

## The efficacy of relaxation training in treating anxiety

*Pagnini Francesco MS, Manzoni Gian Mauro Psy.D,  
Castelnuovo Gianluca Ph.D & Molinari Enrico Ph.D*

### Abstract

This paper provides a review of scientific literature about relaxation training and its effects on anxiety. Research investigating progressive relaxation, meditation, applied relaxation and autogenic training were considered. All these methods proved to be effective in reducing anxiety in all kind of samples, affected or not by physical or psychological disorders. This review supports the efficacy of relaxation training as a valid stand-alone or combined treatment for anxiety disorders or problems and suggests a wider use of these techniques in the clinical practice.

**Keywords:** Relaxation training, anxiety, treatment, efficacy

---

### INTRODUCTION

Research, clinical experience and general community agents are promoting the re-evaluation of old and naive forms of therapy as alternatives or adjuncts to pharmacological approaches in a variety of suffering conditions (Krisanaprakornkit, Krisanaprakornkit, Piyavhatkul, & Laopaiboon, 2006). Relaxation training is probably the most used non-pharmacological, both stand-alone and psychotherapy-combined approach for the treatment of many medical and psychological diseases. Among the wide range of non-conventional and sometimes doubtful treatments, relaxation-based methods such as meditation, progressive muscular relaxation, applied relaxation, mindfulness and autogenic training have received the greatest scientific attention and validation. For example, mindfulness training in pain, hypertension, myocardial ischemia, inflammatory bowel disease, human immunodeficiency virus and substance abuse is presently under investigation in research supported by the National Institutes of Health (NIH) (Ludwig & Kabat-Zinn, 2008).

Relaxation training is especially useful in treating stress and anxiety. Indeed, both the literature and dictionaries oppose relaxation to stress, anxiety or tension. Benson, one the most influential author in the field of relaxation, defined it as “a state of decreased psycho-physiological arousal: a calming state (Benson & Klipper, 1975).

Anxiety is a normal reaction to stress and represent a common human emotion. But when anxiety becomes an excessive, irrational dread of everyday situations, it has become a disabling disorder. According to Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV), anxiety disorders are classified into many types, including Panic Disorder, Specific Phobia, Social Phobia, Obsessive-Compulsive Disorder (OCD), Post-Traumatic Stress Disorder (PTSD), Acute Stress Disorder and Generalized Anxiety Disorders (APA, 2000). However, anxiety disorders constitute only the tail of the curve representing the general anxiety distress that affects the population (Manzoni, Pagnini, Castelnuovo, & Molinari, 2008). According to Zigmond and Snaith (Zigmond & Snaith, 1983), psychiatric disorder cannot be considered either present or absent since the degrees is continuously distributed in the population. In fact, complaints of anxiety are common among healthy individuals and have been associated with numerous negative health consequences (Balon, 2006; Muller, Koen, & Stein, 2005), absenteeism and decreased work productivity (Sanderson, Tilse, Nicholson, Oldenburg, & Graves, 2007).

A broad understanding of the etiology of anxiety problems includes a multiplicity of factors, such as biological, psychological and social determinants, which are moderated by a range of risk and protective factors (Somers, Goldner, Waraich, & Hsu, 2006). The old debate over the primacy of these factors, overall biological or psychological, is gradually being replaced by a pragmatic model considering all the relative contributions (Krisanaprakornkit, et al., 2006). In this paper we discuss the efficacy of relaxation training on anxiety both in clinical and community populations.

## *RELAXATION TRAINING FOR ANXIETY*

Many studies have investigated the effects of relaxation training on anxiety in a wide range of applications and research purposes. A recent meta-analysis on trials published within the last ten years (1997-2007) supports a good efficacy of relaxation training in reducing anxiety (Manzoni, et al., 2008). State and trait anxiety (Spielberger, Gorsuch, & Lushene, 1970) are both influenced by training: each relaxation session may decrease state anxiety and the enduring practice of relaxation techniques may improve also trait anxiety in the middle-long term. There is no significant difference between the effects of group and individual training. The efficacy of the treatment increases with the duration of the protocol and with the request of home practice (Manzoni, et al., 2008).

Anxiety reduction is obtained independently from the main scope of relaxation training. Even if the main purpose was different (i.e. the reduction of pain or chemotherapy side effects), participants almost always reported lower levels of worries and distress. The reduction of anxiety seems to be a constant of relaxation training, despite subjects' characteristics and context of training; in fact, studies reported a decrease in levels of anxiety for people with physical diseases, like tumors and hearth problems, as well as people with and without psychological troubles.

### *Anxiety reduction in non-clinical samples*

Various relaxation techniques show to be able to decrease anxiety levels and increase quality of life in community samples. This is one of the reason for the success of relaxation courses in gyms, together with other psychophysiological training (i.e. yoga): people without significant clinical troubles want to improve their quality of life through the reduction of anxiety and stress.

