INPLASY PROTOCOL

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None declared.

Time-restricted eating on weight loss and cardiometabolic risk: a systematic review and meta-analysis

Sun, JC[1]; He, CJ[2]; Zhai, CL[3]; Qian, G[4].

Review question / Objective: The objective of the systematic review is evaluating the beneficial effectiveness of time-restricted eating on weight loss and cardiometabolic risk.

Condition being studied: In recent years, a lot of studies to assess the beneficial of time-restricted eating on obesity patients or patients with diabetes. However, no meta-analysis based on RCTs to evaluated the effects of time-restricted eating.

Information sources: PubMed, Embase, and Cochrane Library were searched independently and systematically by two members to identify literature from inception to 18 October 2022. In addition, all referenced articles in the included studies were retrieved manually to acquire more relevant research.

INTRODUCTION

Review question / Objective: The objective of the systematic review is evaluating the beneficial effectiveness of time-restricted eating on weight loss and cardiometabolic risk.

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or patients with diabetes. However, no meta-analysis based on RCTs to evaluated the effects of time-restricted eating.

METHODS

Search strategy: Pubmed (((("Time restricted feeding"[Title/Abstract]) OR ("time restricted diet"[Title/Abstract])) OR ("time restricted fasting"[Title/Abstract])) OR ("time restricted eating"[Title/Abstract])) AND ((((((((((((((((((Blood Pressure[MeSH Terms]) OR ("blood pressure")) OR ("diastolic pressure")) OR ("systolic pressure")) OR (diastolic blood pressure)) OR ("systolic blood pressure")) OR ("glucose")) OR (insulin)) OR ("homeostatic model assessment for insulin resistance")) OR ("HOMA-IR")) OR ("HOMA-β")) OR (cholesterol[MeSH Terms])) OR (cholesterol)) OR (triglycerides[MeSH Terms])) OR (triglycerides)) OR (Triacylglycerols)) OR (Triacylglycerol)) OR (Triglyceride) OR ("plasma lipid")) OR (((((Weight Loss[MeSH Terms]) OR ("Weight Loss")) OR ("Weight Losses")) OR ("Weight Reduction") OR ("Weight Reductions")))

Cochrane
#1 (Time restricted feeding):ti,ab,kw
#2 (time restricted diet):ti,ab,kw
#3 (time restricted fasting):ti,ab,kw
#4 (time restricted eating):ti,ab,kw
#5 #1 or #2 or #3 or #4
#6 MeSH descriptor: [Blood Pressure] explode all trees
#7 (Blood Pressure)
#8 (diastolic pressure)
#9 (systolic pressure)
#10 (diastolic blood pressure)
#11 (systolic blood pressure)
#12 (glucose)
#13 (insulin)
#14 (homeostatic model assessment for insulin resistance)
#15 (HOMA-IR)
#16 (homeostatic model assessment for β-cell function)
#17 (HOMA-β)
#18 MeSH descriptor: [Cholesterol] explode all trees
#19 (cholesterol)
#20 MeSH descriptor: [Triglycerides] explode all trees

#21 (triglycerides)
#22 (Triacylglycerols)
#23 (Triacylglycerol)
#24 (Triglyceride)
#25 (plasma lipid)
#26 MeSH descriptor: [Weight Loss] explode all trees
#27 (Weight Loss)
#28 (Weight Losss)
#29 (Weight Reduction)
#30 (Weight Reductions)
#31 #6 or #7 or #8 or #9 or #10 or #11 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30
#32 #5 and #31
Embase
#8 #1 AND #7
#7 #2 OR #3 OR #4 OR #5 OR #6
#6 'weight loss'/exp OR (weight AND losss) OR (weight AND reduction) OR (weight AND reductions)
#5 'cholesterol'/exp OR 'triglycerides'/exp OR triglycerides OR triacylglycerols OR triacylglycerol OR triglyceride OR (plasma AND lipid)
#4 homeostatic AND model AND assessment AND for AND insulin AND resistance OR 'homa ir' OR (homeostatic AND model AND assessment AND for AND 'β cell' AND function) OR 'homa β'
#3 glucos OR insulin
#2 'blood pressure'/exp OR (diastolic AND pressure) OR (systolic AND pressure) OR (diastolic AND blood AND pressure) OR (systolic AND blood AND pressure)
#1 'time restricted feeding':ti,ab,kw OR 'time restricted diet':ti,ab,kw OR 'time restricted fasting':ti,ab,kw OR 'time restricted eating':ti,ab,kw.

Participant or population: Adult patients.

Intervention: Time-restricted eating.

Comparator: Control group in RCTs.

Study designs to be included: Randomized controlled trial.

Eligibility criteria: We excluded studies with the following characteristics: (1) articles on animal studies; (2) studies with insufficient

data; (3) studies including patients with acute or chronic disease which affect the outcomes; (4) Participants in time-restricted eating group undergoing periodic fasting or energy restriction.

Information sources: PubMed, Embase, and Cochrane Library were searched independently and systematically by two members to identify literature from inception to 18 October 2022. In addition, all referenced articles in the included studies were retrieved manually to acquire more relevant research.

Main outcome(s): Main outcomes are the change of weigh and cardiometabolic risk factors.

Additional outcome(s): Additional outcomes are adherence and adverse events.

Quality assessment / Risk of bias analysis: "Cochrane risk-of-bias tool for randomized trials" is used to access the quality of included articles. Funnel plots will be use to assess the potential biases of the included studies, and Egger's test and Begg's test are applied to further analyze the biases quantitatively.

Strategy of data synthesis: This meta-analysis was conducted using Stata (Stata Version 16.0; Stata Corporation, College Station, TX, USA). The pooled WMD and 95% confidence intervals (CIs) were calculated for binary outcomes, and a P value of less than 0.05 was deemed statistically significant. The random-effect model was applied to the present meta-analysis, considering the probably high heterogeneity due to clinical and methodological factors.The GRADE was used to determine the quality of evidence.

Subgroup analysis: Subgroup analysis is conducted based on daily eating period, control group and included patients.

Sensitivity analysis: To assess the stability of the primary outcome, we perform a sensitivity analysis by deleting trials sequentially.

Language restriction: No language restriction.

Country(ies) involved: China.

Keywords: time-restricted eating; Cardiometabolic risk; weight loss; meta-analysis.

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