

## Summary of Recent Research on Neurobiological Processes in EMDR

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Francine Shapiro suggested that EMDR mimics the body's natural process that occurs in REM sleep. Dr. Marco Pagani, a neuroimaging researcher from Rome, Italy, conducted research on the actual brain processes impacted by bilateral stimulation (BLS). As you probably imagine, this is a very important study for the world of EMDR!

Dr. Pagani presented a lengthy, complicated presentation on his research findings at the EMDRIA annual conference in Philadelphia in August, 2015. This is designed to be a brief summary to be used for your own knowledge as well as when psycho-educating clients on the EMDR approach.

When bad things happen, they get “stuck” (or improperly stored) in the hippocampus and the amygdala. This means the information is stored in the memory center with all its original emotions. So, stimuli in the environment constantly trigger the memory, even mild or neutral stimuli. The information has not been fully processed and the instinctual emotions are attached to it.

To be fully processed, information must transfer to the frontal lobe for higher-order processing to take place. Basically, the memory needs to be approached with logic so that learning can take place. This takes away the severe negative emotion attached to the memory and promotes adaptive learning and positive growth.

The research indicated that BLS does mimic our body's natural sleep patterns. However, it is not only REM processes that are mimicked. BLS imitates slow-wave sleep – which is where information is transferred to the frontal lobe. Once in the frontal lobe, it is logically organized and made sense of, which is similar to what happens in REM sleep. Since PTSD, and most psychological conditions, almost inevitably brings about sleep disturbance, our bodies are not able to process the information like they are supposed to. Our bodies do not go through the “normal” sleep pattern, so there is no opportunity for the information to be properly transferred.

BLS and the EMDR protocol activate the process that occurs during slow-wave sleep and REM sleep, which the individual is missing during his or her actual sleep. Then, BLS and EMDR allow for the frontal lobe to properly interpret and process the information so that it is adaptive for the individual, instead of chronically maladaptive.

Dr. Pagani studied this information through neuroimaging, where he hooks machines up to individuals' brains and studies what happens to them during EMDR. He and his colleagues actually saw how the brain processed the trauma and how the processes activated were significantly similar to processes that occur during undisturbed (or healthy) sleep. He also stated the impact of EMDR is similar to ECT (Electroconvulsive Therapy), but EMDR shows positive gains at a much faster rate!

**Reference:** Pagani, M. (2015, August 30). *Imaging EMDR Related Neurobiological Changes*. Lecture presented at EMDRIA Annual Conference, Philadelphia.