Research literature indicates that all kind of relaxation methods have a positive impact on anxiety in non-clinical samples (Manzoni, et al., 2008). Studies investigated the effect of relaxation in volunteers, in high school (Rasid & Parish, 1998) and university students (Deckro, et al., 2002), in nurses (Yung, Fung, Chan, & Lau, 2004), in employers (Mishima, Goto, Kubota, & Nagata, 2005), in athletes (Castillo, Cremades, & Butcher, 2002) and, in general, in a lot of control groups that were analyzed together with clinical samples (Manzoni, et al., 2008). Indeed, research results indicate a significant reduction of anxiety levels in comparison with both baseline scores and, if present, non-treated control group.

### *Relaxation training and anxiety disorders*

Relaxation training could be applied as a form of non-pharmacologic treatment which can promote a sense of mastery and control which usually has been lost in anxiety persons.

Different kind of relaxation techniques proved to be effective in treatment of anxiety disorders. The efficacy of relaxation training for the management of Generalized Anxiety Disorder (GAD) is really high, comparable to cognitive-behavioral therapy. In a study by Ost and Breitholtz (Ost & Breitholtz, 2000), 36 patients with GAD were randomly assigned to 12 cognitive-behavioral therapy or applied relaxation sessions. Results indicated that therapeutic efficacy of the two techniques is equivalent, at the end of the sessions and at one-year of distance. Those results are confirmed by another study (Arntz, 2003) that also found a one-month greater efficacy for applied relaxation, in comparison with cognitive-behavioral therapy.

Many randomized clinical trials investigated the effects of relaxation therapies for Panic Disorder, with or without Agoraphobia. In a clinical study on patients with Panic Disorder (Ost & Westling, 1995), applied relaxation proved to be as effective as cognitive-behavioral therapy in the reduction of attack frequency, generalized anxiety and cognitive distortions; those results remained constant at one-year follow-up. Another research investigated the effect of progressive relaxation on *in vivo* application, during panic attacks, showing positive results (Murphy, Michelson, Marchione, Marchione, & Testa, 1998).

Relaxation training seems to be effective also in the treatment of some phobias, like social phobia (Clark, et al., 2006; Rowa & Antony, 2005), snakes phobia (McGlynn, Moore, Rose, & Lazarte, 1995), dentist phobia (Lamb & Strand, 1980; Lundgren, Carlsson, & Berggren, 2006), fear of flying (Aitken & Benson, 1984; Muhlberger, Herrmann, Wiedemann, Ellgring, & Pauli, 2001) and agoraphobia (Le Boeuf, 1986; Murphy, et al., 1998).

An interesting study about the effects of relaxation on snakes phobia was conducted by McGlynn and colleagues (McGlynn, et al., 1995) who divided 20 phobic patients in a relaxation and a control groups; after relaxation training (or wait list condition), they have been exposed to a phobic stimulation, a snake in a cage, and patients were free to approach it; relaxation group patients showed a greater tolerance of distance to the stimulus and a lesser physiological activation.

### *Hospitalize patients, physical diseases and relaxation techniques*

Psychosocial interventions are an essential part of multidisciplinary treatment and care of hospitalized patients with physical illness. Those treatments often include relaxation as behavioral component (Wright, Courtney, & Crowther, 2002) and as a way to manage anxiety.

The anxiolytic effects of relaxation training render it a promising adjunct to intervention associated with a high degree of anxiety, such as angioplasty (Kanji, White, & Ernst, 2004), chemotherapy (Molassiotis, 2000), abdominal (Roykulcharoen & Good, 2004) and stoma surgery (Cheung, Molassiotis, & Chang, 2001). The use of relaxation training for hospitalized patients is often directed to reduce side effects, such as pain, of surgery intervention. Sometimes, those techniques are utilized in place, or in addition, of anesthetic drugs, that sometimes cannot be prescribed.

Physical pathologies can sometimes have a psychophysiological etiology (Figueira & Ouakinin, 2008). The application of relaxation techniques can often bring relief from those diseases (Murakami, et al., 2006) through the reduction of physical and mental distress. For all psychosomatic disorders and every physical conditions influenced by psychological factors, relaxation training seems to be a good complementary therapy. For instance, relaxation training reduce coronary risk (Patel, et al., 1985) and people with cardiac and hypertension patients can experience great emotional benefits from the application of relaxation techniques through the reduction of anxiety and distress (Levy, 1993), promoting also physiological benefits such as the reduction of blood pressure (Nakao, Yano, Nomura, & Kuboki, 2003).

