

## Biofeedback for Anxiety

Anxiety is one of the most frequently observed categories of emotional disorders in the American population and often seriously interferes with the quality of everyday life. All of the anxiety disorders are defined by the dual characteristics of physiologic hyperarousal and excessive emotional fear. A variety of biofeedback modalities have been used in treating anxiety including galvanic skin response (GSR), temperature training, EMG, and neurofeedback (Yucha & Montgomery, 2008).

Biofeedback is one of the most useful adjuncts in treating physiologic hyperarousal, both episodic and chronic, seen in anxiety disorders. Biofeedback has demonstrated value for hyperarousal reduction training in generalized anxiety disorder (GAD) and exposure desensitization in panic disorder (PD) and PTSD (Goodwin & Montgomery, 2006; Rice, Blanchard, & Purcell, 1993; Sarkar, Rathee, & Neera, 1999; Vanathy, Sharma, & Kumar, 1998). In the Rice et al study (1993), the group which used the alpha increase neurofeedback condition resulted in reduced heart rate reactivity to stressors, an unexpected benefit.

In a two-treatment group comparison study (n=50) of anxiety in individuals with chronic pain, Corrado, Gottlieb and Abdelhamid (2003) reported a significant improvement in anxiety and somatic complaints in the group that received biofeedback of finger temperature training and muscle tension reduction when compared to a pain education group. From a group of 312 high school students in Shanghai, Dong and Bao (2005) recruited 70 students who met criteria for high levels of anxiety and assigned 35 students to a group who were treated with biofeedback and 35 to a group of no-treatment controls. They reported a significant improvement in anxiety, somatization, and depression in the treatment group when compared to the controls. Cory Hammond (2003) used QEEG guided neurofeedback protocols to help patients with OCD resulting in significant improvements.

Several biofeedback modalities are effective for anxiety reduction. Most compare favorably with other behavioral techniques, including relaxation training and cognitive restructuring, and are occasionally found to be superior to medication alone. As noted above, the most common biofeedback modality used for anxiety is temperature training; but evidence indicates that heart rate variability training is also effective (Berger & Gevirtz, 2001; Clark & Hirschman, 1999). For more details using biofeedback for anxiety disorders, see Donald Moss' chapter on anxiety in Handbook of mind-body medicine for primary care (Moss, McGrady, Davies, & Wickramasekera, 2003).

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