Since they knew it yesterday, the parent is sure that they must know it today. The reality is, they did know it yesterday, and the information is in their brain, but they do not have access to it at this moment in time. This causes much frustration with the child and the parent.

To determine where you or your child is with dominance, you can observe some of the following things in your own home. First, it is necessary to determine if the child is right or left handed. If a child is too young or has not developed a hand, then you may need professional guidance before going further. You do not want to influence handedness in any way, as it is a very important neurological

foundation. If the child is right handed, you would want the other dominant functions to also be to the right. If the child is left handed, you would want the other dominant functions to be to the left.

To determine which ear is dominant, you can make several observations over a period of a few days. Watch which ear you child holds the phone up to. Ask them to try and hear a conversation on the other side of a door and watch what ear they put to the door. Put a watch on the table at their midline and ask the child to see if they can hear it ticking, then observe which ear they turn to or put on the watch. You can also notice while speaking with a child sitting directly in front of you if they tend to lean in with one ear closer than the other. The closer ear is usually doing the work of in taking most of the information. If they do everything with the right ear consistently, they are probably right eared. If they do everything left, they are probably left eared. If they do variations and are inconsistent they are probably mixed eared. Any degree of mixed dominance can cause learning inefficiencies. To help move the dominant ear (if necessary), you can plug the other ear for a few hours a day, thus forcing the open ear to start taking in information.

To determine which eye is dominant you must look at the use of the eye at two distances: near-point and far-point. Near point is anything from your nose to several feet away. You can observe as they look into cameras, kaleidoscopes, telescopes, key holes, etc. To determine far point, you can have the child stand about 8 feet away from you, but lined up straight in front of you. Extend your arm with your finger pointed and point at the child's nose. Ask the child to point back at your finger with their finger. When they have it sighted, notice which eye is sighting the finger. You can usually tell by looking straight at their finger up to the eye behind it. Have them switch hands and point again with the opposite hand. If they are not using the correct eye, or if they are inconsistent with which eye is used, then they are mixed dominant. To help insure use of the dominant eye, you can patch the other eye for a couple of hours a day for several months. During the hours patched, it is helpful if the child is doing something visually stimulating, i.e. reading, writing, playing computer, watching television, etc.

I have done this type of dominance work with many of my children and have seen significant improvement in their ability to learn, remember and control emotionality.

UTILIZING:

Using the information that you have is a final area of exploration. One of the most important things necessary for utilizing the information you do have is a positive, relaxed environment in which to output the information. If a child gets upset or anxious (as is often the case when kids having learning problems), then they lose access even to the information which they do have. This happens because emotionality is a subdominant function, whereas retrieval of factual information (analytical and logical thought) is a dominant function. If a child is in a negative learning environment, that, in and of itself, will impair their ability to output information.

By assessing each of these areas, you will learn important information about how your child takes in information. Or you may find answers to your questions about why your child is having such a difficult time with learning. Each of the above areas is extremely important to the ability to learn easily. I often find that it is the combination of inefficiencies that make each person's learning problems unique, and this is the reason that 'packaged programs' do not work well for the majority of people.

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Make Learning Easier With a Strong Foundation

More and more parents are wondering why their children are struggling…

Why is reading, spelling or math so difficult for my child? Why do they seem to know something one day and not the next? Why are they so disorganized? Why does it seem to take so long to teach him? I wonder if my child has something called Dyslexia, ADD, ADHD, Low Auditory Processing Disorder, or something else? Does my child have something like Autism or Asperger's Syndrome? Why is she struggling so much with reading comprehension? Something is just not right! Why is my bright child struggling to learn? f you have asked some of these questions, you are not alone…

These are all signs of a weak foundation.

Little Giant Steps (www.littlegiantsteps.com) helps children who are struggling to learn as well as help in the prevention of learning problems. Learning difficulties do not have to last a lifetime or even exist at all. They are simply symptoms of a root cause.

