Skin Conductance Feedback and Panic Attacks

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A method is described for using skin conductance response (SCR) biofeedback to help patients control their panic attacks. The SCR signal is presented as a symptom analogue, and patients practice provoking and subduing the signal, using a combination of cognitive strategies and physiological relaxation.

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Because of its sensitivity to emotional arousal, a skin conductance biofeedback monitor can be quite useful in helping a patient overcome panic attacks. The key to the following method lies in conceptualizing the skin conductance feedback signal as a symptom analogue of the panic attack itself, and using it as an aid to cognitive control.

This follows logically from the peculiar dynamics of panic attacks. The patient is confronted with a sudden "storm" of mostly sympathetic activity, such as accelerated heart rate, sweating, and hyperventilation. The individual fears these symptoms because they imply "losing control"—namely, fainting, dying, or going crazy. These apprehensive thoughts both reflect the symptoms and provoke further symptoms, and the resulting vicious circle spirals into a panic attack. This process has been labeled "fear of the fear" and "second fear" (Weekes, 1978; Beck & Emery, 1985) and clearly involves cognition. Meichenbaum (1976) called for a greater focus on cognitive factors in biofeedback training; the focus seems especially appropriate for panic disorder.

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In addition, panic attacks can apparently be triggered by relaxation training (Cohen, Barlow, & Blanchard, 1985), suggesting that relaxation alone may be an incomplete approach to this disorder. Most research using biofeedback to treat anxiety has dealt with chronic anxiety rather than panic attacks (see Small, 1982; Kumaraiah, 1979, for electrodermal biofeedback applied to anxiety).

Many people become mildly uneasy when first confronted, via biofeedback, with their own skin conductance signal—particularly the phasic or short-term deflection termed **skin conductance response** (SCR). (Tonic changes are more complex and less relevant here.) Panic-disorder patients in this situation tend to go beyond uneasiness to genuine fear; as they focus on the rising SC signal, they will often report feeling the first signs of a typical attack. The short latency of SCR (less than 3 seconds) helps to initiate a reflexive feedback loop in which anxiety about the rising signal drives the signal higher. Setting such a loop in motion can be frightening to those subject to panic attacks because it resembles their own attacks so closely.

Therefore, considering the SCR signal as an analogue of an acute anxiety symptom offers one basis for intervention, used after the patient has developed some skill in relaxation via control of such variables as respiration, muscle tension, finger temperature, and/or heart rate. First, it is important to explain thoroughly the "vicious circle" aspect of panic attacks, perhaps characterizing them as harmless false alarms being aggravated by misinterpretation. The body is preparing to cope with danger, but since the perceived danger is within the patient's own body, there is nothing to fight or run away from.

After the patient agrees that anxiety logically only makes the problem worse, a substitute strategy is developed: staying resolutely relaxed and calm, maintaining control rather than fantasizing imminent catastrophe. A more benign interpretation of the symptoms is paired with somatic relaxation.

SCR feedback is then used to demonstrate the cognitive–somatic interaction. Ideally, the feedback instrument should include both visual and audio feedback. For most patients, recalling and describing the setting and symptoms of a recent panic attack will cause a clear SCR along with other perceptible anxiety symptoms. Since patients often fear that thinking about their panic attacks will trigger a new one, the feedback should be introduced with sensitivity to the patient's uneasiness.

At the moment anxiety begins driving the signal higher, the patient's cognitive strategy generally resembles freezing: focusing apprehensively on the rising signal and forgetting everything else. The patient is then reminded of the new coping strategy: "You made it go up and you can bring it back down. Stay in control. Turn off that alarm." The essential skill is to remain calm in the face of what seems like imminent disaster.