

INPLASY PROTOCOL

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Which Gait Training Intervention Can Most Effectively Improve Gait Ability in Patients with Cerebral Palsy? A Systematic Review and Network Meta-Analysis

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Review question / Objective: To help physiotherapists and clinicians make clinical decisions, they may wish to know, on average, "the optimal treatment", so a comprehensive and up-to-date systematic review should be conducted on the relative effectiveness of gait ability intervention programmes in patients with CP. Using NMA, this study aimed to evaluate and compare the effects of different approaches of gait training on gait ability in CP patients. The specific aim of this study was to verify the relative effectiveness of different gait interventions on the gait ability of people with CP.

Condition being studied: Cerebral palsy (CP) refers to a group of disorders attributed to non-progressive brain dysfunction in the developing foetus or infant, and it is characterized by central motor and postural dysplasia.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 October 2022 and was last updated on 26 October 2022 (registration number INPLASY2022100108).

INTRODUCTION

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effectiveness of gait ability intervention programmes in patients with CP. Using NMA, this study aimed to evaluate and compare the effects of different approaches of gait training on gait ability in CP patients. The specific aim of this study was to verify the relative effectiveness of

different gait interventions on the gait ability of people with CP.

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METHODS

Search strategy: The searching was independently conducted by two authors (G-P Q and X-Y C). Medline (via PubMed), Embase, Web of Science (WOS) and Cochrane databases from inception to October 26, 2022 were searched extensively using the following key search terms, including (cerebral palsy OR CP) AND (walk* OR gait* OR feedback OR treadmill training) AND random* AND control* AND (walk* ability OR gait* ability OR gross motor function OR GMFM).

Participant or population: People with Cerebral Palsy.

Intervention: Functional gait training.

Comparator: Another class of gait training or a conventional therapy.

Study designs to be included: Randomized controlled trials (RCTs)

Eligibility criteria: Inclusion criteria were as follows: (I) Patients diagnosed with cerebral palsy (CP) (spastic, dyskinesia, ataxia, Worster-Drought syndrome, other specific CP and unspecific CP); (II) Interventions consisted of any functional gait training; (III) Comparators involved another class of gait training or a conventional therapy; (IV) The outcomes of interest were gait-related measures; (V) RCTs published without year and language restriction (e.g., cross-over and cluster randomized trials) were selected. Exclusion criteria were as follows: (I) If most enrolled patients are undergoing other treatments at the same time; (II) Non-randomized controlled such as case-control study, cohort study,

qualitative research, full-text but unpublished, study protocol. We excluded the literature whose full text is not obtained through various channels and the data in the study cannot be used and literature that could not be utilized, such as literature with repeated publication, low quality and too little reported information.

Information sources: Medline (via PubMed), Embase, Web of Science (WOS) and Cochrane databases.

Main outcome(s): Gait velocity. Usually, the gait velocity is tested by a 10m walking test. During the 10m walking test, The shorter the time taken by participants that shows the faster they were walking.

Additional outcome(s): GMFM corresponding to dimensions D and E.

Quality assessment / Risk of bias analysis: The methodological quality of included RCTs was evaluated using the Cochrane Collaboration's Risk of Bias (ROB) approach. Cochrane Manual 5.1.0 criteria mainly evaluated study bias through the following aspects: (I) Randomization method; (II) Allocation hiding; (III) Blind the participants and the study implementers; (IV) Blind method was applied to the results evaluators; (V) The integrity of the result data; (VI) Selective reporting of research results; (VII) Other bias. In accordance with the above criteria, the included literature was judged as "low risk", "high risk" and "unclear".

Strategy of data synthesis: A network Meta-analysis was performed using frequency studies, statistical analysis and network relationship mapping using STATA 15.0 software, using packages such as mvmeta and network. Measures were expressed as mean difference (MD) and each effect size was expressed as its 95% confidence interval (95% CI). For each outcome indicator, the cumulative ranked probability area under the curve (SUCRA) was used to predict and rank the efficacy of each treatment measure. Publication bias of the included literature was evaluated using corrected funnel plots

comparing small sample effects between studies. Translated with <http://www.DeepL.com/Translator> (free version).

Subgroup analysis: None.

Sensitivity analysis: None.

Country(ies) involved: Poland and China.

Keywords: gait; walking speed; rehabilitation; motor skills disorders; randomized controlled trials.

Contributions of each author:

Author 1 - Guoping Qian - GP Q and XY C served as principal authors and had full access to all the data in the study. GP Q contributed to the conception and design. GP Q contributed to draft of the manuscript. GP Q contributed to revise of the article and final.

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