The association between physical activity and depressive symptoms in young women: a review
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CRD summary
The review concluded that physical activity improved depressive symptoms in women suffering from depression. Although the authors' cautious conclusions reflect the limited evidence presented, their review had numerous methodological limitations making the reliability of these conclusions uncertain.

Authors' objectives
To examine the association between physical activity and depressive symptoms and the effects of physical activity interventions on depression among young women. This abstract only focuses on the efficacy of physical activity interventions.

Searching
PubMed, SPORTDiscus, PsycINFO, CINAHL, the Cochrane Library and PsycARTICLES were searched up to March 2008 for articles published in English; search terms were reported. References of identified articles were checked.

Study selection
Studies of 30 or more women, aged from 18 to 35 years old, in which physical activity or exercise was the predictor or manipulated variable were eligible for inclusion. Studies of mixed gender were included if separate results were reported for women, as were both healthy adults and those experiencing depressive symptoms or clinical depression.

Included interventions were aerobic exercise (unspecified), running, weight lifting, and a stretching program; these were performed in groups, individually or under supervision. Control groups received no-intervention, waiting list care, placebo progressive muscle relaxation program, or usual daily activity. Duration (six weeks to three months) and frequency (two to five sessions a week for between 15 minutes and one hour) of intervention varied across studies. Follow-up assessments of depressive symptoms beyond the cessation of the intervention period were carried out in only one study (12 months). Most of the included studies involved university students, although one study included first time mothers and another recruited participants through the media. Studies included participants who had depressive symptoms (assessed by self-report questionnaires), participants who were clinically depressed (diagnosed by health professional), as well as non-clinical samples. A number of different instruments were used to measure depression/depressive symptoms including Beck Depression Inventory, Centre for Epidemiologic Studies Depression Scale, and Edinburgh Postnatal Depression Scale.

The authors did not report how many reviewers performed the study selection.

Assessment of study quality
The authors did not report that they assessed study quality.

Data extraction
Effect sizes (ES) were calculated and reduction in depression scores and p-values were extracted for each study where possible.

The authors did not report how many reviewers performed the data extraction.

Methods of synthesis
Studies were combined in a narrative synthesis.

Results of the review
Five intervention studies were included in the review (n=276 participants).

All five studies found that physical activity was beneficial in reducing depressive symptoms among young women (ES range 0.27 to 1.3).

One study, (n=40) involving participants with clinical depression, found a significant reduction in depressive symptoms among depressed women at post-intervention (running and weight lifting programs, p<0.05), with no significant change from baseline found in the control group; at seven months 75% of the running group and 80% of the weight lifting group were considered to be 'non-depressed'.

In a study of first-time mothers, a reduction in postnatal depressive symptoms from baseline was found in both the intervention (stretching program) and control groups (p<0.001), with the intervention program demonstrating a significantly greater reduction that the control group (p<0.01).

**Authors' conclusions**

Physical activity improved depressive symptoms in women suffering from depression. However, given the relatively small number of studies and methodological limitations, these findings should be interpreted somewhat cautiously.

**CRD commentary**

The review question was supported by broad inclusion criteria. Although several databases were searched, no specific attempt was made to locate grey literature and the literature search was restricted by language (English); so relevant studies may have been missed, raising the possibility of publication or language bias. The authors did not report whether appropriate methods were used to minimise the likelihood of error or bias in the selection of studies or data extraction.

The quality of the included studies was not formally assessed, so the reliability of the results was unclear. Confidence intervals were not presented with effect sizes, which made it more difficult to interpret results. As highlighted by the authors, the evidence base was small and most of the population assessed were university students, which limited generalisability. In addition, most studies only considered short-term effects.

Although the authors' cautious conclusions reflect the limited evidence presented, their review had numerous methodological limitations making the reliability of these conclusions uncertain.

**Implications of the review for practice and research**

**Practice**: The authors did not state any implications for practice.

**Research**: The authors stated that further research, including prospective and intervention studies, are required using validated and objective measures of physical activity in young women. Research on the impact of different domains, types and intensities, for example the effect of low to moderate intensity exercise on depressive symptoms and whether young women are more likely to engage in this type of physical activity is required/ in addition to the most effective way of promoting appropriate types of physical exercise.

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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.