

INPLASY PROTOCOL

To cite: Li et al. Effect of protein supplementation and exercise on delaying sarcopenia in elderly individuals in Asian and non-Asian countries: a systematic review and meta-analysis protocol. Inplasy protocol 202180085. doi: 10.37766/inplasy2021.8.0085

Received: 22 August 2021

Published: 22 August 2021

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Support: PXM2020_014213_000017.

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

Conflicts of interest:

None declared.

INTRODUCTION

Review question / Objective: To evaluate the effect of protein supplementation and exercise on delaying sarcopenia in elderly individuals in Asian and non-Asian countries.

Effect of protein supplementation and exercise on delaying sarcopenia in elderly individuals in Asian and non-Asian countries: a systematic review and meta-analysis protocol

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Review question / Objective: To evaluate the effect of protein supplementation and exercise on delaying sarcopenia in elderly individuals in Asian and non-Asian countries.

Condition being studied: Sarcopenia in healthy participants in Asian and non-Asian countries.

Information sources: Systematic literature search will be conducted in Cochrane Central Registry of Controlled Trials (CENTRAL), PubMed, Web of Science, and Science Direct Online (SDOL).

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 August 2021 and was last updated on 22 August 2021 (registration number INPLASY202180085).

Condition being studied: Sarcopenia in healthy participants in Asian and non-Asian countries.

METHODS

Search strategy: Systematic literature search will be conducted in Cochrane

Central Registry of Controlled Trials (CENTRAL), PubMed, Web of Science, and Science Direct Online (SDOL) with the following key words: older adults (older or “older people” or “elderly people” or “aging people” or “aged people” or “senior people” or “geriatric people” or “late life adults”), intervention (exercise or “resistance training” or “strength training” or “home training” or “comprehensive training program” or “whole-body electromyostimulation” and “protein supplement” or “nutritional supplement” or “dietary supplement” or “amino acid” or “leucine” or “HMB” or “beta-hydroxy-beta-methylbutyrate”), sarcopenia (sarcopenic or “muscle loss” or “amyotrophy”).

Participant or population: Healthy older adults, aged 60 years or above.

Intervention: Exercise combined with protein supplementation.

Comparator: Exercise combined with placebo supplementation or no supplementation.

Study designs to be included: Randomized controlled trials.

Eligibility criteria: Participants aged 60 years or above; healthy participants with sarcopenia and sarcopenia is defined with at least one of the following indicators: muscle mass loss, low muscle strength, or poor physical performance.

Information sources: Systematic literature search will be conducted in Cochrane Central Registry of Controlled Trials (CENTRAL), PubMed, Web of Science, and Science Direct Online (SDOL).

Main outcome(s): Muscle strength, muscle mass and physical performance.

Quality assessment / Risk of bias analysis: Two researchers who have been trained in literature quality evaluation will carry out literature searching, screening, quality evaluation, and data extraction. If any differences arise, they will be resolved through rechecking or discussion or

consultation with relevant experts. The Risk of Bias 2 tool (RoB 2) from the Cochrane Collaboration will be used to assess the risk of bias of the randomized controlled trials included in this systematic review and meta-analysis.

Strategy of data synthesis: The standardized mean difference (SMD) will be used to compare the continuous variables when different methods are used to evaluate the same outcome, whereas mean difference (MD) will be used when the same method is used. The SMD or MD of each outcome will be calculated using a random-effects model. The potential existence of publication bias will be determined by the Egger’s test, with visual inspection of the distributions of the effect size on the funnel plot. All statistical results with P value <0.05 will be considered statistically significant.

Subgroup analysis: To evaluate the effect of exercise and protein supplementation on muscle strength, muscle mass, and physical performance in people from different regions.

Sensitivity analysis: Sensitivity analysis will be performed to evaluate the influence of each study on the overall effect by eliminating them individually.

Country(ies) involved: China.

Keywords: older adults; sarcopenia; protein; exercise; muscle strength; muscle mass; physical performance.

Contributions of each author:

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Author 3 - Nini Jin.

Author 4 - He Li.

Author 5 - Xinqi Liu.