Why is my child struggling

The most important part of any structure is the foundation and that includes the brain. First, imagine a building that has cracks in the walls, door frames are pulling away, and the windows and doors do not close properly… all of these "problems" are symptoms of an underlying root cause, a weak foundation. When you fix the foundation, the "problems" are correctable. The same applies to a person. Struggling to learn is an indicator of a "foundation problem." The "problems" your child is experiencing are symptoms of an underlying root cause. When troubles appear, don't look to the symptoms, but to the source: repair the foundation of the brain.

Why would my child have a "weak foundation"

A child may have a "weak foundation" when they are missing some developmental steps that are necessary for their brains to be organized, which is the very foundation of learning. We'll discuss a few here. When babies are born, they have a built-in, precise program that enables them to complete their developmental steps. If given the opportunity and placed on the floor on their tummies, babies will move through these steps. Unfortunately because of our societal practices of keeping babies upright in carriers, walkers, swings, etc. many are not given the opportunity to work through their developmental steps. In turn, this has affected every aspect of their life. We have progressed in the wrong direction wanting to keep our babies in various contraptions which are detrimental and not developmental. As a result, any special programs, trying to teach with new learning styles or changing curriculums each year will not help a child until their "foundation" is fixed. There are exceptions, of course, that can

naturally keep a child off the floor like surgeries or reflux problems, but when possible a baby should be on the floor in a clean, safe environment.

Influencing the "handedness" of a child is another huge aspect of learning. With children going to preschools and daycares earlier and earlier they are many times being influenced to use the wrong hand. Hand dominance is a huge factor in neurological efficiency.

We've moved from an auditory to a visual society in this nation; causing many to experience, "Low Auditory Processing". When a person increases their auditory processing, learning becomes easier. Our preoccupation in this nation with "screens" like video games, computers, TVs, iPhones, etc. can cause a child to be labeled ADD or ADHD for the reason that attending is an auditory skill.

Another societal change that has greatly affected the brains of our children is that we have become a very sedentary nation. Instead of children being outside playing ball, jumping rope, etc. they are sitting in front of a TV and playing video games – need we go on! Exercise is for the brain! Recess and P.E. classes have become a thing of the past, just like this nation's high math and science scores. Little Giant Steps wants to help get this nation and your kiddos back on their feet again!

The GOOD NEWS is that this is all fixable due to the neuroplasticity of the brain!!

What is neuroplasticity

Neuroplasticity is just a big word that means your child's brain is not hard-wired and is changeable… the developmental steps can be completed at any age! So whether a person is in those pivotal years from zero to six-years-old or any age, developmental steps can be completed! The foundation of the brain can become strong and in turn struggles with learning can disappear!

Armed with this new information, please check any areas listed below (which is not an exhaustive list by any means) where you see your child struggling and come talk to us about the "foundation repairs" needed to remedy your child's current symptoms to help put them back on the road to *make learning easier*!

____ Difficulty in reading or math

____Overly sensitive to sound

____Picky eater

____Difficulty following directions

____Difficulty grasping math concepts

____Very emotional

____Hyperactive or Hypoactive

____Difficulty with spelling

____Clumsy-poor sense of balance

____Difficulty expressing themselves

____Socially immature

____Distracted and/or disorganized

____Unable to retain information

____High or low pain tolerance

Remember!

Learning difficulties and disabilities do not have to last a lifetime!!

ASK YOUR QUESTIONS! We have the answers you are looking for today!

www.littlegiantsteps.com

Brain Training

By Ruth Young ND, BS

Have you ever had this experience? You recognized someone but cannot remember the name? Here's why: The image of a face is stored on one side of the brain and the name is stored on the other. You have to have a good bridge between the two sides to go across and retrieve the name quickly. This bridge is called the corpus callosum.

Dr. Leaf, a neuro-metacognitive learning specialist from South Africa, wrote *Who Switched off My Brain?* In her book she explains that the corpus callosum is the thinking part of our brain. This bridge between the two hemispheres pulls in information from each side to consider both perspectives. Your child answers all your questions on the bridge!

As you look at this picture, your brain is going back and forth to see a smiley face and then to notice that it is a puzzle. One side of your brain processes "detail to big picture" and the other side processes "big picture to detail." They both are mirror images of each other and work together to offer different perspectives. Here is another example: One side stores a detail, the fact of 2 + 2 = 4 while the other side understands the big picture that four is two groups of two.

