Cardiometabolic effects of physical activity interventions for people with schizophrenia

CRD summary
The review concluded that there was evidence that physical activity with or without diet counselling was effective in reducing weight and improving obesity related cardiometabolic outcomes in participants with schizophrenia. The review had some methodological problems and the authors’ conclusions may be disproportionately positive given these limitations, but the call for further research appears warranted.

Authors’ objectives
To assess the evidence of the impact of physical activity, with or without diet counselling, on cardiometabolic parameters in individuals with schizophrenia.

Searching
PubMed, EMBASE, PEDro, DARE, ProQuest Dissertations and Theses, PsycINFO, Cochrane Central Register of Controlled Trials (CENTRAL) and SPORTDiscus were searched from 2003 to August 2009 for peer-reviewed articles published in English. Search terms were reported. Reference lists of selected papers were searched and citation tracking was used.

Study selection
Studies conducted in patients with schizophrenia or schizophrenia-spectrum disorders that studied physical activity interventions alone or in combination with diet and counselling were eligible for inclusion. Studies had to report on at least one cardiometabolic parameter and the physical activity intervention had to account for at least 50% of the intervention. Studies in patients with depression were excluded.

The included studies examined physical activity interventions that ranged in duration from 10 to 14 sessions to 52 weeks. Interventions were predominantly aerobic in nature (cycling, walking, swimming). Frequency of intervention ranged form once weekly to every day. Pge of participant age ranged from 15 to 65 years. The studies mostly included patients with chronic schizophrenia who were either in-patients or outpatients. The reported outcomes included cardiovascular fitness, obesity, hypertension, hyperglycaemia, insulin resistance and dyslipidemia.

The authors did not state how many reviewers were involved in study selection.

Assessment of study quality
Studies were assessed according to the Downs’ and Black checklist of 27 quality factors (maximum score of 32).

Quality assessment was independently undertaken by two reviewers and disagreements were resolved by discussion.

Data extraction
Data were extracted on cardiometabolic outcomes, compliance outcomes and cost outcomes.

The authors did not state how many reviewers were involved in data extraction.

Methods of synthesis
Studies were narratively synthesised and grouped according to outcomes reported.

Results of the review
Thirteen studies were included in the review (n=810): six randomised controlled trials; six quasi-experimental studies; and one case series. Study sample size ranged from six to 232 participants. Study quality ranged from 20 out of 32 to 31 out of 32. The main quality problems were lack of blinding, lack of intention-to treat analysis, possible selection bias.
and limited sample size.

Physical activity with or without diet counselling resulted in modest weight loss (2.2% to 10%) in people with schizophrenia. Physical activity with or without diet counselling was also associated with reductions in blood pressure, stable or decreased lipid levels and increased cardiovascular fitness. Motivational strategies were found to aid compliance and persistence with physical activity.

Authors' conclusions
There was evidence that physical activity with or without diet counselling was effective in reducing weight and improving obesity related cardiometabolic outcomes in participants with schizophrenia.

CRD commentary
Inclusion criteria for the review were clearly defined. Several relevant databases were searched. There was potential for publication and language biases, as only published English-language articles were included; publication bias was not assessed. The authors attempted to minimise reviewer error and bias during quality assessment; it was unclear whether they did so for data extraction and study selection. Quality assessment was based on a standard checklist and indicated variable quality of the included studies. Several studies had small sample sizes and potential for biases, which the authors acknowledged. Studies were narratively synthesised, which given the type of data appeared appropriate.

The review had some methodological problems and the authors’ conclusions may be disproportionately positive given these limitations, but the call for further research appears warranted.

Implications of the review for practice and research
Practice: The authors stated that physical activity should be tailored to the individual to help improve compliance.

Research: The authors stated that future research needed to determine what factors and outcomes were influenced by the type, duration and intensity of a physical activity programme in participants with schizophrenia. Research was needed to address how smoking, diet and substance abuse affected physical activity interventions and how the duration of illness and patient characteristics affected physical activity interventions. Well-designed comparative studies of different physical activity interventions against each other were recommended. Longer-term studies and cost-effectiveness studies were needed.

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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.