### *DISCUSSION AND CONCLUSION*

This review investigated the efficacy of relaxation training programs (autogenic training, progressive muscular relaxation, applied relaxation, meditation) which have been used to manage non-clinical anxiety and to treat anxiety disorders in community, hospitalized and psychopathological populations.

There are various relaxation methods whose common aim is to reduce tension and anxiety through different techniques. All those kind of relaxation training has received attention from the scientific as well as the general community. Given the positive value that has traditionally been assigned to relaxation training and the early scientific evidence for its efficacy in promoting well-being, many sound clinical trials have been realized in order to test the effects of these techniques in many fields. Results indicate that relaxation training is effective in reducing anxiety in any kind of participants, male or female, young of old, affected or not by physical or psychological disorders. In conclusion, relaxation training proved to be a valid treatment option for many anxiety-related disorders and thus should be suggested to all people with anxiety-related complaints.

## References

- Aitken, J. R., & Benson, J. W. (1984). The Use of Relaxation Desensitization in Treating Anxiety Associated with Flying. *Aviation Space and Environmental Medicine*, 55(3), 196-199.
- APA (2000). *Diagnostic and Statistical Manual of Mental Disorders (4th ed.)*. Washington, DC: Psychologic Press.
- Arntz, A. (2003). Cognitive therapy versus applied relaxation as treatment of generalized anxiety disorder. *Behavior Research and Therapy*, 41(6), 633-646.
- Balon, R. (2006). Mood, anxiety, and physical illness: body and mind, or mind and body? *Depression and Anxiety*, 23(6), 377-387.
- Benson, H., & Klipper, M. Z. (1975). *The relaxation response*. New York: William Morrow and C.
- Castillo, R. P., Cremades, J. G., & Butcher, M. (2002). Relaxation techniques as a method to reduce re-injury anxiety in athletes. *Journal of Sport & Exercise Psychology*, 24, 42-42.
- Cheung, Y. L., Molassiotis, A., & Chang, A. M. (2001). A pilot study on the effect of progressive muscle relaxation training of patients after stoma surgery. *European Journal of Cancer Care (Engl)*, 10(2), 107-114.
- Clark, D. M., Ehlers, A., Hackmann, A., McManus, F., Fennell, M., Grey, N., et al. (2006). Cognitive therapy versus exposure and applied relaxation in social phobia: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 74(3), 568-578.
- Deckro, G. R., Ballinger, K. M., Hoyt, M., Wilcher, M., Dusek, J., Myers, P., et al. (2002). The evaluation of a mind/body intervention to reduce psychological distress and perceived stress in college students. *Journal of the American College Health*, 50(6), 281-287.
- Figueira, M. L., & Ouakinin, S. (2008). From psychosomatic to psychological medicine: what's the future? *Current Opinion in Psychiatry*, 21(4), 412-416.
- Kanji, N., White, A. R., & Ernst, E. (2004). Autogenic training reduces anxiety after coronary angioplasty: a randomized clinical trial. *American Heart Journal*, 147(3), E10.
- Krisanaprakornkit, T., Krisanaprakornkit, W., Piyavhatkul, N., & Laopaiboon, M. (2006). Meditation therapy for anxiety disorders. *Cochrane Database Syst Rev*(1), CD004998.
- Lamb, D. H., & Strand, K. H. (1980). The effect of a brief relaxation treatment for dental anxiety on measures of state and trait anxiety. *Journal of Clinical Psychology*, 36(1), 270-274.
- Le Boeuf, A. (1986). Relaxation-induced anxiety in an agoraphobic population. *Perceptual Motor Skills*, 62(3), 910.
- Levy, J. K. (1993). Standard and Alternative Adjunctive Treatments in Cardiac Rehabilitation. *Texas Heart Institute Journal*, 20, 198-212.
- Ludwig, D. S., & Kabat-Zinn, J. (2008). Mindfulness in medicine. *Jama*, 300(11), 1350-1352.
- Lundgren, J., Carlsson, S. G., & Berggren, U. (2006). Relaxation versus cognitive therapies for dental fear--a psychophysiological approach. *Health Psychology*, 25(3), 267-273.

