

INPLASY PROTOCOL

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None declared.

INTRODUCTION

Review question / Objective: This study aimed to systematically evaluate the effects of MOTOMed intelligent exercise training on balance function, neurological

A meta-analysis of the effects of MOTOMed intelligent exercise training on balance function and neurological function in patients with hemiplegia with stroke

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Review question / Objective: This study aimed to systematically evaluate the effects of MOTOMed intelligent exercise training on balance function, neurological function and activities of daily living ability in patients with hemiplegia after stroke.

Condition being studied: Stroke is a neurological disease caused by abnormal blood supply to the brain and is the third leading cause of death and disability in humans. Stroke-related disability-adjusted life-years are lost in 5.7 percent of the total, and 25 million new patients are expected each year by 2050. Hemiplegia is one of the most common sequelae of stroke, and its clinical symptoms are often accompanied by neurological deficits in addition to common motor dysfunction, and due to damage to the central nervous system, proprioceptive and motor function is weakened, resulting in imbalance and increasing the risk of falls, seriously affecting the quality of daily life of patients.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 March 2023 and was last updated on 14 March 2023 (registration number INPLASY202330045).

function and activities of daily living ability in patients with hemiplegia after stroke.

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leading cause of death and disability in humans. Stroke-related disability-adjusted life-years are lost in 5.7 percent of the total, and 25 million new patients are expected each year by 2050. Hemiplegia is one of the most common sequelae of stroke, and its clinical symptoms are often accompanied by neurological deficits in addition to common motor dysfunction, and due to damage to the central nervous system, proprioceptive and motor function is weakened, resulting in imbalance and increasing the risk of falls, seriously affecting the quality of daily life of patients.

METHODS

Search strategy: #1Stroke[Mesh] OR“cerebral infarction”[Title/Abstract] OR“cerebral hemorrhage”[Title/Abstract] OR “cerebrovascular accident”[Title/Abstract].

AND

#2MOTOmed[Title/Abstract] OR "MOTOmed Intelligent exercise training"[Title/Abstract]OR "MOTOmed rehabilitation trainer"[Title/Abstract].

#3"balance function"[Title/Abstract] OR "neurological function"[Title/Abstract] OR "daily living ability"[Title/Abstract].

#4Randomized controlled trial[Publication Type]) OR Randomized[Title/Abstract] OR controlled[Title/Abstract] OR trial[Title/Abstract].

#5 #1AND #2 AND#3 AND#4.

Participant or population: Patients with hemiplegia after stroke

Intervention: MOTOmed intelligent exercise training.

Comparator: Regular rehabilitation.

Study designs to be included: Randomized controlled trials (RCTs) of on the effects of MOTOmed intelligent exercise training on balance function, neurological function and ability to perform activities of daily living ability in patients with hemiplegia Randomized controlled trials.

Eligibility criteria: (1) Non-Chinese and English literature; (2) republished literature; (3) Literature for which perfect data cannot be obtained; (4) lack of corresponding outcome measures.

Information sources: PubMed、Web of Science、Pubmed、Web of Science、Embase、Cochrane Library、CNKI、Wanfang, VIP and China Biomedical Literature Database.

Main outcome(s): Balance function.

Additional outcome(s): Neurological function、Daily living ability.

Data management: Two review authors used a standardized process to screen and extract information according to the inclusion and exclusion criteria independently, including basic information, sample size, age of participants, intervention, intervention dose, outcome measures, etc., and resolved through discussion if there were any differences.

Quality assessment / Risk of bias analysis: The methodological quality of the included studies was assessed in accordance with the assessment criteria established by the Cochrane Manual of Systematic Reviews. These included random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessors, incomplete outcome data, selective reporting, and other biases.

Strategy of data synthesis: The data processing software is ReMan 5.3.5 and follows the PRISMA guidelines. For testing heterogeneity, if $P \geq 0.10$, $I^2 < 50\%$, and no heterogeneity between studies, a fixed-effect model was used for analysis, and a random-effects model was used to comply. The processed data were continuous, with effect size MD = 95% confidence interval. The sensitivity of the data was tested by the method of data exclusion one by one. Stata 14.0 was used to test for publication bias. The choice of statistical method was

based on data characteristics and international guidelines for meta-analysis.

Subgroup analysis: To explore possible causes of heterogeneity, subgroup analyses were performed by age, exercise cycle, exercise time, and exercise frequency.

Sensitivity analysis: Individual studies were phased out to perform sensitivity analyses for pooled effects.

Country(ies) involved: China.

Keywords: Stroke; MOTMed; Balance function; Neurological function; Daily living ability.

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