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Effects of Yoga on Seizure Frequency and Quality of Life for People with Refractory Epilepsy: A Systematic Literature Review

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Abstract

Introduction: Epilepsy is a common neurological disorder affecting almost 0.5% to 1% of the population.

People who have seizures more frequently have psychiatric disorders like anxiety, depression and low quality of life as compared with those with other chronic illness.

Yoga is an ancient Indian technique of promoting health through exercises, regulation of breathing, and meditation. Yoga may induce relaxation and stress reduction.

Method: We performed a systematic review of the literature. We searched the PubMed database (January 2019) for publications using the term “yoga” and “meditation” as keywords. The aim of this review was to evaluate the effects of yoga on seizure frequency and quality of life in patients with refractory epilepsy, comparing yoga with no treatment or different behavioural treatments.

Results: Electronic database search yielded 140 records, of which only 2 randomized controlled trials were selected for the metanalysis, recruiting a total of 50 participants. Results of the overall efficacy analysis showed that yoga treatment was better when compared with no intervention or with different behavioural treatments. No adverse effects with yoga treatment. The yoga group showed significant improvement in their quality of life according to the Satisfaction With Life Scale

Conclusions: Yoga would be a good therapeutic option for epilepsy, in add-on to common AEDs, in view of its non-pharmacological nature, minimal adverse effects and international acceptance. Further high-quality research and further trials are needed to fully evaluate the efficacy of yoga for refractory epilepsy.

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Introduction

Epilepsy is characterized by recurrent and unprovoked seizures, constituting a transient sign and symptom of abnormal, excessive electrical activity in the cerebral cortex. Epilepsy is on the most common serious neurological conditions worldwide, with significant psychological and psysical morbidity [13]. Stress is the most common self-reported seizure precipitant in multiple surveys and many people with epilepsy believe stress reduction improves seizure control [11].

Integrative, nonpharmacologic treatments may be a desiderable adjunct to medication in many people with epilepsy [12]. Non-pharmacological interventions include the following: Specialized diets, psychological interventions for example Cognitive-Behavioural Therapy (CBT), yoga, acupuncture, relaxation therapy [4].

Yoga is an ancient technique of promoting health through exercises, regulation of breathing, and meditation. Yoga started roughly 5,000 years ago in the Indian subcontinent as part of the Ayurvedic healing science [1]. There are various types of yoga involving postural exercises (anasas), breath control (pranayama) and meditation [8].

Yoga has therapeutic benefits not only for various mental disorders, but also for some physical diseases, most of which are related to mental factors or mental states, or are aggravated by stress [2].

Scientific literature has reported that yoga training alleviates stress [9], increases quality of life and decreases psychiatric problems for those who have epilepsy [6,7,14] and decreases seizure frequency stimulating the vagus nerve [3]. A recent analysis have documented that no reliable conclusions can be drawn regarding the efficacy of yoga as a treatment for uncontrolled epilepsy, in view of methodological deficiencies such as limited number of studies and limited number of participants randomised to yoga [8].

The aim of this review was to evaluate whether uncontrolled epileptic patients treated with yoga have a significant reduction in the seizure frequency (number of seizures per month) and improve quality of life, comparing yoga with no treatment or different behavioural treatment.

Methods

We performed a systematic review of the literature, reporting the efficacy of yoga treatment for people of all age and both genders with all types of epilepsy, and with seizures uncontrolled with one or more AEDs (drug-resistant epilepsy).

We searched the PubMed database for articles in English (January 2019), using the terms ‘‘yoga and meditation’’ as keywords. We searched the reference lists of identified papers and articles were also identified through searches of the authors own files. Cross-references were used for search completion. We selected all full-text published articles. Abstracts and unpublished articles were excluded. Two authors (MP and MS) independently assessed cases for inclusion. Any disagreements were resolved by discussion with a third author (AR).

Results

The search revealed 140 records identified from the databases in Electronic searches and 66 records remained after duplicates and irrelevant articles were removed. 39 full-text articles were excluded for the following reasons: 16 studies were not randomised trials; 6 studies did not study an eligible population; 10 studies did not an yoga intervention; 7 studies because insufficient information was available. Two studies were identified as ongoing study. Two studies were included in the review and in meta-analyses (Figure 1).

