INPLASY PROTOCOL

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None declared.

A meta-analysis of the effects of vibration training on muscle strength, muscle mass and physical function in elderly with muscle attenuation syndrome

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Review question / Objective: **This systematic review and meta-analysis examines the effects of vibration therapy (including local vibration and whole body vibration) on improving muscle mass, muscle strength, and physical function in elderly people with sarcopenia.**
Condition being studied: **Muscle mass, muscle strength, and physical function in elderly people with sarcopenia.**
Eligibility criteria: **(1) Meet the EWGSOP/AWGS consensus or have clear and detailed diagnostic criteria for sarcopenia; (2) The research design is a randomized controlled trial study (RCT) or a quasi-trial study (CCT); (3) The intervention method is vibration training (Local vibration training or whole body vibration training). (4) Contain at least one of the following outcome indicators: muscle mass (such as limb skeletal muscle, skeletal muscle mass index and lean body mass), muscle strength (grip strength, knee extension/flexor strength), body function (such as walking speed, balance) Wait).**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 July 2021 and was last updated on 05 July 2021 (registration number INPLASY202170014).

INTRODUCTION

Review question / Objective: **This systematic review and meta-analysis examines the effects of vibration therapy (including local vibration and whole body vibration) on improving muscle mass, muscle strength, and physical function in elderly people with sarcopenia.**

Condition being studied: **Muscle mass, muscle strength, and physical function in elderly people with sarcopenia.**

METHODS

Participant or population: **Elderly with sarcopenia.**

Intervention: Vibration training.

Comparator: Elderly with sarcopenia.

Study designs to be included: A computer search for randomized controlled trials of traditional Chinese exercise therapy in the databases of PubMed, The Cochrane Library, Web of Science, Embase, CNKI, CBM, Wanfang, and VIP.

Eligibility criteria: (1) Meet the EWGSOP/ AWGS consensus or have clear and detailed diagnostic criteria for sarcopenia; (2) The research design is a randomized controlled trial study (RCT) or a quasi-trial study (CCT); (3) The intervention method is vibration training (Local vibration training or whole body vibration training). (4) Contain at least one of the following outcome indicators: muscle mass (such as limb skeletal muscle, skeletal muscle mass index and lean body mass), muscle strength (grip strength, knee extension/ flexor strength), body function (such as walking speed, balance) Wait).

Information sources: A computer search for randomized controlled trials of traditional Chinese exercise therapy in the databases of PubMed, The Cochrane Library, Web of Science, Embase, CNKI, CBM, Wanfang, and VIP.

Main outcome(s): In the 7 confirmed studies, 5 of them were whole-body vibration training and 2 were local vibration therapy. A total of 196 sarcopenia patients participated. A meta-analysis of randomized controlled studies showed that systemic vibration therapy (SMD 0.69, 95% confidence interval 0.28 to 1.11, I2=0%, P=0.001) and local vibration therapy (SMD 3.78, 95% confidence interval 2.29 to 5.28, P< After 0.001), the muscle strength increased significantly. After the intervention, the physical performance measured by the sit-stand test and the timed rise-walk test was significantly improved (SMD -0.79, 95% confidence interval 1.21 to 0.37, I2=0%, P<0.001), SMD-0.83, 95% confidence The interval is 1.56 to 0.11, I2=6.4%, P=0.02).

Quality assessment / Risk of bias analysis: The RCT bias risk evaluation standard in the Cochrane Collaboration was used to evaluate the methodological quality of RCT in 6 domains, and the methodological quality of non-randomized controlled trials was evaluated using the MINORS tool. The two investigators independently conducted and reviewed each other. If there is a disagreement, the third investigator will discuss and decide whether to include.

Strategy of data synthesis: A computer search for randomized controlled trials of traditional Chinese exercise therapy in the databases of PubMed, The Cochrane Library, Web of Science, Embase, CNKI, CBM, Wanfang, and VIP.

Subgroup analysis: Perform subgroup analysis on muscle mass, muscle strength, and body function.

Sensitivity analysis: No sensitivity analysis was performed in this study.

Country(ies) involved: China.

Keywords: Sarcopenia, vibration training, muscle mass, muscle strength, body function.

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