

Schuhfried Biofeedback^{xpert} System Bibliography for Migraine Therapy

Cohen, M. J., D. L. McArthur, et al. (1980). "Comparison of four biofeedback treatments for migraine headache: Psychological and headache variables." Psychosomatic Medicine 42(5): 463-480.

42 migraine headache patients (mean age 42 yrs) participated in an appraisal of biofeedback for differential finger warming--forehead cooling, frontalis EMG relaxation, alpha enhancement, and vasoconstriction of the temporal scalp arteries. Analyses revealed that all groups had a significant reduction in number of headaches per week with no change in intensity, disability, or length of headache. A nonspecific effect for biofeedback is suggested, with the likely candidates being a relaxation phenomenon or a cognitive explanation based on perceived control. (33 ref) ((c) 1999 APA/PsycINFO, all rights reserved)

Feuerstein, M. and H. E. Adams (1977). "Cephalic vasomotor feedback in the modification of migraine headache." Biofeedback and Self Regulation 2(3): 241-54.

The effect of cephalic vasomotor response (CVMR) and frontalis electromyographic (EMG) feedback on control of temporal arterial vasoconstriction and frontalis muscle activity in migraine and muscle contraction headache patients was investigated. A single subject multiple baseline design (across subjects and responses) was introduced to evaluate (1) patterning in the two physiological systems and (2) the effects of CVMR and EMG feedback on headache activity. The data indicated that (a) all four patients demonstrated an ability to control CVMR activity during CVMR feedback and EMG during EMG feedback, (b) idiosyncratic patterns of physiological activity emerge during feedback training, and (c) learned control of the pain mechanism for muscle contraction and migraine headaches was related to reduced frequency and duration of these headaches. MJME: *Biofeedback-Psychology; *Headache-therapy; *Migraine-therapy; *Temporal-Arteries-physiology; *Vasomotor-System-physiology MIME: Adolescence-; Adult-; Blood-Volume-Determination; Electromyography-; Follow-Up-Studies; Middle-Age; Muscle-Contraction; Pulse-; Research-Design AGE: Adolescence; Adult; Middle-Age

Knapp, T. W. (1982). "Treating migraine by training in temporal artery vasoconstriction and/or cognitive behavioral coping: A one-year follow-up." Journal of Psychosomatic Research 26(5): 551-557.

Conducted a 1-yr follow-up on 16 chronic migraine patients (mean age 41.7 yrs) treated with vasoconstriction biofeedback of temporal arteries (VT), cognitive behavioral stress coping training (CT), or 1 of 2 serial variations of them. The 4 experimental groups were EG-1a: VT, 10 sessions; EG-1b: VT, 5 sessions and CT, 5 sessions; EG-11a: CT, 10 sessions; EG-11b: CT, 5 sessions and VT, 5 sessions. Another group of 4 patients was assigned to a waiting control. All treatment groups decreased the frequency, duration, and intensity of headaches as well as amount of medication from baseline to 1-yr follow-up. During treatment but not 2 mo after therapy, voluntary vasoconstriction was higher in EG-1a than in EG-11a, although all EGs vasoconstricted. The cognitive training groups improved more in self-ratings of irritability, depression, and positive self-evaluation than the biofeedback or control groups 2 mo after therapy, but this difference was not maintained at 1 yr. All treatment groups showed deterioration in measure of excitement and depression, returning to pretreatment levels. Improvements in irritability and positive self-evaluation were, however, sustained at 1 yr follow-up. (28 ref) ((c) 1999 APA/PsycINFO, all rights reserved)

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Knapp, T. W., B. Herold, et al. (1982). "Behandlung der Migraene mit Vasokonstriktions- und Handerwaermungs-Biofeedback: Eine Pilot-Studie. / Treatment of migraine with vasoconstriction and handwarming biofeedback: A pilot study." Zeitschrift fuer Klinische Psychologie und Psychotherapie 30(1): 31-39.

Used individual process analyses and group statistical methods to test the effects of temporal vasoconstriction biofeedback and handwarming biofeedback on the headaches of 7 long-term migraine patients. Also, the combination of these methods was tested against the effects of handwarming only. Results show that the combination treatment and the handwarming treatment both reduced the frequency and duration of the headaches; however, the handwarming-only group improved significantly more than the combined-treatment group with regard to headache duration. Pain intensity and medications could not be reduced for either group. (13 ref) ((c) 1999 APA/PsycINFO, all rights reserved)

Lisspers, J. and L. G. Ost (1990). "BVP-biofeedback in the treatment of migraine. The effects of constriction and dilatation during different phases of the migraine attack." Behavior Modification 14(2): 200-21.