It is important that the bridge between the two hemispheres is built strong from the foundation up with brain-organizing activities. Your child may be bright and know everything you ever taught him. However, if the bridge construction is sketchy, then he may have difficulty accessing what he knows, finding words to express his ideas and following through on what you ask him to do. Have you ever asked your child to go clean his room and an hour later walk by the room and see a bigger mess than before? It may not be an obedience issue; it could be the result of expecting organized behavior from a disorganized brain. The brain controls everything we do! The good news is that you and your family and even your school can do a brain training program. Then education will be easier for your children and life will be more manageable for you. When the brain works better, learning is faster and life is easier!

A brain training program includes stimulation to five specific levels of bridge construction for the corpus callosum, and you have probably heard of some of them:

- **Sensory Integration**: Your senses like seeing, hearing and touching are learning pathways. We have to be sure eyes and ears are working well and that other senses like smelling, tasting, and feeling pain are appropriate, too. For example, deep pressure to arms and legs sends signals up to the brain and back so a child can experience better brain/body connections for holding a pencil correctly, resolving bedwetting and becoming more coordinated for sports, among other things. This foundational part of the bridge must be organized and integrated for the rest of the structure to be built well.
- **Medulla**: Picture a golf tee in your mind. Now, imagine the tee as a spinal cord and the top of a tee as the medulla. This special part is responsible for autonomic functions like heartbeat, blood pressure, breathing and focus. Specific physical exercises can stimulate the Medulla area to integrate primary reflexes, mature the central nervous system and reduce stress.

- **Pons**: The lower level of your brain is responsible for perception of pain, heat, cold, hunger, threatening sounds, fight/flight responses, self-preservation, survival, life, empathy, bonding, attachment, interpretation of social cues, cause and effect and moral choices. Trauma at any age (including abuse, adoption, a difficult birth, surgery or high fevers) can compromise the Pons and produce anxiety if there is a new person in the room, a new food on the plate, going to the park or sleeping alone in a bed. Perception and trust can be a big problem and manipulative behaviors can be an attempt to gain control when individuals feel they have little influence on the world around them. An army crawl can build the Pons for better behavior and to improve side-to-side eye tracking.
- **Midbrain**: The middle of your bridge construction impacts body chemistry, the endocrine system, immune system, allergies, controlling anger, sleeping well, waking up in the morning and motivation. The midbrain influences impulse control, memory for learning, emotional responses and eye/hand coordination for sports.
- **Cortex**: The upper level of a corpus callosum is organized and constructed with cross patterns like walking, jogging, marching and skipping. The cortex is responsible for formal reasoning, language, inner speech (thinking before acting), test taking and the ability to respond quickly and intelligently to new situations.

Everyone in the family, children, teens and adults, can benefit from a tune-up! Your time commitment for brain training can range from an hour a day to a full school day program four to five days a week. Each program is designed for four months and can be implemented for an entire year or more for amazing results. Here are a few testimonies:

- Jonathan was seventeen, a senior in high school who bombed the ACT test with a score of 14. He wanted his brain to work better so he could raise his scores to get into college. Jonathan was faithful to work on a brain training program five days a week. Three months later he took the ACT again and scored 20!
- Mrs. S., age 55 was a Montessori teacher and did not read much because she didn't like to. She faithfully worked for four months on brain training. It was amazing to see her reading comprehension jump three and a half years without any type of reading program during that time! When her brain became more organized, she could easily access what she already knew.
- Mercy was eleven and in the fifth grade when she began a brain training program. In four months she advanced two years in maturity (auditory processing), jumped an entire year in reading comprehension and improved a whole year in understanding math concepts! She did math and reading every day for school but nothing was new in these subjects or out of the ordinary. It was the brain training program that helped organize her brain!

Make your plans to add brain training to your daily routine and organize your brain for a lifetime of success in learning at school and on the job. Choose a brain training program that strategically stimulates five levels of brain development for children and adults. Online instructions for every brain training activity is available. Many have video introductions and demonstrations. A shopping list of supplies is included with each program.

