INPLASY PROTOCOL

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Corresponding author:
Yunhui Wu

1368866398@qq.com

Author Affiliation:
Shanxi Medical University

Support:
YDZX20201400001965.

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None declared.

The Therapeutic Effects of Different Exercise Forms on Nonalcoholic Fatty Liver Disease: A Meta-analysis

Wu, YH[1]; Yuan, SJ[2]; Liu, LX[3].

Review question / Objective: **The purpose of this study was to compare and evaluate the therapeutic effects of different exercise forms on liver function, glucose metabolism, BMI, and lipid metabolism parameters in patients with nonalcoholic fatty liver disease. The study method was a randomized controlled trial.**
Intervention: **Aerobic exercise, resistance exercise, high intensity interval training, aerobic combined resistance exercise.**
Information sources: **CNKI, PubMed, Web of Science, Wan Fang Date, Manual search.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 May 2022 and was last updated on 16 May 2022 (registration number INPLASY202250100).

INTRODUCTION

Review question / Objective: **The purpose of this study was to compare and evaluate the therapeutic effects of different exercise forms on liver function, glucose metabolism, BMI, and lipid metabolism parameters in patients with nonalcoholic fatty liver disease. The study method was a randomized controlled trial.**

Condition being studied: **Nonalcoholic fatty liver disease.**

METHODS

Participant or population: **Patients who meet the "Guidelines for the Diagnosis and Treatment of Non-alcoholic Fatty Liver**

Disease" after examination and diagnosis in the hospital.

Intervention: Aerobic exercise, resistance exercise, high intensity interval training, aerobic combined resistance exercise.

Comparator: Maintain lifestyle without exercise intervention.

Study designs to be included: RCT.

Eligibility criteria: Patients who meet the "Guidelines for the Diagnosis and Treatment of Non-alcoholic Fatty Liver Disease" after examination and diagnosis in the hospital.

Information sources: CNKI、PubMed、Web of Science、Wan Fang Date、Manual search.

Main outcome(s): Indicators of liver function (AST, ALT, GGT), glucose metabolism (fasting glucose, HOMA-IR), BMI, and lipid metabolism (TG, TC, LDL-C, HDL-C).

Quality assessment / Risk of bias analysis: Cochrane tool.

Strategy of data synthesis: The included studies were sequentially tested for publication bias using the software Stata16.0 version. Data extraction is a continuous variable, and there are some differences in the measurement tools or units used in each single study, so the standardized mean difference (SMD) is used as the effect scale for statistics. The interpretation of effect size includes point estimate and 95% CI, with test level $\alpha = 0.05$, and $p > 0.05$ being considered statistically insignificant. The specific steps of including between-study heterogeneity for interpretation are as follows: if $I2 \leq 50\%$ ($p > 0.1$), there is no statistical heterogeneity or little heterogeneity among various studies, the heterogeneity can be ignored, and the fixed-effect model can be used; otherwise, it indicates that the heterogeneity is high, and the random-effect model can be used. Funnel plot and Egger test were used for publication bias. Whether there was publication bias was judged by whether its 95% CI included 0. If intercept a corresponded to $P > 0.1$ or its 95% CI included 0, it indicated no publication bias.

Subgroup analysis: Grouped by study quality classification, intervention period greater than 16 weeks and less than or equal to 16 weeks, intervention frequency greater than 3 times a week and less than or equal to 3 times a week, different countries and study years.

Sensitivity analysis: Stata software was applied to remove a study to assess the sensitivity of the article according to the change of effects size.

Country(ies) involved: China.

Keywords: exercise; rehabilitation; nonalcoholic fatty liver disease; therapeutic effects; Meta-analysis.

Contributions of each author:

Author 1 - Yunhui Wu.
Email: 1368866398@qq.com
Author 2 - Shujuan Yuan.
Email: 957075000@qq.com
Author 3 - lixin Liu.