Exercise and premenstrual symptomatology: a comprehensive review

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CRD summary
The author concluded that there was a paucity of evidence on the effects of exercise on premenstrual symptomatology and that further research was required. In light of the small number of included studies and their poor methodological quality, the author's caution is justified.

Authors' objectives
To assess the impact of exercise on premenstrual symptomatology (PMS).

Searching
MEDLINE, EMBASE, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL) SPORTDicus, Cochrane Menstrual Disorders and Subfertility Group Trials Register, Social Science Citation Index and PsycINFO were searched from inception to April 2008. Bibliographies of retrieved studies were handsearched. Search terms were reported. Only English-language articles published in peer-reviewed journals were eligible for inclusion.

Study selection
Experimental studies that assessed the impact of exercise or non-exercise physical activity on occurrence and/or severity of PMS were eligible for inclusion. Studies that did not distinguish between menstrual symptoms and menstrual pain were excluded.

Included studies assessed the impact of running programmes, strength training, aerobic exercise or moderate intensity exercise programmes on premenstrual symptoms or distress as measured by questionnaires or symptom diaries. Duration of interventions ranged from 12 weeks to six months. In most studies, participants were healthy sedentary women. In one study, most participants met criteria for late luteal phase dysphoric disorder. Participant ages ranged from 24 years to 55 years. One study was of premenopausal women aged 45 or more.

The authors did not state how the studies were selected for the review.

Assessment of study quality
The authors did not state that they assessed methodological quality of included studies.

Data extraction
The authors did not state how data were extracted for the review.

Methods of synthesis
Studies were combined in a narrative synthesis.

Results of the review
Four studies were included for review (n=64): one randomised trial (n=23); two non-randomised controlled trials that assessed the same intervention participants (n=27); and one pre-post study (n=14).

One randomised trial compared strength training and aerobic exercise. Aerobic exercise, but not strength training, significantly reduced PMS compared to pre-intervention levels (no statistical data provided; n=23). Between-group differences were not reported.

Two non-randomised controlled trials evaluated the impact of a running programme on PMS in the same group of healthy women at three months and six months. At three months the intervention group had significantly less breast tenderness and fluid retention than women with insulin-dependent diabetes who remained sedentary (no statistical data reported; n=14). There were no differences between the groups on other PMS symptoms. At six months, there was a significant decrease in PMS symptoms within the running programme and marathon-training groups (no statistical data reported).
were provided). Between-group differences were not reported for this study.

One pre-post study reported a significant improvement in premenstrual distress scale scores at follow up (no statistical data provided; n=14).

**Authors' conclusions**
There was a paucity of evidence on the effects of exercise on PMS. Further research was required.

**CRD commentary**
The review addressed a clear question with well-defined (although broad) inclusion criteria. Several relevant databases were searched. However, the restriction to peer-reviewed articles published in English introduced risk of publication and language biases. It was unclear whether appropriate steps were taken during the review process to minimise risk of reviewer error and bias. No validity assessment was carried out. Studies appeared to be of low quality. In particular, one study compared healthy participants in the intervention group with patients with a chronic illness in the control group, which seriously undermined reliability of the results. The decision to combine studies in a narrative synthesis was appropriate given the range of study designs. However, the absence of statistical data and findings for between-group analyses made it difficult for readers to ascertain the quality of included studies for themselves. In light of the small number of included studies and their poor methodological quality, the author's caution is justified

**Implications of the review for practice and research**
**Practice:** The authors did not state any recommendations for practice.

**Research:** The author stated that further research was needed to assess changing ovulation status, cycle length and hormonal levels over the course of the study in order to evaluate the differential impact of the intervention from physiological and/or hormonal changes.

**Funding**
Not stated.

**Bibliographic details**

**PubMedID**
19514832

**DOI**
10.1089/jwh.2008.1098

**Original Paper URL**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adult; Clinical Trials as Topic; Exercise /physiology; Female; Health Behavior; Health Promotion /methods; Humans; Premenstrual Syndrome /complications /prevention & control; Quality of Life; Self Care /methods; Stress, Psychological /etiology /prevention & control; Women's Health

**AccessionNumber**
12009107274
Date bibliographic record published
16/12/2009

Date abstract record published
12/05/2010

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.