Building success for school, success as a leader, success in a career or success in managing a home can happen if you make your plans now to work toward a goal for gaining full potential. A brain training program of specific physical and mental activities for a year or more can result in a lifetime of academic benefit and learning pleasure.

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Your Short-Term Memory By Faith Haley

Before a person can enter information into long-term memory, he/she must first be able to hang on to the information for a brief time in short term. This is called processing. Once information comes in, the brain must process it, store it and then use it. Since you receive information through your ears and eyes, we call this short term memory ability auditory and visual processing. It is a greatly overlooked and misunderstood concept in a person's ability to learn. Many children today are being diagnosed with low processing disorders.

We'll discuss auditory processing in this article. A one-year old should have the ability to grasp one piece of auditory information and respond to it. When you say, "Hi or goodbye," they should respond in kind by waving to you. When you would ask a two-year old to touch his nose and then his ear and he can respond correctly, then you know he is able to hold two pieces of auditory sequential information in short term. Likewise a three--year old should be able to hold onto three pieces of information in order. Up to the age of seven the number of pieces of information a child should be able to hold in short term is age equivalent. Whether you are seven--years of age or an adult, you should be able to hold onto seven pieces of information. (That is a phone number.) If you can hold onto eight pieces of information then you also have the ability to carry on a good conversation, having the capacity to remember what the other person says and respond in kind. Auditory processing ability has nothing to do with intelligence. You may know a bright student who cannot focus or follow directions well and often acts younger than his age.

The more pieces of auditory information you can hold onto, the better your conceptual skills can become. Conceptual ability helps people to see the "bigger picture" in situations and in the world around them. You need a high level of auditory processing ability to have the skills necessary to be adept at seeing the "bigger picture".

The problem is that we've moved from an auditory society to a very visual one. Our children are growing up in a very visual society, which is much different than our ancestors. Although many are good at computer, phone, and video games, they lack the skills to be conceptual learners. Young parents today immerse their children in a lot of TV, computer, gaming systems and perhaps even phone time and then send them into classrooms where a teacher stands up in front and addresses them auditorily. Then when they "just don't get it" they are labeled ADD which stands for Attention Deficit Disorder. Now, what is the attending skill in which they are deficit? Attending is an auditory skill. So what's happening in epidemic proportions is this: Unless young children have the benefit of a language rich environment where they are read to and talked with at home, they are going to be "deficit" in their auditory processing ability when they enter school. So be sure that your children are getting a lot of auditory input like lots of listening to books on CD, lots of talk-time with adults and lots of dinnertime conversation with family. Then they can develop the listening skills necessary for good auditory processing and can flourish in school.

The problem of auditory deficit is affecting adults, too, in this country. Everyone jokes about their short-term memory problems, but it's really no laughing matter. Because we have made a big shift to a visual society, adults, too, have to work on their short-term memories to make and then keep them strong. As people get older it is said that they start out babies and then return to that stage once again in their old age. It does not have to be that way! If retirees will keep up their auditory processing skills, they can keep their maturity at a normal level and not digress into acting like a three or four-year old.

Again, you have questions and we have the answers you are looking for!

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LONG-TERM MEMORY

The Question of Dominance by Faith Haley, Neuro-Educational Specialist

Long-term memory. What a lovely thought! To have really good, long-term memory a lot depends on what we call dominance. When the term dominance is used, however, there are always many questions. What is dominance and why is it important? It is perhaps one of the most important factors in having a truly wonderful life and yet few of us know what it is.

All animals on Planet Earth have two hemispheres in their brain. We humans, however, have the benefit of having a dominant hemisphere that allows us to have language abilities and to reason. In the dominant side of your brain you have a magnificent filing system that is especially made for the systematic filing of language. It is from here that you have the ability to speak, reason logically, have common sense, have the ability to read and all that encompasses speech and language. It's called your long-term memory. You also have a sub-dominant hemisphere, where your creative abilities are located, to draw, sing, and to be creative in so many different ways. Processing emotions takes place in the sub-dominant hemisphere as well.

