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Muscle relaxation therapy for anxiety disorders: It works but how?

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Abstract

Muscle relaxation therapy (MRT) has continued to play an important role in the modern treatment of anxiety disorders. Abbreviations of the original progressive MRT protocol [Jacobson, E. (1938). *Progressive relaxation* (2nd ed.). Chicago: University of Chicago Press] have been found to be effective in panic disorder (PD) and generalized anxiety disorder (GAD). This review describes the most common MRT techniques, summarizes recent evidence of their effectiveness in treating anxiety, and explains their rationale and physiological basis. We conclude that although GAD and PD patients may exhibit elevated muscle tension and abnormal autonomic and respiratory measures during laboratory baseline assessments, the available evidence does not allow us to conclude that physiological activation decreases over the course of MRT in GAD and PD patients, even when patients report becoming less anxious. Better-designed studies will be required to identify the mechanisms of MRT and to advance clinical practice.

Keywords: Muscle relaxation; Psychophysiology; Anxiety; Generalized anxiety disorder; Panic disorder; EMG

1. Introduction

Muscle relaxation has been an important therapeutic technique in the modern treatment of anxiety disorders. Its origins lie with Edmund Jacobson (1934a, 1934b, 1938, 1964, 1967, 1970),

Abbreviations: AR, applied relaxation; BP, blood pressure; CBT, cognitive-behavior therapy; CT, cognitive therapy; EEG, electroencephalogram; ES, effect size; GAD, generalized anxiety disorder; HR, heart rate; MRT, muscle relaxation therapy; PD, panic disorder; PMR, progressive muscle relaxation; SAD, social anxiety disorder; SC, skin conductance; sEMG, surface electromyogram

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who developed the method of progressive muscle relaxation (PMR). Since then many abbreviated methods of progressive muscle relaxation have been developed. These methods have been used either as complete treatments (e.g., Bernstein & Borkovec, 1973; Öst, 1987) or as one component among others in a treatment package (e.g., Wolpe, 1952a, 1952b, 1958). Many experimental studies attest to the clinical effectiveness of abbreviated muscle relaxation therapies for several medical conditions and psychiatric disorders, but surprisingly few of them have assessed muscle tension between patients and healthy subjects before treatment or have shown that muscle relaxation therapy (MRT) influenced physiologically measured muscle tension or other physiological measures of general activation. This neglect is perhaps one reason that in the last decade many researchers and practitioners have turned their attention to pharmacological or cognitive treatments. Some recent researchers have even considered muscle relaxation to be no more than a ''psychological placebo'' (Greist et al., 2002; Marks et al., 1993, 2000; Park et al., 2001), useful solely to calibrate the superiority of better treatments.

For the purpose of this review, we define muscle relaxation therapy as an abbreviated therapy based on Jacobson's original PMR, which included in its training procedure first tensing a muscle and then releasing that tension. The basic therapeutic claim of MRT is that tense, stressed, and anxious people can find relief from their distress and its physiological accompaniments by learning to reduce muscle tension. A modern theoretical rationale for MRT is that an important element of psychological distress is elicitation of a generalized stress activation response, comprising multiple central and peripheral physiological systems (e.g., Öst, 1987). Learning to deactivate a single subsystem, the muscular system, will reduce activation in many other subsystems (e.g., Gellhorn & Kiely, 1972).

Is this rationale plausible? First, it assumes the existence of a generalized stress activation response with some consistency within and between individuals. Activation of the physiological component of this response should generally be linked to another system of emotional expression—the cognitive-language system. Stress activation of the muscular physiological subsystem would expected to be generalized, resulting in a surface electromyogram (sEMG) intercorrelated at multiple sites, an assumption that often has been challenged. Second, the rationale assumes that patients who can be treated successfully with MRT will initially have either more tonic muscle tension, or exhibit increased muscle tension in response to stress than a nondistressed control group, assumptions with some support in generalized anxiety disorder (GAD) but little in panic disorder (PD). Third, a reduction in muscle tension should cause the multiple aspects of the activation response, as well as expressions of emotion in nonphysiological systems, to decrease, an assumption that has rarely been tested.

One could also question why it matters *how* muscle relaxation works, if it is already known *that* it works. One answer is that while relaxation works for many patients, it does not work for all. By understanding the mechanisms of muscle relaxation, better predictions should be possible of the effectiveness of this technique for different patients and different disorders. Furthermore, the optimal parameters for muscle relaxation therapy are unknown. For example, how many sessions of what length are required? Perhaps the customary 12 sessions of therapy in Öst's applied relaxation (AR) treatment protocol (1987) are unnecessary because physiological improvement levels off after two sessions. In addition, if it turns out that muscle relaxation works more cognitively than physiologically, the therapist might do better by paying less attention to muscle tension and more to dysfunctional beliefs and attitudes. In fact, muscle relaxation may work entirely by changing dysfunctional beliefs, making the patient think that anxiety and the bodily changes that accompany it are understandable and controllable. Nevertheless, it is still possible that in certain clients directing attention to muscle