

This section features a recent systematic review that is indexed on PEDro, the Physiotherapy Evidence Database ([www.pedro.org.au](http://www.pedro.org.au)). PEDro is a free, web-based database of evidence relevant to physiotherapy.

## Physiotherapy improves eating disorders and quality of life in bulimia and anorexia nervosa

► **Vancampfort D, Vanderlinden J, de Hert M, et al.** A systematic review of physical therapy interventions for patients with anorexia and bulimia nervosa. *Disabil Rehabil* 2014;**36**:628–34.

### BACKGROUND

Bulimia and anorexia nervosa are the main diagnostic categories of eating disorders,<sup>1</sup> affecting up to 1.5% of people in the USA at any one time.<sup>2</sup> Both conditions are associated with physical (eg, reduced body mass index, percentage of body fat) and psychosocial (eg, depression, anxiety, quality of life) impairments,<sup>3</sup> as well as high risk of death.<sup>4</sup> Anorexia nervosa is specifically characterised by an excessive exercise engagement with fear of weight gain and aversion of fat, whereas people with bulimia nervosa present with binge eating and purging. These eating disorders are considered one of the most challenging psychiatric conditions to treat,<sup>5</sup> and treatment usually comprises of cognitive-behavioural therapy and pharmacological management.<sup>6,7</sup> Exercise is usually not recommended for patients with these conditions, mainly due to the belief that it might aggravate the progress of the disorder.<sup>1</sup> However, there is evidence that exercise increases body mass index and reduce depression in people with binge eating.<sup>8</sup> What is uncertain is whether physiotherapy interventions are effective in treating bulimia and anorexia nervosa.

### AIM

The aim of this systematic review was to investigate the effectiveness of physiotherapy interventions versus usual care or waitlist in patients with anorexia and bulimia nervosa.

### SEARCHES AND INCLUSION CRITERIA

Systematic searches were conducted on EMBASE, PsycINFO, PubMed, CINAHL, Physiotherapy Evidence Database (PEDro) and Cochrane Library from their inception to February 2013. The search strategy included relevant terms related to anorexia and bulimia, and also to physiotherapy interventions. No restrictions were applied in terms of language and publication date. Hand search of included references was also performed. Unpublished research was searched from relevant sources including web sites, theses or dissertations. Studies were included if they: (1) were randomised controlled trials, (2) included patients with a diagnosis of anorexia nervosa or bulimia nervosa and (3) assessed pre-specified physiotherapy interventions. The screening of titles and abstract was performed by two independent reviewers, and disagreements were resolved by discussion.

### INTERVENTIONS

Eligible physiotherapy interventions included aerobic exercises, resistance training, relaxation training, basic body awareness therapy, yoga, massage or a combination of these. To be eligible,

these approaches needed to be compared to either usual care (eg, hospitalisation, community psychiatric nursing support, outpatient care) or a waitlist.

### MAIN OUTCOME MEASURES

Outcome measures included in the review were: eating disorders (eg, frequency of binge eating or vomiting per week), anthropometric (eg, body mass index, percentage of body fat) or psychosocial (eg, quality of life, anxiety, depression) variables.

### STATISTICAL METHODS

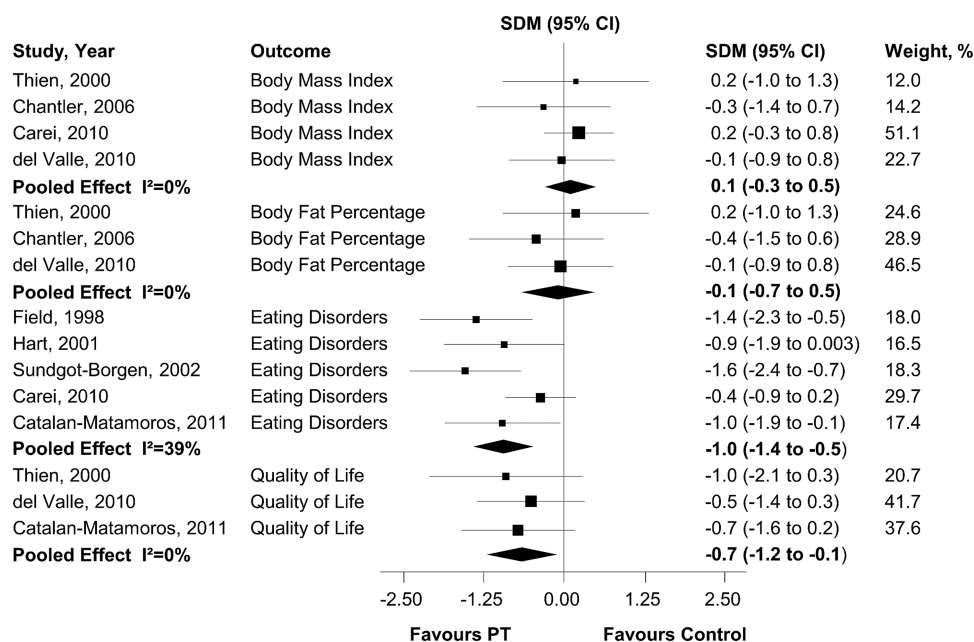
No pooling was conducted by the authors and effect sizes of individual trials were not reported. A summary of the evidence was qualitatively presented for individual studies. The Jadad scale (range 0–5) was used for methodological quality assessment of included trials, and was conducted by two independent reviewers.<sup>9</sup> Disagreements were resolved by consensus or by a third reviewer. Trials received one point for each description of randomisation, double binding and dropouts. Additional points were given if the methods of randomisation and blinding were appropriate. Trials with scores  $\geq 3$  were considered of high methodological quality.

