



Effectiveness of autogenic training on headache: A systematic review

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ABSTRACT

Purpose: To investigate the impact of length of autogenic training (AT) use, alone and with the addition of adjunct treatments, on intensity and duration of primary headache in adults age 19 and older.

Methods: We searched articles published in English and Korean from 1926 to 2016. A search of seven domestic and foreign databases was conducted from September 25, 2016 to December 30, 2016 using the search terms “autogenic training,” “autogen,” “relaxation,” and “headache.” The search was documented according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The search yielded a total of 262 papers; a multi-step screening and selection process ultimately yielded six articles of randomized controlled trials (RCTs) for the systematic review. Cochrane's Risk of Bias Tool was used to evaluate the quality of the selected papers.

Results: Five of the six studies demonstrated statistically significant reduction in headache by AT-only or bio-feedback-assisted AT. The reviewed studies varied in characteristics of subjects, length of autogenic training and practice, use of adjunct therapies, and use of headache measures.

Conclusions: The small number of studies retrieved in this review, with their variations in AT interventions used, in AT training/practice time, and headache measures used, did not facilitate rigorous evaluation of the effectiveness of specific AT approaches nor of the optimum length of AT practice for reduction of headache. More research is needed on the effectiveness of AT-only for headache, the most effective duration of autogenic training and practice, and the type(s) of headache for which it is most effective.

1. Introduction

Headache is the most commonly encountered medical symptoms in everyday life.

According to the International Classification of Headache Disorders (ICHD), headache refers to the pain that occurs inside the head without a specific cause; the disorder is further divided into primary and secondary headaches.¹ Primary headaches include migraine, tension-type headache (TTH), trigeminal autonomic cephalalgias (TACs), and other primary headache disorders. Secondary headaches include headache attributed to a wide range of factors including trauma or injury, cranial or cervical vascular illness, non-vascular intracranial disease, substance use, exposure, or withdrawal, and infections.² Of headaches classified by the ICHD, TTH is described as very common; the general population has a reported lifetime prevalence ranging from 30% to 78%.³

When the cause of headache can be identified and successfully treated, the pain is likely to be relieved. However, the cause of primary headache may not be easily identified; in that case, the person with headache often seeks symptomatic relief. Pharmacological strategies for relief and prevention of headache are commonly used. Despite the usefulness of pharmacotherapy there may be an accompanying increase in potential for drug dependency and side effects.⁴ Therefore, non-pharmacological therapy, such as relaxation therapy, is a useful strategy for many people with headache.⁵

According to the literature, interest in psychological methods and self-control procedures for the treatment of headache is rapidly growing.⁶ Interest in autogenic training (AT) in particular is gaining attention. The term autogenic is a compound word composed of the Greek words autos, which mean self, and genos, which means to produce; therefore it indicated self-sustaining.^{7,8} AT is thus a method of

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learning to relax oneself by using the power of one's own mind.⁸

AT was first reported by the German psychiatrist Johannes Heinrich Schultz in 1926,⁷ and represents a relaxation method now widely researched and utilized in Europe. It is an established therapeutic method that uses set stages of suggestion to transition a high sympathetic arousal response to a low parasympathetic arousal response by relaxing the muscles of the body, and performing self-training, starting from the control of the body muscles and extending to the control of the circulatory system, the heart, respiration, and the abdomen.⁸ Individuals learning AT are taught a six-step sequence of AT (i.e., hands feel heavy; hands feel warm; breathing is comfortable; belly feels warm; forehead feels cool; and heart is beating calmly or and regularly). The patient's physiological responses to relaxation, including decreased muscle tension, lowered heart rate, blood pressure, and brain activity, and increased skin surface temperature, can be directly observed in the form of light or sound via a biofeedback instrument⁴ and can be manipulated to relieve headache. Physical effects of AT increase resistance to anxiety and stress due to cardiovascular disease, migraine, sleep disorders, hypertension, and psychological influences, suggesting extensive use for the technique.⁹ Because AT induces self-hypnosis, it reduces sympathetic activity and increases the ability to defend against disease.¹⁰ Relaxation therapies such as AT can even help to stabilize psychosis by reducing the activation of the sympathetic nervous system by altering the perception of stress.¹¹

