

INPLASY PROTOCOL

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Review Stage at time of this submission: The review has not yet started.

Conflicts of interest:
None declared.

Effectiveness and safety of massage in the treatment of obesity: A protocol for systematic review and meta-analysis

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Review question / Objective: This study comprehensively searched the literature to further systematically evaluate the efficacy and safety of massage in the treatment of obesity.

Condition being studied: Obesity is a chronic metabolic disease caused by the interaction of genetic factors, environmental factors and other factors. It has become the largest chronic disease in the world. Obesity can change the metabolism and endocrine function of adipose tissue, leading to an increase in the release of fatty acids, hormones and pro-inflammatory molecules, thereby increasing the risk of coronary heart disease, type 2 diabetes, various cancers, gallstones and disability. In recent years, massage has been used in treatment. This type of disease is more and more widely used, but its mechanism is still unclear, and there is no systematic review to provide sufficient evidence for treatment. This study aims to evaluate the clinical efficacy and safety of massage treatment for obesity.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 February 2021 and was last updated on 19 February 2021 (registration number INPLASY202120061).

INTRODUCTION

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METHODS

Participant or population: The subjects of this study are all adult patients diagnosed with obesity, regardless of gender and race.

Intervention: The intervention measures of the experimental group mainly include any form of massage therapy for obesity treatment, which includes traditional Chinese massage, massage, acupoint massage, therapeutic massage, full body massage, acupoint massage, relaxation and so on. Massage combined with other interventions, such as acupuncture, moxibustion, functional exercise, and other mixed therapies will be excluded. The control intervention group includes any form of treatment that is internationally recognized, such as acupuncture, traditional Chinese medicine, etc. In addition, non-intervention and placebo are also included. However, comparative studies on the efficacy of different types of massage techniques will be excluded.

Comparator: All cases included in the trial were patients with obesity, without gender and race restrictions.

Study designs to be included: A randomized controlled trial (RCT) study on massage therapy treatment of obesity, published in any language.

Eligibility criteria: Types of study: All randomized controlled trials (RCTs) study on massage therapy treatment of

obesity. Others such as case reports, animal experiments, non-RCTs, or RCT protocol will be excluded.

Information sources: 8 electronic databases including PubMed, Web of Science, the Cochrane Database, EMBASE, China Knowledge Network (CNKI), Wanfang Data Knowledge Service Platform, VIP Chinese Science and Technology Periodical Database (VIP) and China Biomedical Literature (CBM) Database.

Main outcome(s): Mainly include the reduction of BMI and BW index.

Additional outcome(s): (1) Reduction in the following data: WC, WHR, body fat mass percent, body fat mass, serum cholesterol (TC), triglyceride (TG), low density lipoprotein cholesterol (LDL-C). (2) Elevated high-density lipoprotein cholesterol (HDL-c). (3) The incidence rate of adverse events.

Quality assessment / Risk of bias analysis: Two reviewers performed rigorous methodological quality evaluation of the included studies with reference to the Cochrane Collaboration Bias Risk Assessment Tool for the extracted methodological features.

Strategy of data synthesis: Meta analysis was performed using RevMan5.3 provided by the Cochrane collaboration network. Relative risk (RR) was used for the two categorical variables, and mean difference (MD) was used for the continuous variables. Both were expressed with 95% confidence intervals (CI). The heterogeneity test between the results of the included studies was performed using the I^2 test. The I^2 value reflects the proportion of the total variation in the effect size due to the existence of heterogeneity. ($I^2 > 50\%$, indicating that heterogeneity is more obvious. If there is no obvious heterogeneity between the research results ($I^2 \leq 50\%$), the source of the heterogeneity is analyzed first, which may lead to

heterogeneity Factors for subgroup analysis. If statistical heterogeneity exists in each subgroup without clinical heterogeneity, a random effects model is used for analysis. If the heterogeneity is too large and the results cannot be combined, a descriptive analysis is used and a sensitivity analysis is performed if necessary.

Subgroup analysis: If there is great heterogeneity in the articles we included, we will perform subgroup analysis to reduce the clinical heterogeneity between the groups.

Sensitivity analysis: In order to evaluate the true reliability of this systematic review and exclude low-quality experiments, we will use the software STATA 14.0 to perform sensitivity analysis if the data is sufficient.

Country(ies) involved: China.

Keywords: obesity, massage, systematic review, protocol.

Contributions of each author:

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