

EMDR and The Military In Action

A monthly newsletter to keep you informed.

This is a monthly e-newsletter created primarily for our colleagues trained in Eye Movement Desensitization and Desensitization (EMDR) who work with military, veterans, and their families. The purpose of **EMDR and The Military In Action** is to promote continued dialogue regarding the efficacy and current developments with EMDR and its use with these special populations.

In This Issue

- Correlates of EMDR therapy in functional and structural neuroimaging: A critical summary of recent findings.
- The neurobiology of EMDR: Exploring the thalamus and neural integration.
- EMDR's neurobiological mechanisms of action: A survey of 20 years of searching.
- How EMDR Therapy Opens a Window to the Brain.

Citations of the Month - Neurobiology

Pagani, M., Högberg, G., Fernandez, I., & Siracusano, A. (2013). [Correlates of EMDR therapy in functional and structural neuroimaging: A critical summary of recent findings.](#) *Journal of EMDR Practice and Research*, 7(1), 29-38. doi:10.1891/1933-3196.7.1.29.



Neuroimaging investigations of the effects of psychotherapies treating posttraumatic stress disorder (PTSD), including eye movement desensitization and reprocessing (EMDR), have reported findings consistent with modifications in cerebral blood flow (CBF; single photon emission computed tomography [SPECT]), in neuronal volume and density (magnetic resonance imaging [MRI]), and more recently in brain electric signal (electroencephalography [EEG]). Additionally in the recent past, EMDR-related neurobiological changes were monitored by EEG during therapy itself and showed a shift of the maximal activation from emotional limbic to cortical cognitive brain regions. This was the first time in which neurobiological changes occurring during any psychotherapy session have been reported, making EMDR the first psychotherapy with a proven neurobiological effect. The purpose of this article was to review the results of functional and structural changes taking place at PTSD treatment and presented during the period of 1999-2012 by various research groups. The reported pathophysiological changes are presented by neuropsychological technique and implemented methodology and critically

analyzed. [Author Abstract] KEY WORDS: EMDR; neurobiology; EEG; SPECT; MRI; limbic system.

Bergmann, U. (2008). [The neurobiology of EMDR: Exploring the thalamus and neural integration](#). Journal of EMDR Practice and Research, 2(4), 300-314. doi:10.1891/1933-3196.2.4.300.

Recent neuroimaging studies on posttraumatic stress disorder (PTSD) have revealed a consistent decrease in thalamic activity, relative to non-PTSD controls. Empirical studies of the past decade have shown the thalamus to be centrally involved in the integration of perceptual, somatosensory, memorial, and cognitive processes (thalamo-cortical-temporal binding). A theoretical model is proposed to suggest that one underlying mechanism of EMDR stimulation (dual-attention stimulation/bilateral stimulation [DAS/BLS]) is thalamic activation, specifically of the ventrolateral and central-lateral nuclei. It is hypothesized that this may facilitate the repair and integration of somatosensory, memorial, cognitive, frontal lobe and synchronized hemispheric functions that are disrupted in PTSD.

Bergmann, U. (2010). [EMDR's neurobiological mechanisms of action: A survey of 20 years of searching](#). Journal of EMDR Practice and Research, 4(1), 22-42. doi:10.1891/1933-3196.4.1.22.

Historically, mechanisms of action have often been difficult to ascertain. Thus far, the definitive discovery of eye movement desensitization and reprocessing (EMDR)'s underlying mechanisms has been equally elusive. We review the neurobiological studies of EMDR, as well as the theoretically driven speculative models that have been posited to date. The speculative theoretically driven models are reviewed historically to illustrate their growth in neurobiological complexity and specificity. Alternatively, the neurobiological studies of EMDR are reviewed with regard to their object of investigation and categorized as follows: findings before and after EMDR therapy (neuroimaging and psychophysiological studies) and findings during the EMDR set (psychophysiological, neuroimaging, and qEEG studies). [Author Abstract]

The Brain in the News

Shapiro, F. (2012, September 19). [How EMDR Therapy Opens a Window to the Brain](#) by Francine Shapiro. Retrieved from Brain World Magazine.

Brain scans have clearly demonstrated pre-post changes after EMDR therapy, including increases in hippocampal volume, which have implications for memory storage. The bottom line of EMDR outcome research is that clinical change can be both profound and efficient. It also shows how mental problems are actually caused by physiologically stored, unprocessed memories. Hopefully, this recognition will help remove the stigma of receiving mental health treatment. We have no hesitation about getting a broken leg realigned by a physician so that healing can take place. If self-help techniques are not sufficient, we should likewise not hesitate to receive professional help to allow the information-processing system of the brain to resolve our mental health issues. [Excerpt]

Special Notes

Our Wordpress blog: <http://emdrresearchfoundation.wordpress.com/>
(note that there are entries on 12/16 and 12/18 with links to articles)

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(note that there are quite a few relevant entries with links to articles)

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