- Manzoni, G. M., Pagnini, F., Castelnuovo, G., & Molinari, E. (2008). Relaxation training for anxiety: a ten-years systematic review with meta-analysis. *BMC Psychiatry*, 8, 41.
- McGlynn, F. D., Moore, P. M., Rose, M. P., & Lazarte, A. (1995). Effects of relaxation training on fear and arousal during in vivo exposure to a caged snake among DSM-III-R simple (snake) phobics. *Journal of Behavioral Therapy and Experimental Psychiatry*, 26(1), 1-8.
- Mishima, N., Goto, T., Kubota, S., & Nagata, S. (2005). Present conditions and problems of applying autogenic training to promote mental health in the workplace. *Journal of Psychosomatic Research*, 58(6), S18-S18.
- Molassiotis, A. (2000). A pilot study of the use of progressive muscle relaxation training in the management of post-chemotherapy nausea and vomiting. *European Journal of Cancer Care*, 9, 230-234.
- Muhlberger, A., Herrmann, M. J., Wiedemann, G. C., Ellgring, H., & Pauli, P. (2001). Repeated exposure of flight phobics to flights in virtual reality. *Behavior Research and Therapy*, 39(9), 1033-1050.
- Muller, J. E., Koen, L., & Stein, D. J. (2005). Anxiety and medical disorders. *Current Psychiatry Reports*, 7(4), 245-251.
- Murakami, M., Koike, K., Ashihara, M., Matsuno, T., Tazoe, M., & Katsura, T. (2006). Recent advance of autogenic training in clinical practice of psychosomatic medicine in Japan. *International Congress Series*, 1287, 240-245.
- Murphy, M. T., Michelson, L. K., Marchione, K., Marchione, N., & Testa, S. (1998). The role of self-directed in vivo exposure in combination with cognitive therapy, relaxation training, or therapist-assisted exposure in the treatment of panic disorder with agoraphobia. *Journal of Anxiety Disorders*, 12(2), 117-138.
- Nakao, M., Yano, E., Nomura, S., & Kuboki, T. (2003). Blood pressure-lowering effects of biofeedback treatment in hypertension: a meta-analysis of randomized controlled trials. *Hypertension Research*, 26(1), 37-46.
- Ost, L. G., & Breitholtz, E. (2000). Applied relaxation vs. cognitive therapy in the treatment of generalized anxiety disorder. *Behavior Research and Therapy*, 38(8), 777-790.
- Ost, L. G., & Westling, B. E. (1995). Applied relaxation vs cognitive behavior therapy in the treatment of panic disorder. *Behavior Research and Therapy*, 33(2), 145-158.
- Patel, C., Marmot, M. G., Terry, D. J., Carruthers, M., Hunt, B., & Patel, M. (1985). Trial of relaxation in reducing coronary risk: four year follow up. *British Medical Journal*, 290, 1103-1106.
- Rasid, Z. M., & Parish, T. S. (1998). The effects of two types of relaxation training on students' levels of anxiety. *Adolescence*, 33(129), 99-101.
- Rowa, K., & Antony, M. M. (2005). Psychological treatments for social phobia. *Canadian Journal of Psychiatry*, 50(6), 308-316.
- Roykulcharoen, V., & Good, M. (2004). Systematic relaxation to relieve postoperative pain. *Journal of Advanced Nursing*, 48(2), 140-148.

- Sanderson, K., Tilse, E., Nicholson, J., Oldenburg, B., & Graves, N. (2007). Which presenteeism measures are more sensitive to depression and anxiety? *Journal of Affective Disorders*, 101(1-3), 65-74.
- Somers, J. M., Goldner, E. M., Waraich, P., & Hsu, L. (2006). Prevalence and incidence studies of anxiety disorders: a systematic review of the literature. *Canadian Journal of Psychiatry*, 51(2), 100-113.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Wright, S., Courtney, U., & Crowther, D. (2002). A quantitative and qualitative pilot study of the perceived benefits of autogenic training for a group of people with cancer. *European Journal of Cancer Care (Engl)*, 11(2), 122-130.
- Yung, P. M., Fung, M. Y., Chan, T. M., & Lau, B. W. (2004). Relaxation training methods for nurse managers in Hong Kong: a controlled study. *International Journal of Mental Health Nursing*, 13(4), 255-261.
- Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavia*, 67(6), 361-370.

#### Author Contact Information

Pagnini Francesco, M.S.  
 Manzoni Gian Mauro, Psy.D.  
 Castelnuovo Gianluca, Ph.D.  
 Molinari Enrico, Ph.D.

---

## ADVERTISING IN THE INTERNATIONAL JOURNAL OF BEHAVIORAL CONSULTATION AND THERAPY

The prices for advertising in one issue are as follows:

**1/4 Page: \$50.00    1/2 Page: \$100.00 vertical or horizontal    Full Page: \$200.00**

**If you wish to run the same ad in multiple issues for the year, you are eligible for the following discount:**

**1/4 Pg.: \$40 - per issue**

**1/2 Pg.: \$75 - per issue -vertical or horizontal**

**Full Page: \$150.00-per issue**

**An additional one time layout/composition fee of \$25.00 is applicable**

**For more information, or place an ad, contact Halina Dziewolska by phone at (215) 462-6737 or e-mail at: [halinadz@hotmail.com](mailto:halinadz@hotmail.com)**