Lundgren et al. [5], a single centre trial, randomised 18 subjects (12 males and 6 females), aged 18 to 55 years (mean age 23.8 ± 2.7) with uncontrolled epilepsy and had two treatment arms: Yoga (8 patients) and ACT (10 patients). Panjwani et al. [10], another single centre trial, randomised 32 subjects (2 males and 30 females) aged 15 to 35 years (mean age 22.7 ± 2.6) with drug-resistant epilepsy to one of three treatment arms: Sahaja yoga (10 patients); exercises mimicking sahaja yoga (10 patients); and control group without any intervention (12 patients). Baseline phase lasted 3 months in both studies and treatment phase from 5 weeks to 6 months in the two trials.

Our population consisted of 50 participants (18 treated with yoga and 32 to control investigations), 14 males and 36 females, with a mean age of 23.2 years (range 15-55 years).

Overall, the two studies were rated as: Unclear risk of bias (no details of concealment of allocation), high risk of bias (participants, yoga instructor and outcome assessors were not blinded), and low risk of bias (all participant were included in the analysis; all expected and pre-expected outcomes were reported).

In Lundgren study the authors reported that there was no significant difference between the yoga and ACT groups in 50% or greater reduction in seizure frequency or seizure duration at one year follow-up. The yoga group showed significant improvement in their quality of life according to the Satisfaction with Life Scale ($p<0.01$). In Panjwani study the authors reported that the differences were found to be statistically significant between the groups for seizure frequency ($p<0.05$). No data were available regarding quality of life. Both trials showed no adverse effects with yoga treatment (Table 1).

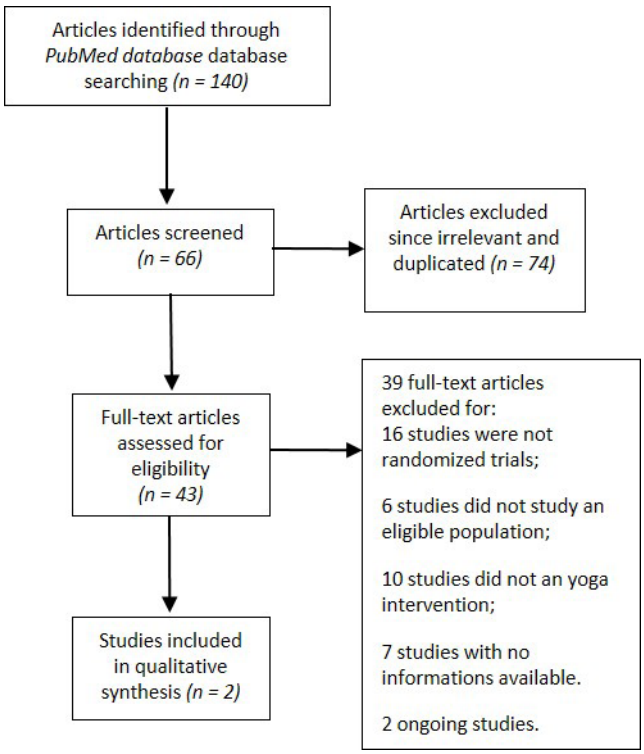

Figure 1: Flow diagram of systematic review

Table 1: Summary of findings of included studies.

Lundgren 2008	Yoga (n=8)	Acceptance and Commitment Therapy (ACT) *(n=10)*
Mean age (years)	25.8	21.9
Gender	M = 5, F = 3	M = 7, F = 3
50% or greater reduction in seizure frequency	7/8 (88%)	9/10 (90%)
Adverse effects	0	0

Panajwani 1996	Yoga (n=10)	Mimicking exercises *(n=10)*	Control group (n=12)
Mean age (years)	24.6	23.7	19.7
Gender	M = 1, F = 9	M = 1, F = 9	M = 0, F = 12
50% or greater reduction in seizure frequency	9/10 (90%)	1/10 (10%)	0/12 (0%)
Adverse effects	0	0	0

Conclusions

Yoga treatment can reduce seizure frequency when compared with no intervention or with other behavioural treatments, like postural exercises and mimicking exercises, but no significant difference between yoga and ACT. In fact, analysis of 50 subjects with epilepsy from 2 trials have revealed beneficial effect in control of seizures. Moreover, yoga can improve the quality of life.

The major limitation of this systematic review was inadequate sample size. So further research is needed to evaluate the efficacy of yoga in epilepsy.

At present yoga can be considered an attractive therapeutic option for epilepsy, in add-on to common AEDs, in view of its non-pharmacological nature, minimal adverse effects and international acceptance.

Declaration of interest

Dr Panebianco declares that has no conflict of interest related to the content of this article. The author certify that she has no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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