OVERCOMING DEPRESSION THROUGH BRAIN STATE CONDITIONING

By Vijendra K. Singh and Lee Gerdes

Depression or major depressive disorder (MDD) is a very serious medical illness affecting an estimated 25 million Americans and millions more worldwide. It significantly changes an individual's ability to function on a daily basis. Symptoms include persistently sad or irritable mood, pronounced changes in sleep, appetite, and energy, difficulty thinking, concentrating, and remembering, physical slowing or agitation, lack of interest in, or pleasure from, activities that were once enjoyed, feelings of guilt, worthlessness, hopelessness, and emptiness, recurrent thoughts of death or suicide and persistent physical symptoms that do not respond to treatment, such as headaches, digestive disorders, and chronic pain. The cause of depression is not very well understood, but the disorder has a neurobiological basis (Mayberg, 2007). We hypothesized that depressed individuals have an imbalance in the brain (Gerdes, 2008) and conducted a pilot study of brain training using brain state conditioning (BSC). We found that depressive tendencies can be suppressed by BSC.

The study included four subjects (two males, aged 35 and 38 years, and two females, aged 41 and 60 years). Their goal was to overcome depression and improve sleep deprivation, cognitive performance, social interaction, decision making, attention and focus, drug addiction and dependency, motivation, mood stabilization, happiness and well-being, and physical health and balance. Depressed subjects were recruited by telephone interview, followed by the completion of an objective survey. To administer BSC, subjects were given an initial assessment of about 60 min. during which their brains were mapped, followed by four to six consecutive sessions of 90 min. each spread over two to five days. They were asked to complete Beck's Inventory pre-BSC and post-BSC (Beck, 1996). Our observations were recorded and stored in a computer database and subsequently analyzed. The method of BSC was according to Gerdes (2008).

After the administration of BSC, all four subjects showed positive outcomes, including reduction of Beck's Inventory score. The response to BSC was divided into two test scores: (i) BAI score for anxiety behavior; and (ii) BDI-II score for depressive behavior. Despite individual differences, all four

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subjects responded to BSC and showed noticeable reduction in the two test scores. The BAI score for anxiety was reduced by 54 to 100%. The BDI-II score for depression was reduced by 43% in subject code #2 and 80 to 95% in subject code #1, #3 and #4. Reduction in these test scores is a direct reflection of their response to BSC and the depressive tendencies were either completely diminished or significantly suppressed. Their sleep improved and they also showed lower level of stress, anxiety, and substance abuse.

Depression has a neuroanatomical basis. Patients with depression show dysfunctional neuronal systems in the prefrontal cortex, anterior cingulate cortex, temporal cortex and basal ganglia (Mayberg, 2007). They also showed neuronal loss in the hippocampus (McMaster et al., 2008) and low levels of brain-derived neurotrophic factor (BDNF) (Sen et al., 2008). Since the hippocampus is the primary brain region involved in memory function, hippocampal loss of neurons may explain cognitive decline in patients with depression. Amongst all mental health issues, depression is the single most common problem in adults. The disorder is no longer restricted to adults since many children are also diagnosed with depression. Although depression has a common clinical presentation, symptoms vary from one patient to another, which may imply that depression is a heterogeneous disorder possibly comprised of subsets. This also means that no single treatment will be solely effective for depression and each subset will require highly personalized modalities. In this respect, we suggest that BSC is a novel approach to brain training for alleviating the suffering from depression.

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