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ADMINISTRATIVE INFORMATION

Support - There was no external financia.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2024110113

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 November 2024 and was last updated on 26 November 2024.

INTRODUCTION

Review question / Objective By summarizing randomized controlled trials on the effects of exercise combined with dietary interventions on body composition, liver function, blood glucose, and blood lipids in patients with non-alcoholic fatty liver disease, this study aims to assess the health benefits of this combined approach for this patient population and to propose the optimal exercise and dietary interventions.

Condition being studied Non-alcoholic fatty liver disease (NAFLD) refers to the excessive accumulation of fat in liver cells primarily due to reasons other than alcohol consumption or other liver diseases. Currently, approximately 25% of the global population is affected by NAFLD, posing a significant threat to public health worldwide. The main intervention methods for NAFLD include medication, exercise, diet, and nutritional supplements. Existing treatment options consist of

pharmacological and non-pharmacological interventions. Pharmacological treatments are characterized by high costs and significant side effects. In contrast, non-pharmacological treatments, such as exercise combined with dietary interventions, are more affordable and healthier. Therefore, we aim to propose an optimal exercise and dietary intervention plan to improve the health of patients with non-alcoholic fatty liver disease through a systematic review and meta-analysis.

METHODS

Participant or population Patients with Non-alcoholic fatty liver disease.

Intervention Exercise combined with diet intervention.

Comparator Placebo Control or Standard Care.

Study designs to be included Randomized controlled trial.

Eligibility criteria

- P) The study sample consists of patients with NAFLD;
- I) The intervention method is a combination of exercise and diet;
- C) The control group receives standard care or a placebo;
- O) The outcome indicators are body mass index, liver function indicators, blood glucose, and blood lipid indicators;
- S) The study type is a randomized controlled trial.

Information sources Searches were conducted in PubMed, Embase, Cochrane Library, CNKI (China National Knowledge Infrastructure), Wanfang, and VIP databases, using previously published meta-analyses as supplementary literature.

Main outcome(s) Body mass index, liver function indicators, blood glucose, and blood lipid indicators.

Quality assessment / Risk of bias analysis Cochrane Risk of Bias Assessment Tool.

Strategy of data synthesis Data analysis using Review Manager 5.4 software. The square of I statistic was used to test for heterogeneity among studies, and when the square of $I \leq 50\%$, it indicated no heterogeneity among similar studies, and meta-analysis was performed using a fixed-effects model; when the square of $I > 50\%$, it indicated the existence of heterogeneity among studies.

Subgroup analysis Using different types of exercise, intensity, and dietary patterns as grouping variables.

Sensitivity analysis Sensitivity analyses were conducted using stata software, which responds to sensitivity by observing the change in effect size after deleting one of the articles.

Country(ies) involved China.

Keywords Exercise combined with medication; non-alcoholic fatty liver disease patients; body composition; liver function; meta-analysis.

Contributions of each author

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