AT has been found to be effective for headache.^{11–19} Frequency of use of analgesics and headache pills was found to decrease after starting AT; the occurrence of mixed headaches and tension headaches decreased after 1 month of AT use while occurrence of migraine was reduced after 3 months.^{18,19}

Variations exist in research reports of the effectiveness of AT, including length of the study period and use of adjuvant therapy.^{8,13–15,17,20} A previous systematic review of the impact of AT on tension headache in adults was performed. However, the risk of bias was high in that review because it included both controlled clinical trials (CCTs) as well as RCTs.²¹ Thus, a systematic review of published RCTs only was conducted to investigate the impact of length of AT use and addition of adjunct treatments on intensity and duration of primary headache.

2. Methods

2.1. The review question

The components of the review question (following the Populations, Intervention, Comparison, Outcome or PICO outline) were as follows:

- Population: The population of interest was adults age 19 years and older who experienced headache.
- Intervention: The intervention of interest was AT as instructed using a six-step training sequence (i.e., hands feel heavy; hands feel warm; breathing is comfortable; belly feels warm; forehead feels cool; and heart is beating calmly or and regularly). Training prompts may have been supplied by a coach/instructor or using devices such as an audio player.
- Comparative intervention (Comparison): Comparison interventions of interest included relaxation, medication, hypnotherapy, or no intervention.
- Outcome(s) of the intervention (Outcome): The studies that measured headaches as the consequence variable using various methods were selected to determine the effect of AT on adults. Outcomes of interest included self-reported headache scale scores and scores on headache indexes.

2.2. Data sources

The data search was performed during the interval from September

Table 1
Searching strategy.

No	Searching term
1	Autogenic training
2	Autogen*
3	#1 or #2
4	Relaxation
5	#3 and #4
6	Headache
7	#5 and #6

25 to December 30, 2016. We searched the data from January 1926 to December 2016. English- and Korean-language research papers published between January 1926 and December 2017 were sought. Databases searched were PubMed, CINAHL, and Cochrane Library. Additionally, Korean databases such as RISS (Research Information Sharing Service), KISS (Korean Studies Information Service System), DBpia (DataBase Periodical Information Academic), and NDSL (National Digital Science Library) were searched. The search formula used MeSH terms, test words linked with AND/OR, and a wildcard search appropriately applied. The main keywords used for the search were “autogenic training”, “autogen”, “relaxation”, and “headache.” Finally, the search was limited to reports of randomized controlled trials (RCT) (Table 1).

2.3. Study selection

A three-phase process of screening, title followed by abstract and then full text, was used to select suitable papers. Selection criteria were as follows: (1) RCTs investigating effects of AT on adult subjects age 19 and older with headache; (2) selection of the journal article if a journal article and a thesis for an academic degree reported the same study. Exclusion criteria were as follows: (1) studies not published in Korean or English; (2) studies that did not employ an appropriate experimental design, such as case studies. Reviewers independently screened retrieved papers for inclusion in the systematic review. Discrepancies in screening decisions were discussed with the goal of reaching an agreement at all three levels. If an agreement was not reached, the screening decision was reviewed by another independent reviewer.

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) schema was used to describe the step-by-step literature search and selection process in detail.

2.4. Data extraction

Criteria for data extraction from studies were adapted from the Cochrane Collaboration Handbook for Systematic Reviews. As depicted in the column headings in Table 2, the criteria relate to the first author (years), study design, number of subjects, headache type, intervention group, control group, follow up, main outcome measures and main results.

2.5. Risk of bias in individual studies

Cochrane's Risk of Bias Tool was used to evaluate the quality of the papers selected for inclusion. The Risk of Bias Tool is used to evaluate the risks of the following potential biases in each RCT: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome data, incomplete outcome data, selective reporting, and other biases (Fig. 3). The presence of these biases, rated as “low,” “unclear,” or “high” risk according to the Tool, threaten study validity. The Tool was used to generate a composite risk graphic (Fig. 2).

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