Biofeedback training for self-regulation of blood-volume pulse ("BVP") amplitude of the temporal arteries has been used previously with good results in treatment of migraine headaches. In the present study, 23 subjects were randomly assigned to one of three groups and given (a) biofeedback training in temporal artery constriction and instructions to apply these skills during headaches; (b) the same training and instructions to apply the skills between headaches, during stress periods, and (c) biofeedback training to dilate the temporal arteries, and instructions to use these skills during stress periods. Clinically meaningful headache reductions were achieved and maintained at follow-up. Furthermore, results indicated that voluntary temporal artery dilatation also leads to headache reductions, and that there is a connection between levels of achieved self-regulation skill and the clinical effects. MJME: *Biofeedback-Psychology-physiology; *Migraine-therapy; *Temporal-Arteries-physiopathology; *Vasoconstriction-physiology; *Vasodilation-physiology MIME: Adult-; Blood-Volume-physiology; Middle-Age; Migraine-physiopathology; Pulse-physiology AGE: Adult; Middle-Age

Sargent, J. D., E. D. Walters, et al. (1973). "Psychosomatic self-regulation of migraine headaches." Seminars in Psychiatry 5(4): 415-428.

Views migraine as part of a stress-related syndrome in which the somatic response is dysfunction of vascular behavior in the head. Vasoconstriction in the hands occurs as a function of sympathetic activation and vasodilation is a 1-variable indication of decrease of sympathetic flow. From these facts, it is hypothesized that autogenic-feedback training for hand-warming might be effective in amelioration of migraine, because patients are learning to "turn off" excessive sympathetic outflow. Sympathetic outflow and relaxation, rather than blood volume changes per se, are effective in diminishing symptomatology. 75 migraine sufferers were given detailed physical and neurological tests and then were instructed in biofeedback control. After 150 days, 81% of the Ss were helped to a significant extent. It is suggested that learning to control hand temperature could be

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used as an indication of learning to control the central process associated with vascular dysfunction. (30 ref) ((c) 1999 APA/PsycINFO, all rights reserved)

Speckenbach, U. and W. D. Gerber (1999). "Reliability of infrared plethysmography in BVP biofeedback therapy and the relevance for clinical application." Appl Psychophysiol Biofeedback 24(4): 261-5.

Biofeedback methods are well established as behavioral techniques for the therapy of various psychophysiological diseases. The forms of feedback generally employed are muscle activity (electromyogram), skin temperature, brain activity (electroencephalogram), and vasomotoricity. The latter technique, which employs plethysmographic feedback, has been studied most extensively in the therapy of migraine (vasoconstriction training, blood volume pulse training). Although the clinical efficacy has been demonstrated in several studies, little is known about the psychometric properties of this technique. This study examined the intrasession and intersession reliability of the pulse volume amplitude (PVA). The results showed that the PVA measurements within a single biofeedback session were highly reliable. Repositioning of the probe within the session resulted in a lower correlation coefficient, but one that was still sizable and significant. The PVA values from different sessions were not reliable (or comparable). MJME: *Biofeedback-Psychology-physiology; *Plethysmography-instrumentation MIME: Adult-; Brain-physiopathology; Carotid-Arteries-physiopathology; Electroencephalography-; Heart-Rate-physiology; Infrared-Rays; Migraine-physiopathology; Migraine-therapy; Plethysmography-standards; Reproducibility-of-Results; Temporal-Arteries-physiopathology AGE: Adult

Sturgis, E. T., C. D. Tollison, et al. (1978). "Modification of combined migraine-muscle contraction headaches using BVP and EMG feedback." Journal of Applied Behavior Analysis 11(2): 215-223.

Employed a multiple baseline design (i.e., across Ss and responses) to assess the effect of blood volume pulse (BVP) and frontalis muscle action potential (EMG) feedback on control of vasoconstriction of the temporal artery and frontalis muscle activity in 2 female 34- and 54-yr-old Ss with combined migraine and muscle and tension headaches. Results indicate that (a) both Ss obtained an ability to control BVP during BVP feedback and EMG during EMG feedback and (b) there were decreases in frequency of migraine headaches during EMG feedback and decreases in muscle contraction headaches during EMG feedback. These findings support the theoretical explanation of 2 pain mechanisms involved in combined muscle contraction^migraine headaches and the effectiveness of biofeedback procedures that target directly the specific pain mechanism in the elimination of the 2 types of head pain. (12 ref) ((c) 1999 APA/PsycINFO, all rights reserved)