

Laterality of the Brain

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Hemisphere control

The brain is naturally divided into right and left hemispheres. The left side of the brain predominantly controls the right side of the body and the right side of the brain predominantly controls the left side of the body. So, neurologically, the right side of the brain controls the left eye, ear, hand, and foot and conversely, the left side of the brain controls the right eye, ear, hand and foot. In the *right-handed person*, the left hemisphere of the brain is the dominant hemisphere containing fine motor skills functions that are usually indicated by eating, writing, throwing, hair brushing, and etc. with the right hand. In the *left-handed person*, the right hemisphere will control the dominant left side of the body.

Mixed Dominance

Neurological disorganization develops when there is mixed dominance between the dominant hemisphere of the brain and what is supposed to be the dominant eye, ear, hand or foot. Mixed dominance and neurological disorganization occurs when for instance: a child eats, throws, and writes with the right hand, kicks with the right foot, sights a telescope with the right eye, but listens and takes in information with the left ear. This child will accomplish other tasks with the dominant right side of the body but will listen to the phone with the left ear or may turn their head to the right to favor the left ear when listening intently. This mixed dominance is not limited to just the ears but can occur in the eye, ear, hand or foot in any combination.

Why Mixed Dominance is a Problem

The problems caused by mixed dominance are brain disorganization and neurological processing inefficiencies.

Mixed dominance can be found at the root of many problems such as dyslexia, emotionality, slow thinking, poor judgment, poor sense of time, distractibility, poor coordination and control of body parts, academic shortfalls, stuttering, bad judge of distance, and a host of other inefficiencies of the brain.

You cannot achieve organized function in a brain that is disorganized!

The obvious solution is to organize the brain much like you would organize a desk in a workplace. However, the child with a disorganized brain cannot

be expected to perform a developmental program on their own and will need close supervision until their brain is organized.

Understanding Brain Organization

Understanding more about brain organization will help you to understand how mixed dominance will cause such a wide array of neurological challenges.

In the following discussion we will be only discussing the *right-handed, left hemisphere* dominant person. Keep in mind that the left-handed, right hemisphere person is a mirror image of this discussion.

Have you ever heard of someone being called a right-brained person? This person is usually artistic, musical, and emotional. Or perhaps a person gets labeled left brained for being extremely logical, regimented, and unemotional.

In the brain, not only does the brain have hemispheres to control lateral functions of the body, but each hemisphere also contains neurological processing functions. For example (remember that this is a right-handed, left hemisphere dominant child) the left hemisphere normally contains logics while the right hemisphere contains emotions. The left hemisphere will contain language skills while the right contains music (this is why the stroke victim who cannot speak at all can usually sing). Some other processing functions usually in the left hemisphere are: mathematics, sense of time, distance, and fine motor skills. Other functions of the right hemisphere are trivia, creativity, art, and spatial thinking without relation to time or distance.

Mathematics is generally performed as a visual process. So this person should take math facts and equations in the dominant right eye and store and process them in the dominant left hemisphere mathematics center. This person should take auditory information in the right ear and thereby store important information in the left hemisphere for logical processing or even for a resultant motor skill operation such as writing something down after it is heard.

The brain becomes disorganized when the body is mixed dominant in some of these ways: A right hand, foot, and eye individual is left ear dominant. This person will process auditory information in the emotional trivia sections of the right brain causing emotionality and letter and number reversals (reversals happen because the brain transfers information from one side to the other in a mirror image). They may stutter and may think everyone talks down to them and whispers behind their backs. Music can cause instant mood swings and song lyrics can be remembered vividly after one hearing.

Or you may have the right hand, ear, and foot child with a left eye dominance that can have severe difficulty in reading and math and may even be diagnosed as dyslexic. They often bat and shoot left handed while having difficulties making quick decisions in athletics. This left eyed child will also think that everyone he can see talking but cannot hear, may be talking about them.

This mixed dominant child may be accident-prone because they make emotional decisions about distance instead of logical ones. Like when mommy calls out of the back door to little Johnny, "Johnny, it's suppertime!" and little Johnny is up in the apple tree. Logically little Johnny knows that 16 foot is too far to jump out of the apple tree but emotionally, the quickest way down is to jump. Emotions rule, and distance means almost nothing in this computation, and little Johnny thinks, "The quickest way down out of this tree is to jump" so, therefore, he jumps! Or when little Johnny is chasing the soft ball and it goes between two parked cars and out into traffic. Logically, little Johnny would not run into traffic for fear of being run over like the squirrel did last week. But again, little Johnny is more emotionally concerned about winning the soft game than he is about personal safety, so he chases the soft ball into the traffic.

Little Johnny is very visually/emotionally stimulated because of his mixed dominance in his eyes.

Or how about the child who is right handed, right eyed, right eared but is left footed. This can cause language problems. This child may also have difficulty performing in sports even though they are fairly athletic. They may also tend to become over involved emotionally in the game and hesitate before making a critical play decision.

The possible combinations of difficulties, inefficiencies, and problems caused by mixed dominance are almost endless. Each child will be singularly unique but the details of each symptom caused by mixed dominance can be found and remediated with specific developmental exercises.

Hand Dominance

I remember when I went to grade school. The teacher patrolled the classroom with a thick oak ruler with a copper edge. When a student stepped out of line they were sharply whacked with this corporal teaching tool. They were left smarting but usually smarter for the experience. Unfortunately, I witnessed this wooden teaching accessory turned into a weapon and utilized in the war against the left-handed writers in the classroom.

Approximately three percent of the population or more is genetically predisposed to be left hand dominant and the rest are genetically predisposed to be right hand dominant. Any interference in the natural development and selection of handedness can cause severe brain disorganization and developmental problems if you choose to develop the wrong hand. Left to their own choice, the child will normally develop their own left or right hand preference around or shortly after the age of three (but not usually later than 5). The fine motor skills for coloring, eating, and other manual tasks are housed in the dominant hemisphere of the brain and make themselves evident as manual dexterity and mobility develops in the child.

Never attempt to influence the hand preference in the developing child!

Once hand dominance is established, the foot, ear and eye dominance should follow the same side. To record their dominance, observe which foot the child kicks a ball or balloon with. Hand them a paper towel roll to use as a pirate's spyglass or a kaleidoscope to see which eye they automatically use. Watch them play with a toy telephone to see which ear they use to hold the receiver to. Always hand the test item such as the paper towel roll to them at mid-line so as not to influence the side of the body they will choose. Do this several times over several days and record the results.

For more on laterality and mixed dominance see the article "Solutions for Dyslexia".