

## REVIEW

# Evaluation of the effect of autogenic training as psychological support to patients operated for cancer: a systematic review

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### ABSTRACT

**INTRODUCTION:** A systematic review of the international literature was carried out to analyze the current state of knowledge on the effects of autogenic training on cancer patients.

**EVIDENCE ACQUISITION:** We searched for relevant records in electronic databases (Web of Science, Cochrane Library, Pubmed and Scopus). In particular we have examined 187 publications and, after removing the duplicates, articles that were not pertinent (combining autogenic training with other technique, using other mind-body medicine technique, using mind-body medicine technique with other pathology) or not written in English, a total of 5 articles were included in this review.

**EVIDENCE SYNTHESIS:** Five papers reporting the results of independent studies were included: all studies reported beneficial effects on mental status (mood, stress, anxiety, and depression), two studies also reported an effect on the immune system.

**CONCLUSIONS:** Independent studies indicate that autogenic training is an effective way to improve the mental status of cancer patients.

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**KEY WORDS:** Autogenic training; Neoplasms; Anxiety; Depression; Mood disorders.

### Introduction

The American Cancer Society (ACS) in collaboration with the International Agency for Research on Cancer (IARC), in the year 2020 produced the report "Global Cancer Statistics 2020," according to which, one in 5 people in the world will develop cancer in his lifetime. This report was published in an article in the *A Cancer Journal for Clinicians*, where it also reports that in 2020 there were about 19.3 million new cases of cancer worldwide and about 10 million deaths from disease. US experts from the National Cancer Institute (NCI) say that cancer is also associated with mood disorders such as anxiety, stress, and depression, which can severely affect the quality of life of cancer patients and their families. These comorbidities can manifest themselves at different levels of intensity and at

any time in the history of the disease: from diagnosis to treatment and even after the clinical disappearance of the disease for fear of recurrence. Some symptoms, such as nausea and vomiting, difficulty sleeping and pain, can be caused by negative feelings, which in some patients can even cause treatment to be discontinued.<sup>1</sup> Many clinical studies have shown that mental health status can influence cancer prognosis and recurrence, which is why there is a growing interest for cancer patients in complementary and alternative medicine (CAM) for healing, well-being, and the reduction of psychological stress.<sup>2-6</sup> Studies have shown that autogenic training (AT) can reduce patients' anxiety in a variety of situations and the relaxation response appears to bring both physical and psychological benefits to patients.<sup>7-10</sup> For example, patients report that their hands and feet get warm, heart rate slows, and blood

pressure drops during TA. Autogenic training can be considered a “stress management” technique, that is a self-regulation technique based on psychophysiological principles: it represents one of the most widespread and applied relaxation techniques in behavioral therapy developed by Herinrich Schultz, a German neurologist, over the years between 1908 and 1912. With the term autogenic training he defined a method of self-relaxation and concentration that allows you to modify psychic and somatic situations through a series of exercises of passive psychic concentration, designed to progressively lead to the realization of spontaneous alterations in muscle tone, function vascular, cardiac, and pulmonary activity, autonomic balance and state of consciousness. This review analyzes works that have validated the efficacy of autogenic training in the treatment of anxiety, stress, and immunological responses in cancer patients.<sup>7-14</sup>

**Evidence acquisition**

**Search strategy**

To verify the use of the autogenic training in the treatment of cancer, a comprehensive literature search was conducted in electronic databases (Pubmed, Scopus, Web of Science and Cochrane Library), according to the PRISMA (Preferred Reporting Items for Systematic Review and Meta-analyses) guidelines,<sup>15</sup> without any restrictions with respect to the publication year (Figure 1). We researched studies published from 1930 to 2022; the chronological criterion that was used took into account the year in which the autogenic training was theorized by Schultz. The keywords used for the research were the following: “autogenic training” and “cancer” or “neoplasms” or “tumor.” All the studies that validated the exclusive use of autogenic training, restricted to articles written in English, were included in the review. Studies that used other techniques of mind-body medicine or the autogenic training combined with

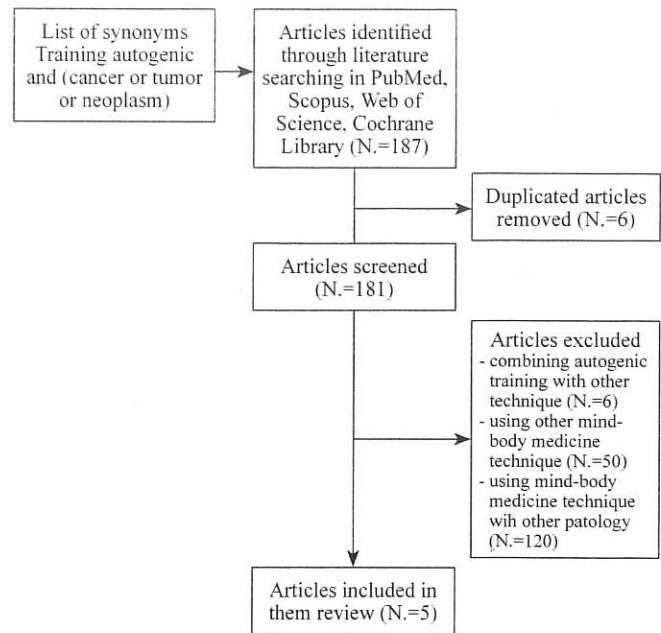


Figure 1.—Study selection flow chart according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

other techniques for the treatment of cancer patient, meta-analysis, case reports, letters to the editor and commentaries were excluded. The search yielded 187 articles, of which 6 were excluded for being duplicates. Two authors independently reviewed the remaining articles by first reading the titles and abstracts. Articles that were not pertinent (combining autogenic training with other technique, using other mind-body medicine technique) or not written in English were further excluded. A total of 5 articles were included in this review. Table I<sup>16-20</sup> reports the characteristics of the included studies: publication years, type of study, number of the patients included in each study, the country, the intervention details and the struments. In the study by Hilderley *et al.*, the effects determined by

TABLE I.—Characteristics of the included studied.