Many have heard the terms right brain, left brain. Your left brain is for reasoning and logic and your right brain is for your creativity. That's exactly correct if you are right-handed. However, if you are left-handed then the right brain/ left brain theory is not true. If you are genetically predisposed to be left-handed, then your right brain is where your reason and logic and language filing system are located and your left brain is where your creativity and your emotions are. Remember, we are crossed-wired. The left brain controls your right side and the right brain controls the left side. Therefore, to enjoy the most efficient brain if you are truly, genetically, right-handed, you must take all information in through your right side: your right hand, foot, eye and ear. If you are truly, genetically left-handed and you want to experience the benefits of an efficient brain, then you must take all information in through your left side: your left hand, foot, eye and ear.

You see, everyone has a dominant eye and a dominant ear. Even though you use both your eyes and ears, only one eye and ear are chosen to take in information for long term storage. Your dominant eye takes in information to be stored for long term memory. Your dominant ear receives auditory information that will be stored in long term memory. Therefore, because you want to be able to remember what you see and hear, you need to be sure that you are receiving that information through your dominant side for rapid recall.

These are just a few of the symptoms that accompany individuals who are what we call "mixed dominant": A student might know something one day and not be able to remember it the next. You may know someone with one of those artistic personalities, highly talented in music, art or drama but is highly emotional, too. A person might be bi-polar, may have a stutter or might be ambidextrous. Those using their dominant ear but not their dominant eye will be able to better remember what they hear but not what they see. They are called auditory learners. If they are using their dominant eye and their sub-dominant ear, then they are mostly likely what you would call a "visual learner" because they more easily remember what they see. Why, because they are placing the information in the dominant side of their brain for easy retrieval of those stored facts.

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Developing Your Home Schooled Child's Long Term Memory and Emotional Control

By Marilee Nicoll Coots, Certified Neurodevelopmentalist, Copyright 2003

Does your child reverse letters or numbers, experience right/left confusion or produce "mirror writing"? Has this child been called "dyslexic"? Is remembering letters, numbers or sight words difficult? Does your bright child learn math computation but quickly forget what was learned? Does your child easily read words but not remember what was read or have to decode the same words the next day? These symptoms all relate to inadequate "long term" retention of visual information.

Does your child easily forget math facts? Does he easily forget what has been said to him or information that he has heard. Does he forget names and words? Does he stutter or stammer? Is he disorganized? Does he lack a sense of time? Is learning a foreign language difficult or impossible? These symptoms all relate to inadequate "long term" retention of auditory information.

Does your child become emotional when trying to learn certain subjects (like math or reading), over-react, or become easily frustrated?

These learning and emotional issues are not resolved by having your child labeled or medicated. The key to improvement lies in organizing your child's brain for better function.

When a child is well-organized neurodevelopmentally, information and learned academics are retained and accessible for further learning. Emotionality is under control and is expressed in reasonableness and settling down quickly after emotional events, such as tests or social situations.

Neurodevelopmentalists have found that the major factor in the long-term retention of information is neurological organization and something called cortical hemispheric dominance. That is, one hemisphere of the brain is organized to be dominant or controlling and the other to be sub-dominant. The dominant hemisphere deals with logic, cognitive thought and the long-term memory of information, including academics. The other hemisphere, the subdominant, specializes in emotionality and music.

Outwardly dominance is reflected in a dominant hand, eye, ear and foot all on that same side of the body. Therefore, the right-handed person should also be right eyed, eared and footed. The left-handed person should be left eyed, left eared, and left footed. The person with right sidedness has a dominant left hemisphere and the person with left sidedness has a dominant right hemisphere due to the structure of the nervous system.

Dominance is the result of a long process of brain organization called lateralization. Lateralization is seen in early cross patterns when a young child is learning to crawl and creep. Organization proceeds to higher levels of the brain and is reflected outwardly in cross pattern walking, marching, skipping, and running and the development of a dominant hand. When the process of lateralization is complete to this point it is possible to develop cortical hemispheric dominance.

Dominance can be developed and this is an important step in remediation of the learning and emotional difficulties that some children experience. Occasionally lower levels of development must be revisited so that they may be completed and dominance may be established.

