

Articles and videos related to Move-In Mind Training

Here some links to articles and video related to the main topics of Move-In Mind Sensory-Motor Imagery Training. Some of them are really useful in order to understand the principles that underlay the Move-In Mind Training, especially if you are curious about it.

Enjoy! And feel free to write me and ask, if you have questions ☺

Monica

ABOUT NEUROPLASTICITY & REHABILITATION

1. DEFINITION: Neuroplasticity

A very short and clear definition, helpful to understand the brain's ability to reorganize itself by forming new neural connections throughout life. <http://www.medterms.com/script/main/art.asp?articlekey=40362>

2. SCIENTIFIC AMERICAN ARTICLE: Rewiring a Damaged Spinal Cord

Luciana Gravotta

New treatments leverage “neuroplasticity,” the nervous system’s innate ability to repair itself.

Studies on electrical stimulation and locomotor training (a treatment that relies on human or robotic assistance during a walking exercise) suggest that it is possible to regrow damaged neuronal circuits in the brain and spine and recover some voluntary control. Some of these studies find that circuits in the spinal cord itself can be coaxed into helping the body move again.

<http://www.scientificamerican.com/article.cfm?id=rewiring-a-damaged-spinal>

3. PHYSICAL THERAPY ARTICLE: Neuroplasticity After Spinal Cord Injury and Training: An Emerging Paradigm Shift in Rehabilitation and Walking Recovery

Andrea L Behrman, Mark G Bowden, Preeti M Nair

Physical rehabilitation after spinal cord injury has been based on the premise that the nervous system is hard-wired and irreparable. Upon this assumption, clinicians have compensated for irremediable sensorimotor deficits using braces, assistive devices, and wheelchairs to achieve upright and seated mobility. Evidence from basic science, however, demonstrates that the central nervous system after injury is malleable and can learn, and this evidence has challenged our current assumptions. The evidence is especially compelling concerning locomotion. The purpose of this perspective article is to summarize the evidence supporting an impending paradigm shift from compensation for deficits to rehabilitation as an agent for walking recovery.

<http://ptjournal.apta.org/content/86/10/1406.long>

ABOUT MOTOR IMAGERY & NEUROPLASTICITY

4. TIME MAGAZINE ARTICLE: The Brain: How The Brain Rewires Itself

Sharon Begley

The link between Neuroplasticity and Motor Imagery: “mental training” produce the same effects of motor exercise, and changes brain structure (motor cortex). Mere thoughts are able to alter the physical structure and function of our gray matter...

<http://www.time.com/time/magazine/article/0,9171,1580438,00.html> More: <http://www.time.com/time/magazine/article/0,9171,1580438,00.html#ixzz2S31sWgMn>

5. JOURNAL OF NEURAL TRASSMISSION ARTICLE: Motor imagery and action observation: cognitive tools for rehabilitation

Th. Mulder

Rehabilitation, for a large part may be seen as a learning process where old skills have to be re-acquired and new ones have to be learned on the basis of practice. Active exercising creates a flow of sensory (afferent) information. (...) In the present article it is asked whether active physical exercise is always necessary for creating this sensory flow. Numerous studies have indicated that motor imagery may result in the same plastic changes in the motor system as actual physical practice. (...) It has been shown that motor imagery leads to the activation of the same brain areas as actual movement. The present article discusses the role that motor imagery may play in neurological rehabilitation. Furthermore, it will be discussed to what extent the observation of a movement performed by another subject may play a similar role in learning. It is concluded that, although the clinical evidence is still meager, the use of motor imagery in neurological rehabilitation may be defended on theoretical grounds and on the basis of the results of experimental studies with healthy subjects.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2797860/>

6. NEUROIMAGINE ARTICLE: Selective activation of a parietofrontal circuit during implicitly imagined prehension.

Johnson SH, Rotte M, Grafton ST, Hinrichs H, Gazzaniga MS, Heinze HJ.

It is generally held that motor imagery is the internal simulation of movements involving one's own body in the absence of overt execution. Consistent with this hypothesis, results from numerous functional neuroimaging studies indicate that motor imagery activates a large variety of motor-related brain regions. However, it is unclear precisely which of these areas are involved in motor imagery per se as opposed to other planning processes that do not involve movement simulation. (...) We conclude that motor imagery involves action-specific motor representations computed in parietofrontal circuits.

<http://www.ncbi.nlm.nih.gov/pubmed/12498743>

7. CEREBRAL CORTEX ARTICLE: Fine modulation in network activation during motor execution and motor imagery.

Solodkin A, Hlustik P, Chen EE, Small SL.

Motor imagery, the 'mental rehearsal of motor acts without overt movements', involves either a visual representation (visual imagery, VI) or mental simulation of movement, associated with a kinesthetic feeling (kinetic imagery, KI). Previous brain imaging work suggests that patterns of brain activation differ when comparing execution (E) with

either type of imagery but the functional connectivity of the participating networks has not been studied. Using functional magnetic resonance imaging (fMRI) and structural equation modeling, this study elucidates the inter-relationships among the relevant areas for each of the three motor behaviors.

<http://www.ncbi.nlm.nih.gov/pubmed/15166100>

ABOUT MIRROR NEURONS

8. VIDEO: The discovery of Mirror Neurons

G. Rizzolatti

Dr. Rizzolatti is an Italian Neurophysiologist and professor at the University of Parma in Italy. He discovered unique neurons in the frontal and premotor cortex while doing research on the neural representation of motor movements in monkeys. Unlike other motor neurons, these neurons not only fired when engaged in planning a motor movement, but also through the observation of a related movement in another person or other monkey.