Author	Type of study	Country	Intervention details	Sample size (N)	Struments
Hilderley <i>et al.</i> <sup>16</sup>	Single-center, prospective	UK	2 months weekly	31	Hospital Anxiety and Depression Scale T and B cell markers
Wright <i>et al.</i> <sup>17</sup>	Single-center, prospective	Ireland	10 weeks weekly	35	Hospital Anxiety and Depression Scale
Minowa <i>et al.</i> <sup>18</sup>	Single-center, prospective	Japan	7 days	14	Levels of sIgA
Minowa <i>et al.</i> <sup>19</sup>	Single-center, prospective	Japan	3 times a day for 3 day after the operation	16	State Anxiety Inventory Visual Analogue Pain Scale
Marafante <i>et al.</i> <sup>20</sup>	Single-center; prospective	Italy	10 weekly	25	Hospital Anxiety and Depression Scale, Distress Thermometer, Facit Fatigue Scale

the use of autogenic training on a group of patients with early-stage cancer were examined, in particular they observed the effects obtained on stress-related behaviors and on the responses of the immune system. The study was conducted on 31 women with breast cancer, they were randomly divided into two groups. The first group received only one home check-up, while the second also received 2 months of weekly autogenic training. Both groups were given the hospital anxiety and depression scale to measure anxiety and depression, and T and B cell markers were measured to monitor changes in immune system responses. Women who also received TA sessions showed a strong improvement in HADS scores and an increase in immune responses.<sup>16</sup> The study by Wright *et al.* validated the use and effectiveness of autogenic training as a complementary therapy in a group of 35 patients. For this purpose, before and after a 10-week TA course, each participant was given a questionnaire on hospital anxiety and depression and on the profile of mood states. The results obtained showed a reduction in anxiety and an improvement in coping strategies and sleep quality.<sup>17</sup> Minowa *et al.* demonstrated the efficacy of autogenic training in two different studies. In the first study, they studied the effects of TA on salivary immunoglobulin A in 30 patients undergoing breast cancer surgery. The women were randomized into two groups; the AT group was trained for 7 days after surgery. In the latter group, compared to the control group, sIgA levels were significantly increased during postoperative days.<sup>18</sup> In the second study, they screened 60 patients diagnosed with breast cancer using the State Anxiety Inventory and the Visual Analogue Pain Scale; in addition, heart rate and any need for analgesic therapy were measured in all patients. The women were then randomized into two groups, one of which underwent 20 minutes of AT, three times a day within 3 days of surgery, while the control group received routine care. Postoperative evaluations showed a significant decrease in anxiety and pain in the AT group.<sup>19</sup> The study by Marafante *et al.*, validated the use of autogenic training on mood disorders and distress in cancer patients by enrolling 25 subjects who were administered a battery of tests (Hospital Anxiety and Depression Scale, Distress Thermometer and Facit Fatigue Scale) constructed to assess anxiety, depression and stress before the autogenic training sessions and after 10 weeks. The results showed a reduction in scores subsequent to the autogenic training sessions corroborating the benefits of the technique on mood disorders and distress in the aforementioned patients.

## Evidence synthesis

Theorized by Schultz in the 1930s, autogenic training arose from the scholar's observations of hypnotized patients in whom a total state of relaxation and abandonment was recorded and who claimed to feel a sense of heaviness and warmth in the body during practice. Schultz's intent, therefore, was to develop a technique capable of suggesting in the subjects such feelings of heaviness and warmth in order to achieve a consequent state of relaxation. Autogenic training is thus configured as a method of self-distension and concentration that allows for the modification of psychic and somatic situations through a series of passive psychic concentration exercises designed for the purpose of progressively bringing about the realization of spontaneous changes in muscle tone, vascular function, cardiac and pulmonary activity, neuro-vegetative balance and state of consciousness. This technique has been used in studies involving the most diverse areas: for anxiety reduction,<sup>21</sup> sleep disorders,<sup>22, 23</sup> to relieve chronic pain,<sup>24, 25</sup> in multiple sclerosis.<sup>26</sup> The aim of the review was to evipolate possible applications of the methodology for the treatment of patients with cancer with the goal of improving both physical and psychological symptoms associated with the oncological disease. The research showed that this methodology is still underutilized; other mind body medicine techniques such as hypnosis, Vogt's fractionated relaxation, and Jacobson's progressive muscle relaxation are more widely used, data that emerged from our first literature search. These data highlight how the use of such techniques can improve the management of cancer patients and bring physical and psychological benefits. Specifically, the papers analyzed in the review, demonstrate how the use of autogenic training can provide benefits on mood disorders related to cancer disease.<sup>21-24, 27-29</sup>

## Conclusions

The results of the present systematic review indicate that several independent studies reported a significant beneficial effect of AT on patients' mental status (depression, anxiety, and mood) as measured by relevant questionnaires. The results of this study are in line with the general principles of integrative medicine recently adopted in psycho-oncology studies. Modern psycho-oncology aims not only to improve a patient's mental state, but also to improve disease-related parameters, which might have an influence on recurrence and survival.

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*Conflicts of interest.*—The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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