Training working memory to improve eating behavior after bariatric surgery

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON46690

Source
ToetsingOnline

Brief title
Effect of training working memory after bariatric surgery

Condition

- Other condition
- Eating disorders and disturbances

Synonym
'morbid obesity' and 'extremely overweight'

Health condition

Morbide obesitas

Research involving
Human

Sponsors and support

Primary sponsor: Zuyderland Medisch Centrum
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Bariatric surgery, Eating behavior, Self-regulation, Working memory

Outcome measures

Primary outcome

Eating behavior: Dutch eating behavior questionnaire (DEBQ; Nederlandse

Vragenlijst voor Eetgedrag, NVE)

Secondary outcome

Body Mass Index

Self control: Dutch version of Self Control Scale, SCS

Self-regulation: Dutch version of Short Self-Regulation Questionnaire, SSRQ-NL

Study description

Background summary

Obesity is a growing and worldwide health problem with a range of medical comorbidities such as diabetes type 2, obstructive sleep apnea syndrome, hypertension and hyperlipidemia, causing even more disability and medical costs (Bray, 2004; Yu, Shen, Sun, Zhang, Wong, 2013). Besides physical comorbidities, obesity is often associated with psychological distress, shame, depression and social avoidance behavior (Lamers, et al., 2011). These physical and psychological problems pose a significant burden on the health care system (Bray, 2004) and make healthcare for these patients expensive (Neovius, et al., 2012; Neff, Olbers & le Roux, 2013; Sampalis, Liberman, Auger & Christou, 2004).
Bariatric surgery is an effective treatment method for patients with morbid obesity, resulting in clinically significant weight reduction, reduction of comorbidity and improvement of psychosocial functioning and quality of life (Cunneen, 2008; Herpertz, et al., 2004; Mathus-Vliegen & De Wit, 2007). Even though bariatric surgery is the most effective treatment for morbid obesity,

insufficient results are found (< 50 % Excess Weight Loss (%EWL)) in 20-35% of this group after bariatric surgery (Al-Bader, et al., 2015; Cooper, Simmons, Webb, Burns & Kuscher, 2015; Magro, et al., 2008). Binge eating, grazing, uncontrolled eating and postoperative loss of control have shown to predict poorer weight loss and greater weight regain following bariatric surgery (Ashton, Heinberg, Windover & Merrell, 2011; Canetti, Berry & Elizur, 2009). Different studies also proved the importance of compliance to dietary rules in terms of success after bariatric surgery (Van Hout & Leibbrandt, 2003; Elkins, Whitfield, Mark, Symmonds, Rodiguez & Cook, 2005). In addition to the previous described factors, obese patients often have poor regulation of eating habits, less self-control and self-regulation than patients with normal weight (Jansen, et al., 2009). In self-regulation mechanisms, executive functioning is involved. With regard to obesity, problems in executive functioning are found to play a role in experiencing difficulties maintaining weight loss and adjusting and adhering to necessary lifestyle changes after bariatric surgery (Boeka & Lokken, 2008). Even though an association is found between BMI and executive functioning, it remains unclear whether higher BMI has a negative effect on executive functioning or poor executive functioning leads to higher BMI (Boeka & Lokken, 2008).
Recent research showed that working memory, which is an executive function, contributes to the successful self-regulation of behavior, including eating behavior (Hofmann, Schmeichel & Baddeley, 2012). Executive functions, for a greater part, depend on WM capacity. It is therefore, that self-regulation could profit from interventions that help to increase WM capacity. Training WM has been found to be successful to improve other executive functions as well (Klingberg, 2010).
Training WM could possibly be an effective strategy to improve eating behavior (i.e., less emotional or external eating behavior, an increase of restrained eating behavior) and improving self-regulation capacity (i.e. following diet rules).

Study objective

Bariatric surgery does not directly target the underlying psychological factors that potentially contribute to the development and maintenance of obesity (Cassin et al., 2013). Despite some psychosocial factors predicting postoperative weight loss and weight regain, psychosocial interventions are not routinely offered in bariatric surgery programs (Cassin et al., 2013). Even though bariatric surgery is the most effective treatment (in terms of weight reduction, reduction of comorbidity and improvement of psychosocial functioning and quality of life for patients with morbid obesity, insufficient results are found regarding behavior change and weight loss in the long term (Al-Bader, et al., 2015; Cooper, et al., 2015; Magro, et al., 2008; Cassin, et al., 2013; Cunneen, 2008; Herpertz, et al., 2004; Mathus-Vliegen & De Wit, 2007). An important turning point is found around 18 to 24 months after surgery when a part of the patients experience weight regain and relapse of obesity-related comorbidities (Cassin, et al., 2013; Herpertz, et al., 2004). In the current

study, we aim to investigate whether training WM (by means of computerized WM-tasks), as an important factor in executive functioning, will improve eating behavior (that is less emotional, external or restrained eating behavior) and self-regulation capacity (i.e., following diet-rules) and if improved WM capacity will lead to the maintenance of BMI in the longer term. More specific, the effect of training WM on eating behavior, BMI and self-regulation among patients 14-18 months after bariatric surgery (before the important turning point) will be studied.

Study design

A randomized controlled trial will be carried out to test the hypothesis that WM-training will successfully improve eating behavior, self-regulation capacity and maintenance of BMI. A comparison between 2 groups will be made: obese participants complete either WM-training or control tasks for 25 consecutive sessions, 14-18 months after bariatric surgery.

Intervention

WM- training and control tasks: All participants (training and control conditions) will complete 3 WM tasks: A visuospatial WM task, a backward digit span task and a letter span task (adapted from Klingberg, Forssberg & Westerberg, 2002). Each of the 3 tasks consists of 30 trials. In the training condition, the difficulty level will automatically be adjusted on a trial-by-trial basis. In the control condition, the difficulty level of the WM-tasks will remain at the initial level throughout each task. The WM capacity will be measured using the same tasks that were used during WM training. The assessment version ends when participants are not able to reproduce a sequence on two consecutive trials. The outcome measure for each task is the length of the longest sequences that participants correctly reproduce on two consecutive trials.

Study burden and risks

There are no risks and detrimental consequences associated with participating in the study. Participants can stop their participation in the study at any time. The burden of completing the questionnaires and to be weighted is low. The burden of the training is higher, but it is expected that the training will have beneficial consequences. Participants will be offered this intervention free of charge.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

The study will be carried out in participants 14-18 months after bariatric surgery. Patients undergoing bariatric surgery already get a multidisciplinary treatment course during the first 12 months after surgery. In addition, we try to give the training prior to the important turning point (around 18 to 24 months after surgery) when a part of the patients experience weight regain and relapse of obesity-related comorbidities (Cassin, et al., 2013; Herpertz, et al., 2004). Participants are over 18 years of age and have a banded gastric bypass.

Exclusion criteria

Participants not mastering the Dutch language, participants with postoperative medical complications en participants without a computer with internet connection are excluded.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Active
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	14-05-2019
Enrollment:	46
Type:	Actual

Ethics review

Approved WMO

Date:	06-03-2018
Application type:	First submission
Review commission:	METC Z: Zuyderland-Zuyd (Heerlen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL63826.096.17