To help your child move toward dominance, there are a few things you can do in your home school P.E. time. Have him creep on hands and knees and crawl on his tummy many minutes every day. Have him knee walk, carrying soup cans in his hands. Take him on fast walks, breaking into jogging. Have him march and skip.

If you have been doing these activities for several months and your child is still not retaining information as well as you would like, you may need professional help to address additional neurodevelopmental issues.

When a child has difficulties that relate to dominance issues they will not "grow out" of these difficulties. But, by treating the root causes, dominance can be corrected and the difficulties related to incorrect dominance will no longer hold a person back from his or her full potential.

The Importance of Cortical Hemispheric Dominance

By: Jan Bedell, PhD, M Ed.

Neurodevelopmentalists have found the major factor in long-term retention of information is cortical hemispheric dominance. That is, one hemisphere of the brain is organized to be dominant or controlling and the other to be sub-dominant. The dominant hemisphere deals with logic, cognitive thought, and the long-term memory of information, including academics. The sub-dominate hemisphere specializes in emotionality, creativity and music. Outwardly, dominance is reflected in a dominant hand, eye, ear and foot all on the same side of the body (Orton, 1938/1989 p. 39; Levinson, 1980 p. 12). Therefore, the right-handed person should also be right-eyed, eared and footed. The left-handed person should be left-eyed, eared and footed. Dominance is the result of a long process of brain organization called lateralization.

Lateralization is developed from early cross pattern movements. Changing dominance is an important step in remediation of the learning and emotional difficulties that some children with dyslexia and other learning disabilities experience. Orton, as well as Kephart (prominent in LD history), indicated commonality of dyslexics in mixed dominance and laterality issues. Interviews with dyslexics have revealed the extra energy needed to navigate life as a result of being mixed dominant which requires high levels of coping and compensating skills.

Corso (1997) has an interesting analogy describing mixed dominance: "It appears that this mixed dominance is manifested by neither or both brain hemispheres trying to act on a command. It is like two people leaving for work in the morning, both knowing they need a loaf of bread but not definitely delegating who will stop and buy the loaf of bread. They either come home at night with two loaves of bread or no bread with each person thinking the other person was going to take on the responsibility."
Neurodevelopmentalists continually find that individuals that have mixed dominance in eye, ear, foot, or hand do not test well and tend to have more difficulty regulating their emotions than their peers. These difficulties often cause them to under or overreact to stimulus (Bower & Parsons, 2003 p. 54). "Under stressful emotional conditions, the sensory input is blocked from entering the cortical areas of memory storage that lie beyond the amygdale" (Willis, 2007). Weiss (2000) explains it this way: "During high-stress situations, physiologically the information takes the primary pathway through thalamus and amygdala and then moves into the cerebellum, ...but higher order and creative thinking may be lost. If we have a sense of control or choice, information travels to the cortex directly.

