

A systematic review of the effectiveness of weight loss programs for patients with non-specific low back pain

Luciana Macedo, Kirsten Weber, Saba Mehrabkhani,
Sarmina Baskaram, Thomas Abbass

School of Rehabilitation Science, McMaster University
macedol@mcmaster.ca

Background

- There is a large number of studies suggesting that high BMI or obesity are risk factor for spine degeneration and low back pain.
- Weight loss is often suggested by researchers and clinicians as an important component of management strategies in low back pain.
- There is a lack of information on the role of weight loss interventions in mitigating the negative consequences of low back pain.

Aim

The objective of this study was to systematically review studies evaluating the effectiveness of weight loss programs in decreasing pain, disability and increasing function and quality of life in patients with chronic non specific low back pain.

Methods

- Relevant studies were searched on MEDLINE, EMBASE, CINAHL, and OVID PsycINFO).
- Given the scarcity of high quality randomized controlled trials, other less rigorous designs such as quasi randomized controlled trials and quasi-experimental designs were eligible for inclusion.
- Studies had to include patients with chronic non specific low back pain (>12 weeks), evaluate a weight loss program and use outcomes of pain, function, disability or quality of life

Results

- There were no eligible RCTs for inclusion
- A total of 5 pre-test post-test studies were eligible for inclusion
 - Most studies did not use a clear back pain diagnosis description
 - 5 pre-test post test

Bariatric surgery (4 studies , 188 patients)

- There is very low-quality evidence from 4 pre-test post-test studies that bariatric surgery decreases pain in the short term.
- All four studies evaluating bariatric surgery demonstrated that weight loss was associated with a decrease in pain in the short term (Mean difference from -1.3 to -3.4 VAS on a 0-10 point scale).
- The results of these studies suggest that the benefits of bariatric surgery are not maintained in the long term, likely due to a subsequent observed increase in body weight

Non-surgical multidisciplinary interventions (1 study, 46 patients)

- There is very low-quality evidence for a single one arm study that a multidisciplinary intervention decreases pain at intermediate term only (MD = -1.6, 95% CI = -2.6 to -0.6) but this change is not likely clinically significant.

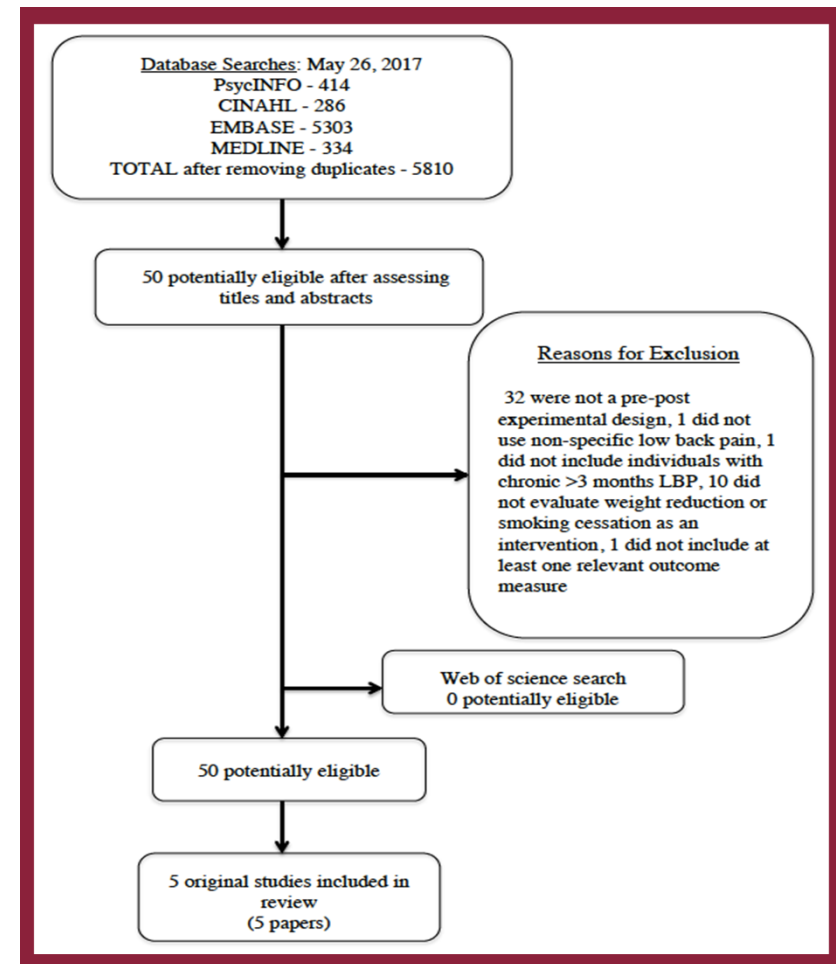


Table 1: Pain results

Study	Type of Exposure	Effect on Pain		
		Outcome	Results (Mean Difference, 95% CI)	P-Value
Lidar et al. 2012	Bariatric surgery for weight reduction	VAS (T0 – T12mo)	MD= -4.4, 95% CI -7 to -1.7	< 0.001
McGoey et al 1990	Vertical banded gastroplasty	Standardized pain questionnaire (T0 – T24mo)	Reduction in participants experiencing pain from 62% preoperatively to 11% postoperatively	
Melissas et al. 2005	Bariatric surgery weight loss	VAS (T0 – T24mo)	MD= -1.3, 95% CI -2 to -0.6	<0.001
		VAS pain at its worst pain (T0 – T24mo)	MD = -3.4, 95% CI -4.4 to -2.4	<0.001
		VAS pain at its best pain (T0 – T24mo)	MD = -0.7, 95% CI -1.8 to -0.4	<0.001
Vincent et al. 2011	Bariatric procedure	NRS (T0 – T3mo)	MD = -2.3, 95% CI -4.2 to -0.4	<.05
Roffey et al. 2011	Nonsurgical weight loss program	NRS (T0 – T14wks)	MD = -1.6, 95% CI -2.6 to -0.6	=.001
		NRS (T0 – T12mo)	MD = -0.7, 95% CI -1.8 to 0.4	= .07

Table 2: Disability results

Study	Type of Exposure	Effect on Disability		
		Outcome	Results (Mean Difference, 95% CI)	P-Value
Melissas et al. 2005	Bariatric surgery weight loss	RMDQ (T0 – T24mo)	MD= -6.0, 95% CI -8 to -4	<0.001
		OSWD (T0 – T24mo)	MD= -15.6, 95% CI -21.9 to -9.3	<0.001
		Waddell Disability Index (T0 – T24mo)	MD= -2.3, 95% CI -2.8 to -1.7	<0.001
Roffey et al. 2011	Nonsurgical weight loss program	ODI (T0 – T14wks)	MD = -8.4, 95%CI -16.2 to -.06	<.0005
		ODI (T0 – T12mo)	MD = -4.8, 95%CI -13.7 to -.06	=.0009

Conclusion

- Results suggest that weight loss on significantly obese individuals undergoing bariatric surgery may be effective in reducing pain and disability in patients with non-specific or recurrent LBP in the short term.
- A multidisciplinary intervention in overweight individuals may also be effective in reducing pain and disability although there are questions regarding a clinical significance.
- Definitive conclusions cannot be drawn due to lack of high quality randomized controlled trials.
- Clinicians should be cautious when instructing patients on the benefits of weight loss on LBP specially when considering those that are overweight and not obese.