<http://gocognitive.net/interviews/discovery-mirror-neurons-1>

9. ARTICLE: Self-awareness and mirror neurons

María K. Jónsdóttir

It has been proposed that so-called mirror neurons have an important role in the development of self-awareness. They are also important in our ability to empathize, imitate others, and learn.

<http://about-brains.com/self-awareness-and-mirror-neurons/>

10. ARTICLE: Mirror Neurons and imitation learning as the driving force behind "the great leap forward" in human evolution

V.S. Ramachandran

"The discovery of mirror neurons in the frontal lobes of monkeys, and their potential relevance to human brain (...) will do for psychology what DNA did for biology: they will provide a unifying framework and help explain a host of mental abilities that have hitherto remained mysterious and inaccessible to experiments.

http://www.edge.org/3rd_culture/ramachandran/ramachandran_p2.html

11. VIDEO: V.S. Ramachandran - The neurons that have shaped civilization

Neurologist V.S. Ramachandran looks deep into the brain's most basic mechanisms. How mirror neurons help us to learn, how mirror neurons help us to feel empathize. At the min 4 and 30 sec. there are some clues that can tell us how the use of sensory-motor imagery could help people with difficulties in perceiving their body parts, by working as "Rolfing mirrors" .

http://www.ted.com/talks/vs_ramachandran_the_neurons_that_shaped_civilization.html

ABOUT OTHER...

(communication, multisensory integration, tonic function, core stabilization etc.)

12. RESEARCH ARTICLE: Multisensory Origin of the Subjective First-Person Perspective: Visual, Tactile, and Vestibular Mechanisms

Christian Pfeiffer, Christophe Lopez, Valentin Schmutz, Julio Angel Duenas, Roberto Martuzzi, Olaf Blanke.

“In three experiments we investigated the effects of visuo-tactile and visuo-vestibular conflict about the direction of gravity on three aspects of bodily self-consciousness: self-identification, self-location, and the experienced direction of the first-person perspective.”

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0061751>

13. ARTICLE: About Porges' Polyvagal Theory

Some clues about the importance of verbal/non-verbal communication, thinking also to our mirror neuron's role in empathy. If we want to be effective during a rehabilitation or re-education process, we have to pay attention to communication, especially using sensory-motor imagery. "...Porges suggests that we use our higher cognitive processes to calm the stress response and establish effective connections with others by using our facial muscles, making eye contact, modulating our voice and listening to others. In this way we increase the influence of the myelinated vagus, which calms us and turns off the stress response and makes us more metabolically efficient. He says the social neural circuit supports our health through its calming influences on the heart and lungs and its reduction of HPA axis activation....". <http://biologyofkundalini.com/article.php?story=PolyvagalTheory>

14. VIDEO: The Heart's Intuitive Intelligence— A path to personal, social and global coherence

An overview of the amazing and vital role of the heart in our lives, and how our personal energetics shapes our social relationships and ultimately affects global consciousness.

<http://www.heartmath.org/about-us/about-us-home/hearts-intuitive-intelligence.html?mtcCampaign=-1&mtcEmail=18077954>

15. ARTICLE: The confluence of Neuroscience and Structural Integration

Kevin Frank

A discussion with Sandra Blackeslee (author of the book “The body has a mind of its own”) about brain maps, neuroplasticity, fascia, and the way we (as Rolfers) can help changes.

<http://www.somatics.de/BlakesleeInterview09.pdf>

16. ROLF LINE ARTICLE: **Tonic Function: A Gravity Response Model For Rolfing Structural and Movement Integration**

Kevin Frank

The foundational principles of a theory of tonic function as presented by French Rolfer Hubert Godard. The model of tonic function focuses on the gravity response in the human body as a unifying principle for what has been called intrinsic movement. ... The factors affecting gravity response can be identified for purposes of clarifying how Rolfers work to evoke intrinsic movement.

<http://www.somatics.de/Godard/Frank/Tonic.htm>

17. ARTICLE (FROM STRUCTURAL INTEGRATION): **Core stabilization, Core Coordination**

Aline Newton

The concepts involved in spinal stabilization from two perspectives: one that of scientific research and the other, a theoretical and experiential framework for understanding movement based on the author's many years of study with Hubert Godard. The mechanical and neurological aspects are described.

<http://www.alinenewton.com/pdf-articles/core.htm>

18. ARTICLE (FROM INSTITUTE OF HEARTMATH) **Science of The Heart: Exploring the Role of the Heart in Human Performance**

An Overview of Research Conducted by the Institute of HeartMath. A very clear article about the "heart brain," or the system of neurons that act independently of the cranial brain - to learn, remember, and even feel and sense.

<http://www.heartmath.org/research/science-of-the-heart/introduction.html#neurocardiology>

19. PDF BOOK: **The Appreciative heart - The Psychophysiology of Positive Emotions and Optimal Functioning**

Doc Childre, Rollin McCraty

A book about the power of emotions like appreciation, compassion, care, and the way to explore our abilities in connecting with our heart.

<http://www.metaphysics-for-life.com/support-files/heartmath-appreciative-heart.pdf>