



Cassandre A. Julien^{1,2}, Kim L. Lavoie^{1,2}, Paula Ribeiro¹, Anda I. Dragomir^{1,2}, Li Anne Mercier^{1,2}, Simon L. Bacon^{1,3} for the REBORN investigators

¹ Montreal Behavioural Medicine Centre (MBMC), CIUSSS du Nord-de-l'île-de-Montréal; ² Université du Québec à Montréal; ³ Université Concordia, Montréal, Canada

INTRODUCTION:

- Bariatric surgery leads to **substantial clinical improvements** in patients with severe obesity (body mass index [BMI] ≥ 40)
- However, **variability in weight loss (WL) and maintenance is high**
 - Insufficient WL in ¼ patients in first yr post-surgery
 - ≥ 50% patients regain weight within 2 yrs post-surgery
- There is a **lack of evidence-based data** to inform the usage of adjunct behavioural weight management (BWM) interventions to bariatric surgery

AIMS AND HYPOTHESIS:

- Evaluate the efficacy of BWM interventions in bariatric surgery;
- Provide further evidence on the timing of the most efficacious interventions

METHODS:

- Population: Adults (≥18 yrs) undergoing or having undergone bariatric surgery
- Intervention: Any pre and/or post-operative BWM interventions
- Comparator: usual and standard care interventions, wait-list and no-intervention controls, attention placebo
- Outcomes: Any clinical and/or adiposity measure of change
 - Meta-analysis focused on **weight and BMI**
- Study design: Randomised controlled trials (RCTs), non-randomised controlled trials and controlled before and after studies (CBA)

CHARACTERISTICS OF INCLUDED TRIALS:

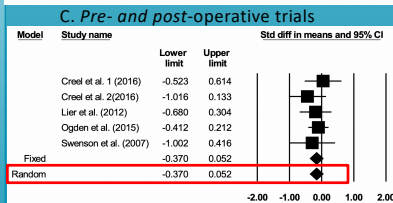
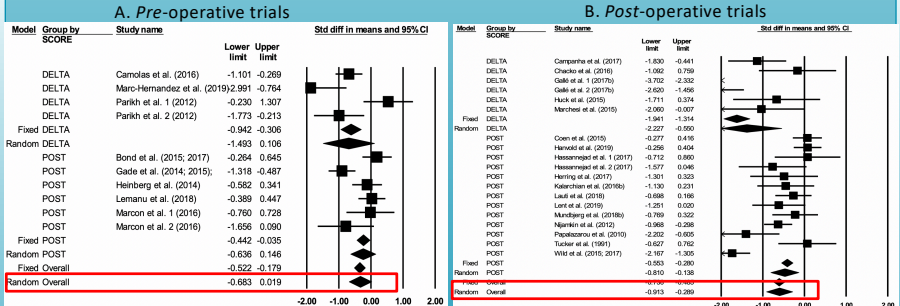
Participant ^a and Study Characteristics	Mean (SD) or n (%)
Total sample (Mean[SD] 81.1 [53.1]; Range 15–240)	2919
Age (Range 32–52.5 yrs) ^a	43 (4.8)
N Women (Range 12–208) ^a	2298 (79)
N White (Range 57.5–100) ^a	985 (62)
Baseline BMI (Range 29.8–51.6 kg/m ²) ^a	42.8 (6.5)
Baseline weight (Range 81.1– 152.7 kg) ^a	118.9 (19.3)
# of RCTs	29 (81)
Experimental/Comparator interventions	41/36
# of pre-operative experimental interventions	11/41 (27)
# of post-operative experimental interventions	25/41 (61)
# of pre- and post-operative experimental interventions	5/41 (12)
Mean postoperative follow-up (months)^b (Range 1.5–48 months) ^a	18.1 (12.8)

BMI = Body Mass Index; ^a Data on age, sex, ethnicity, BMI and weight was not provided in all included studies; ^b Four preoperative studies did not include postoperative follow-ups.

RESULTS:

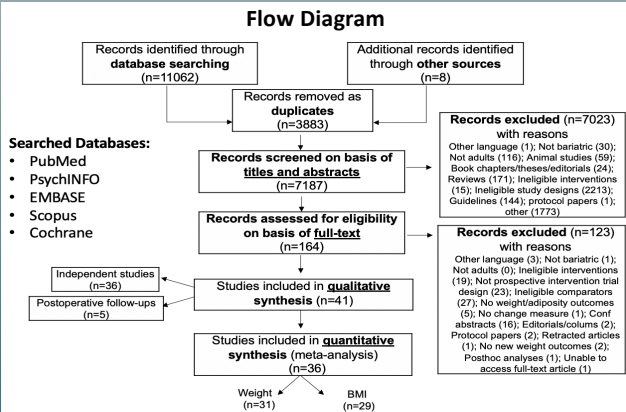
- BWM interventions characteristics (N=41)**
 - Macro-component:
 - Physical activity only: 14 (34%); Diet only: 5 (12%); Psychosocial-based: 5 (12%)
 - Duration ≥ 3 months: 37 (90%)
 - Frequency ≥ 1 session/week: 26 (63%)
 - Mean total number of session: 34.9 (Range=1–365)
- Comparators characteristics (N=36)**
 - Active treatments: 34 (94%)
 - Usual care: 23(64%); Non-specific treatment: 8(22%); Standard care: 3(8%)
 - Non-active treatments: 2 (6%)
 - Wait-list: 1; No-intervention controls: 1

Findings for BMI outcome as a function of operative timing



SDM = -0.60 (95% CI: -0.913 to -0.289);
Raw difference = -1.84 kg/m² (95% CI: -2.862 to -0.812)

- Risk of bias (ROB) of all included studies**
 - High ROB for ≥ 50% of studies across 5 major domains



CONCLUSION: BWM yielded significant WL effects relative to comparators but only when delivered *post*-bariatric surgery, with a medium effect size.

- The *post*-operative period may create an opportunity that favours the engagement and adoption of WL behaviours in patients undergoing bariatric surgery. However, higher research standards need to be attained before firm conclusions can be drawn from the extent literature.
- Recommendations:** Structured clearly-defined frameworks and guidelines (e.g., ORBIT model, CONSORT) should be used to improve the development and testing of BWM interventions among patients undergoing bariatric surgery, with post-surgical interventions being a key target time.