For the purpose of this update, we have extracted sample sizes, means (change scores or post scores) and SDs of all trials included in the review and presented treatment effects (standardised mean difference (SMD)) and 95% CIs. Pooling of trials was performed using a random-effects model (negative estimates favours physiotherapy interventions) for the outcomes: body mass index, body fat percentage, eating disorders and quality of life. All analyses were performed using Comprehensive Meta-Analysis V2.02.

### RESULTS

Eight randomised controlled trials were included yielding a total of 227 participants with eating disorders. Half of this population was diagnosed with bulimia nervosa and 42% with anorexia nervosa. A formal diagnosis was not reported for the remaining participants. Only three of the included trials were of high methodological quality. Main methodological flaws were small sample sizes, lack of blinding and lack of allocation concealment. In the original review the authors report that physiotherapy interventions are effective in reducing eating disorder outcomes, body mass index, body fat percentage, and depressive and anxiety symptoms, but do not present the size of treatment effects. This classification based on p values only limits the reader's interpretation of the results and ignores the fact that some of the treatment effects might be too small to be of clinical significance. After extracting data from individual studies and calculating treatment effects, we present different conclusions (figure 1).

Pooling of five trials showed that physiotherapy interventions have a significant and large effect on eating disorder outcomes when compared to usual care or waitlist (SMD = -1.0, 95% CI -1.4 to -0.5,  $I^2=39\%$ ). An individual trial also reports that exercise can significantly reduce the frequency of binge eating per week when compared with cognitive behaviour therapy (SMD = -0.8, 95% CI -1.6 to -0.04), although no differences were found for number of vomiting events per week (SMD = -0.1, 95% CI -0.9 to 0.6). For psychosocial outcomes, pooling of three trials showed a significant and moderate improvement in quality of life associated with physiotherapy intervention (SMD = -0.7, 95% CI -1.2 to -0.1,  $I^2=0\%$ ). However, no between-group differences were found for depression (SMD = -0.1, 95% CI -0.6 to 0.5) or anxiety (SMD = -0.3, 95% CI -0.8 to 0.3). Likewise, pooling of four studies examining body



**Figure 1** SMDs and 95% CIs of physiotherapy interventions versus usual care or waitlist. SMD, standardised mean differences; PT, physiotherapy; control, usual care or waitlist.

mass index revealed no differences between treatment groups (SMD=0.1, 95% CI -0.3 to 0.5, I<sup>2</sup>=0%). No between-group differences were found for reduction in body fat percentage when physiotherapy was compared to usual care or no treatment (three studies, SMD=-0.1, 95% CI -0.7 to 0.5, I<sup>2</sup>=0%).

**LIMITATIONS**

Most studies included in the review were of low methodological quality, with the main flaws being failure to report concealed allocation and blinding. Moreover, sample sizes in all trials were small and only 227 participants were investigated across the eight included trials. Although reporting of data among studies was poor, and the original review did not report effect sizes, it was possible to extract sufficient data to calculate treatment effects and conduct pooled analyses. Quantitative analysis is very important to summarise evidence in systematic reviews and this update revealed different conclusions when compared to the original review. Although there was a significant variation in type of interventions, as well as treatment dosage across included trials, these have not prevented pooling of studies, as analyses showed small between-trial heterogeneity (I<sup>2</sup><39%).

**CLINICAL IMPLICATIONS**

The systematic review highlights the importance of physiotherapy in the management of bulimia and anorexia nervosa. The results of this update showed that physiotherapy interventions result in a significant and large reduction of eating disorder outcomes and a significant and moderate improvement in the quality of life of patients with anorexia and bulimia nervosa. No benefits were observed in terms of body fat or body mass index reduction, or reduced symptoms of depression or anxiety. This report shows the importance of using quantitative approaches in systematic reviews as readers are able to decide whether the size of the benefits offered by an intervention are big enough to outweigh its costs, risks and inconveniences. Owing to the lack of evidence, the optimal therapeutic dose of physiotherapy interventions for these conditions remains uncertain. More of high-quality randomised trials are needed.

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