

### **Main articles about EMDR published in 2019**

In 2019 many relevant research articles have been published, three of them in some of the most important scientific journals of the world, which has determined as a result a high impact for EMDR therapy.

#### **1. “Neural circuits underlying a psycho-therapeutic regimen for fear disorders”**

Jinhee Baek, Sukchan Lee, Taesup Cho, Seong-Wook Kim, Minsoo Kim, Yongwoo Yoon, Ko Keun Kim, Junweon Byun, Sang Jeong Kim, Jaeseung Jeong & Hee-Sup Shin, *Nature* 566, 339–343 (2019)

The first one is an article published in *Nature*, the world's leading multidisciplinary science journal, with an impact factor of 41,5, by Baek and colleagues. Their study reveals EMDR's mechanism of action and neuroanatomical pathway using an animal model. The authors found that bilateral stimulation, as compared to controlled conditions, led to a clear and persistent decrease in fear behavior. Of high relevance for the understanding of EMDR, authors found that bilateral stimulation increased neuronal activity in the superior colliculus and the mediodorsal thalamus, thus dampening the excitability of neurons in the basolateral nucleus of the amygdala.

doi:10.1038/s41586-019-0931-y

#### **2. “Deconstructing the Gestalt: Mechanisms of Fear, Threat, and Trauma Memory Encoding”**

Stephanie A. Maddox, Jakob Hartmann, Rachel A. Ross and Kerry J. Ressler, *Neuron* 102, April 3, 2019

The second article was published in *Neuron*, this is one of the most influential and relied upon journals in the field of neuroscience with an impact factor of 14.4. Maddox and colleagues made a review about the encoding of aversive memories. The authors also discuss EMDR in detail as an effective psychotherapy for re-writing the engrams of traumatic memories, which represent the basis for the persistency of traumatic memories, following an encoding of the threat experience in the neural circuits.

doi.org/10.1016/j.neuron.2019.03.017



### 3. “Successful treatment of post-traumatic stress disorder reverses DNA methylation marks”

Christiaan H. Vinkers, Elbert Geuze, Sanne J. H. van Rooij, Mitzy Kennis, Remmelt R. Schür, Danny M. Nispeling, Alicia K. Smith, Caroline M. Nievergelt, Monica Uddin, Bart P. F. Rutten, Eric Vermetten, Marco P. Boks, *Molecular Psychiatry* (2019)

The third one is published in *Molecular Psychiatry*, is a peer-reviewed scientific journal published by Nature Publishing Group. It covers research in biological psychiatry and has an impact factor of 11.9. Vinkers and colleagues could prove for the first time that EMDR can modulate epigenetics in PTSD patients in differentially methylated regions, especially at the Zinc Finger Protein 57 (ZFP57). These data provide longitudinal evidence that ZFP57 methylation is involved in both the development and successful treatment of deployment-related PTSD in military subjects and it is a first step to disentangle the interaction between psychological and biological systems to identify genomic regions relevant for the etiology and treatment of PTSD. CBT and EMDR treatments had the same effect but EMDR was stronger when compared to the waiting list.

doi:10.1038/s41380-019-0549-3