

Movement and Intelligence

by Paula Oleska

Last year, when we heard from Dr. Deal that 90% of brain activity starts with proprioception, a bell went off in my head -- he confirmed something I have suspected for a long time.

Like many people in our culture, I grew up believing that thinking is the pinnacle of human activity. "I think therefore I am," said Descartes and I agreed. After all, don't all serious adults sit quietly and think? Movement is OK if you are a child, but you should grow out of it. Athletes are dumb, and dancers are airheads. The body is just a sinful appendage that has to be kept pure to be a fit vehicle for the mind/spirit, isn't it?

Then I started to study Touch For Health and something interesting happened. During my Instructors' Training in 1978, after eight days of balancing, I felt as if the top of my head had opened up and information was just pouring in. I had always been a good learner, but this was a totally new experience. I didn't have to try to focus anymore. My body seemed to know what to do often before my mind did. For instance, when "brushing" meridians, I found my hands following them quickly and smoothly before my mind could recall their names. It became a totally childlike and joyful activity. I hadn't felt like that for years. I started to suspect that because my muscles were stimulated in a new way, my brain started functioning at a new, higher level.

When I started to use TFH with others, I noticed that just balancing muscles had a profound effect on people's well being and performance. It was as if the muscles had simply forgotten how to move, and once "jogged", they would also "jog" the brain. If you teach TFH I, you may have noticed that peoples' memories get better on the second day of class, so that learning muscles becomes easier. And the memories get better still in TFH 2. Proprioceptive stimulation explains the many studies reporting improved learning scores after adding tai chi, karate or ball games to school activities. It also explains

the rather phenomenal improvements in cognitive and learning abilities reported from using Brain Gym throughout the world.

Carla Hannaford, a neurophysiologist and a faculty member of Edu-K, in her excellent book, *Smart Moves*, describes her work with a ten year old girl with brain damage and two boys, one labeled "mentally retarded" and the other one, "emotionally handicapped". The girl, Amy, "could not read, write or communicate....spoke with erratic, monosyllabic speech [and] walked with a noticeably bad limp". Carla worked with her and the two boys daily during recess, doing five minutes of Brain Gym and kicking a soccer ball. Other activities included art, story-telling and music. After two months, Amy's "mother called... amazed at [her] sudden ability to speak in sentences". After five months, Amy was reading and writing. "By the end of the school year, she was reading at close to grade level, wrote highly imaginative stories and could communicate effectively. ... Her sudden leap in ability coincided with the addition of movement to her daily experience... in the form of Brain Gym, soccer art and music. The two boys also showed remarkable progress in their academic work during that year." (pg.15-16)

When I was growing up, I read a science fiction story about a spaceship commander who falls in love with his navigator from Earth because of her beautiful voice and extraordinary intelligence. He ends up heartbroken when he finds out "she" was a brain kept in a dish in a lab. The idea of the disembodied brain seemed to fascinate both science and science fiction in the 60's and 70's.

Now we know it is physically and neurologically impossible. Antonio Damasio, the author of *Descartes' Error* and a neurology professor at the University of Iowa, states simply that the mind cannot exist without receiving input from the body. "The body contributes more than life support...to the brain. It contributes a content that is a part

and parcel of the workings of the normal mind" (pg.226). In fact, science has discovered that neurotransmitters, the chemicals the brain uses to communicate with itself, actually circulate throughout the body with the lymph and are received by almost every kind of cell. (When we stimulate neurolymphatic points in TFH, we may well be stimulating brain activity.)

What kind of input does the mind receive from the body? Dr. Paul McLean, Chief of the Laboratory of Brain Evolution and Behavior at the National Institute of Mental Health, postulates three distinct layers of the brain, each responsible for a different contribution. The first layer, the reptilian brain, which develops in the first fifteen months of life, is responsible for biological survival, controlling such functions as breathing and heart rate, and many of the reflex reactions. It receives all the sensory input, which is then sent on to other centers. Carla Hannaford says: "Nerve nets must be developed first in the reptilian brain. The rest of the brain can then know what is happening in the outer world and respond to it." (*Smart Moves*, pg.32) The reptilian brain is unemotional, but it assesses a situation to give us permission to move or it freezes action if it senses danger. This part of the brain matures through movement and sensory stimulation in a safe environment.

The next layer is the limbic brain which develops from 15 months to 4 and a half years. It is critical for learning and memory and is also the seat of imagination. This part of the brain allows us to form relationships and feel connected to the world. It also controls some of the body functions, the endocrine system and some of the fine motor coordination. The limbic brain matures when we express gross emotions, including rage or fright. This is essential to the later development of the refined emotions such as love and altruism. Antonio Damasio says: "My research has persuaded me that emotion is integral to the process of reasoning." (quoted in S.M., after Scientific American, October 1994, pg144)

The outermost layer of the brain is the neocortex, or the new mammalian brain, consisting of the right and left hemispheres. The right brain hemisphere develops from 4

1/2 to 7 years and, as we know, it processes the whole picture, concrete operations, space, image, feelings and intuition. It also synthesizes information to form new meaning.

The left hemisphere develops from 7 to 9 years, and only then do we become capable of linear logic, analysis, focus on details and perception of time. We can also start expressing ourselves more fully in language.

Ages 9 to 12 are the time for integration, when the corpus callosum develops more fully and we become capable of whole brain processing. (Of course the foundation for that development was laid much earlier, when we were crawling on all fours, at age one). Whole brain gives access to abstract thinking, our starting point, the old "pinnacle of human achievement". The role of the lower brain centers does not end with the development of the cortex. They continue to have an effect on it daily, impeding or enhancing our ability to learn and function as human beings.

We can see that it was a long journey that led to the development of this ability. And the brain has it's own timetable of development. It grows in spurts at specific ages and it is going to do it whether the previous layer achieved maturity or not. At the beginning of each stage the brain releases chemicals that "erase" the connections that have not been made permanent in the previous layer. For this reason it was once believed that if you didn't complete a certain growth phase, for example not moving or emoting when it was crucial, you missed your chance, and it was hopeless. Now, however, these deficiencies can be made up for by movement, emotional expression and sensory and proprioceptive stimulation. And TFH provides all of them!

When I look back at my experience at the TFH Instructor Training, I can see how all my brain layers were "jogged". Muscle balancing as well as other movement provided the proprioceptive stimulation, which in turn stimulated my reptilian brain. Emotional expression through laughter, love and occasional frustration activated my limbic brain. A great deal of intellectual information gave my neocortex something to do. And lots

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of cross crawl provided access to my whole brain. To sum it all up: I got smarter.

Since then I have been able to observe that effect on others, especially the participants of the ITWs I have taught. People seem to learn with their bodies, retaining information even when they seem not to be paying attention. They recall information they feel they have not remembered.

So it turns out that, far from being just a simple appendage, the body provides an indispensable foundation for the mind. And I have come to believe that thinking is not "the pinnacle of human achievement", but actually

is there to direct movement. I have a good ally. The Nobel prize recipient for brain research, Roger Sperry, after years of working with the brain, also came to believe that the purpose of thinking is to provide "additional refinement, increased direction toward distant, future goals and greater overall adaptiveness and survival value."

SO LET'S MOVE!

(and DO several Intelligent Movement exercises).