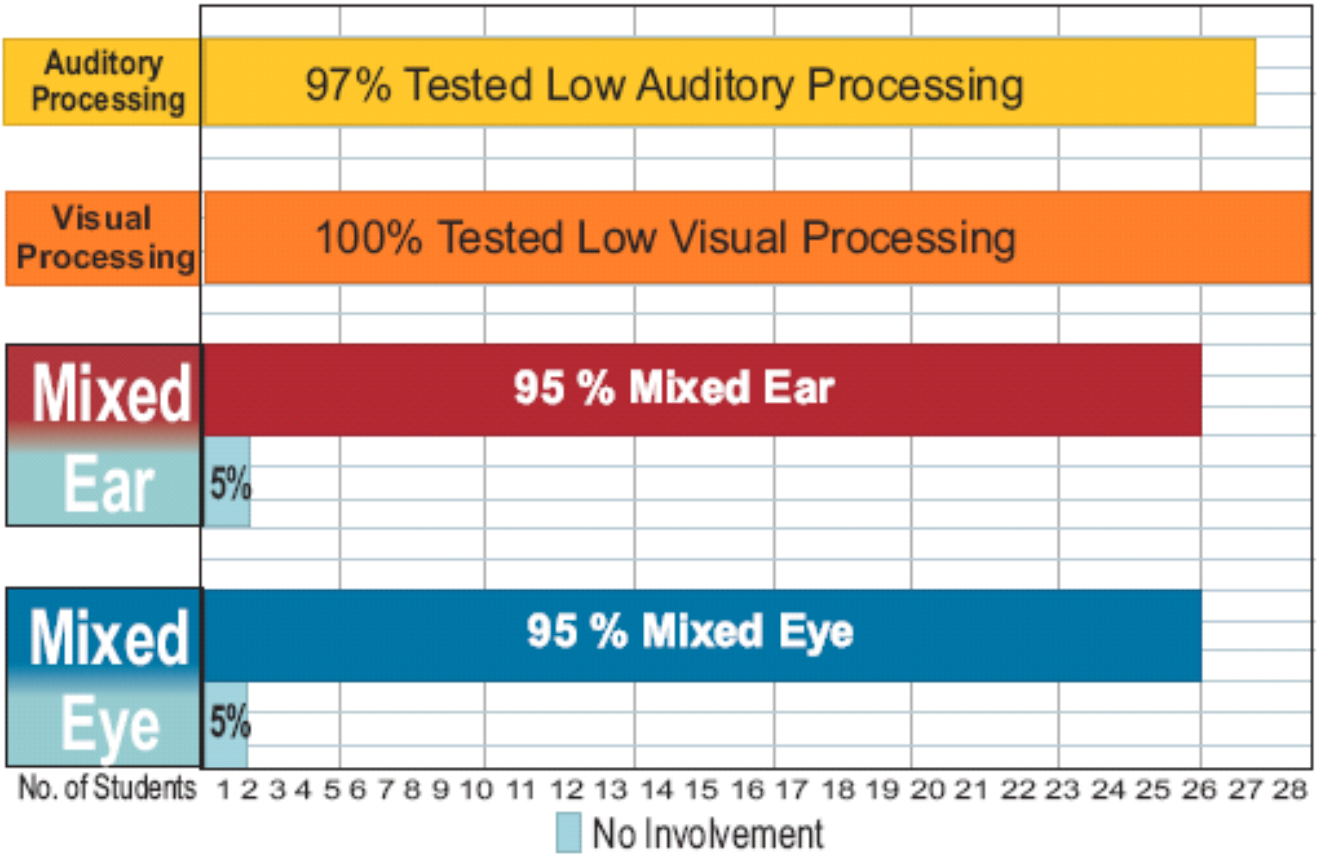
A dominant eye, which was referred to by Orton as "eyedness" has been a central theme of correction of dyslexic symptoms for Neurodevelopmentalists. The understanding of having the dominant eye on the same side of the body as the dominant hand has proven very advantageous. When Neurodevelopmentalists train parents to encourage the child's eye to become dominate in relation to the dominant hand, in addition to addressing other inefficiencies, dyslexic symptoms and other learning disability symptoms diminish and often go away entirely. Refer to Appendix A, a bar graph, which shows the percentage of dyslexic individuals (coming to the author labeled by other groups such as Scottish Rite) that had mixed dominance as well as low auditory and visual sequential processing. Orton (1938/1989), went on to say that "eyedness… is not so widely recognized as handedness, but it is probably of equal importance" (p. 30).

Yes, we see with both eyes. As ophthalmologists know, the image is directed to both hemispheres but the brain chooses one for the storage and retrieval of information. Even Orton in the 1920s hypothesized that "we learn to understand, to read, to speak, and to write words from sensory records or engrams of one hemisphere only" (Orton, 1938/1989 p. 203.; Hannaford, 1995 p. 190).

Occluding one eye for a total of four hours a day has proven beneficial in changing the eye dominance to match the dominant hand. It also allows for more efficient storage and retrieval of information. Stein (1997) found that: "…dyslexics make fewer visual reading errors if one eye is occluded and they read, with only one eye. Reading with only one eye not only reduces the visual errors made by many dyslexic children, but the majority of 8-10 year old dyslexic children with unstable binocular control who use only the right eye for all reading and number work for a few months can improve their fixation permanently."

Note: a Neurodevelopmentalist would instruct the child to read with the eye that is on the same side as their dominant hand. So in Stein's example, a left-handed child would occlude their right eye and read with their left.

Appendix A
Neurodevelopmental Test Results In Dyslexic-labeled Children



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Scholarships

Short on Funds?
Try Brain Coach Tips for Financial Aid

It is helpful to remember that God provides. Graham Cooke teaches that the word "provision" can be broken down:

* Pro = For
* Vision = Your ideas for the future within His will

This means that God is FOR your vision to help your child reach full potential. He can make a way where there seems to be no way. Often, the resources you need are near to you. All you may need is a **piece** of key information, **eyes** to envision a creative solution and the **courage** to ask for help. Families have found many sources of provision to enroll in our *at-home brain training programs* like Developmental Foundations or Individual Evaluations.

We have several families that have received financial assistance from the following areas:

Monthly Payment Plan: Most of our families are on a monthly payment plan. They pay for their evaluations before their appointment.

Home School Legal Defense: Several of our homeschooling families have received funds from HSLDA for our program. Go to www.hslda.org. You'll need to sign up for membership with them, $25 a year, to receive funding. Then you can go to this website:

http://www.homeschoolfoundation.org/funds/specialneeds.asp

You can also print up an application and mail it in.

Flex Spending Account: Several of our families have been able to use their *flex spending account* to pay for our services. Check with your or your husband's employer to see if they offer a *flex spending account* which will automatically deduct an agreed upon amount from your paycheck and put it into a pre-tax "savings" account, which will then reimburse you for money you spend on prescriptions, doctor's visits, etc.

Insurance: There are times when families have gotten their evaluations paid for by insurance, when their doctor has prescribed and coded our services.

Grants: Other families have found grant money to pay for the services. Usually, these grants are found through the Mental Health or In Home Family Services departments of the county where they have their residence listed.

Missionary Support: Many families we have worked with, who are missionaries, have had the evaluation fees covered by those who are supporting them with their mission work. It is part of the support they need.

The Public School System: This is very difficult but a few of our families have received funding in the form of reimbursement for our services.

Scholarships: Several of our families have family members i.e. grandparents, aunts or uncles, friends, or churches that pay for their evaluations.

(Over for more details)

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Steps of Hope Scholarship Fund

"It is easier to build strong children than to repair broken men." - *Frederick Douglass*

Steps of Hope is a non-profit organization created by **Linda Kane** of **Hope and a Future** and **Jan Bedell** of **Little Giant Steps**. One of their goals is to minister the life-changing Neurodevelopmental Approach to individuals who cannot financially access these services. Whether someone suffers from minor learning challenges or the near-devastating effects of brain trauma, ***every*** child, teen or adult can learn and function more efficiently.

Our Neuro-developmental Programs Increase

Families are encouraged to think about their circle of family and friends.

Who is a part of your Support Team? Encourage your spouse, extended family, church family, teachers, tutors and friends to watch "The Neurodevelopmental Approach" DVD. This will help the people closest to you understand more about Brain Training so they can support you and your family on a journey to wholeness.

Who can pray for you? Consider asking your family members, support team, a Sunday school class and/or a prayer group to pray for your family to raise the funds needed to enroll in Developmental Foundations or another *at-home program* including an Individual Evaluations.

Who can be a champion? Ask yourself, "Who can be a champion for my child?" You may be led to ask a grandparent, friend or a group to contribute to a scholarship fund to help you or your child discover true God-given potential. Testimonies, brochures, drafts for writing "letters of request" and posters are available to help you raise support.

How can a benefactor donate to Steps of Hope? A donation can be made online by typing this link into your browser: **http://store.littlegiantsteps.com/products/steps-of-hope-donation-page**

OR mail a check to:

Steps Of Hope
P.O. Box 863624, Plano, TX, 75086

How does a donation apply to my family? A donor can designate a tax-deductible contribution for the Steps of Hope Scholarship Fund. Donors receive a tax donation receipt for tax purposes and we assign 95% of all donations to the scholarship. The family is responsible for the other 5%.

STEPS OF HOPE

Helping individuals reach their God-given potential!

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