

# INPLASY PROTOCOL

To cite: Li et al. Medicine Effectiveness comparisons of different physiotherapeutics for Stroke patients with dysphagia: A protocol for systematic review and network meta-analysis. Inplasy protocol 202070125. doi: 10.37766/inplasy2020.7.0125

Received: 29 July 2020

Published: 29 July 2020

**Corresponding author:**  
Ying Li

1784570921@qq.com

**Author Affiliation:**  
Nanchang University. Jiangxi Medical College, Bayi Avenue, Donghu District, Nanchang City, Jiangxi Province.  
Postcode: 330000.

**Support:** No.

**Review Stage at time of this submission:** Data analysis.

**Conflicts of interest:**  
The authors have no conflict.

## INTRODUCTION

**Review question / Objective:** Stroke is characterized by high incidence rate, high disability rate and high mortality rate. Dysphagia is the most common complication of stroke. Patients with

## Medicine Effectiveness comparisons of different physiotherapeutics for Stroke patients with dysphagia: A protocol for systematic review and network meta-analysis

Li, L<sup>1</sup>; Li, R<sup>2</sup>; Li, D<sup>3</sup>; Xiao, J<sup>4</sup>; Hu, Y<sup>5</sup>; Xie, R<sup>6</sup>; Yuan, Y<sup>7</sup>.

**Review question / Objective:** Stroke is characterized by high incidence rate, high disability rate and high mortality rate. Dysphagia is the most common complication of stroke. Patients with dysphagia after stroke mainly rely on different types of physical therapy. In this study, mesh meta-analysis was used to evaluate the efficacy and safety of different physiotherapy methods.

**Condition being studied:** Stroke is an acute cerebrovascular disease. Its pathogenesis is mainly due to vascular obstruction or sudden rupture of cerebral blood vessels, resulting in blood unable to flow into the brain, mainly hemorrhagic stroke and ischemic stroke. And, stroke has high incidence rate, high disability rate, high mortality rate and high recurrence rate. Dysphagia is a common disorders after stroke, with an incidence of 37% -78%. The patients with dysphagia after stroke have to eat hard, reduce their food intake and prolong their eating time, which will lead to the decline of body weight and malnutrition. At present, more and more attention has been paid to physical therapy. Physical therapy has the advantages of effectiveness, noninvasive, easy to operate, low price and little side effects. The currently used Physical treatment methods for Stroke patients with dysphagia include posture training, swallowing exercises, Ice stimulation or motor stimulation, neuromuscular electrical stimulation, and noninvasive brain stimulation and so on.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 July 2020 and was last updated on 29 July 2020 (registration number INPLASY202070125).

dysphagia after stroke mainly rely on different types of physical therapy. In this study, mesh meta-analysis was used to evaluate the efficacy and safety of different physiotherapy methods.

**Condition being studied:** Stroke is an acute cerebrovascular disease. Its pathogenesis is mainly due to vascular obstruction or sudden rupture of cerebral blood vessels, resulting in blood unable to flow into the brain, mainly hemorrhagic stroke and ischemic stroke. And, stroke has high incidence rate, high disability rate, high mortality rate and high recurrence rate. Dysphagia is a common disorders after stroke, with an incidence of 37%-78%. The patients with dysphagia after stroke have to eat hard, reduce their food intake and prolong their eating time, which will lead to the decline of body weight and malnutrition. At present, more and more attention has been paid to physical therapy. Physical therapy has the advantages of effectiveness, noninvasive, easy to operate, low price and little side effects. The currently used Physical treatment methods for Stroke patients with dysphagia include posture training, swallowing exercises, Ice stimulation or motor stimulation, neuromuscular electrical stimulation, and noninvasive brain stimulation and so on.

## METHODS

**Search strategy:** #1 “Stroke” [MeSH] OR “Cerebrovascular Accident” [Title/Abstract] OR “Cerebrovascular Accident” [Title/Abstract] OR “Cerebrovascular Apoplexy” [Title/Abstract] OR “Apoplexy, Cerebrovascular” [Title/Abstract] OR “Vascular Accident, Brain” [Title/Abstract] OR “Brain Vascular Accident” [Title/Abstract] OR “Cerebrovascular Stroke” [Title/Abstract] OR “Stroke, Cerebrovascular” [Title/Abstract] OR “Apoplexy” [Title/Abstract] OR “Cerebral Stroke” [Title/Abstract] OR “Stroke, Cerebral” [Title/Abstract] OR “Stroke, Acute” [Title/Abstract] OR “Acute Stroke” [Title/Abstract] OR “Cerebrovascular Accident, Acute” [Title/Abstract] OR “Acute Cerebrovascular Accident” [Title/Abstract] OR “Cerebrovascular Accidents, Acute” [Title/Abstract] #2 “Deglutition Disorders” [MeSH] OR “Deglutition Disorder” [Title/Abstract] OR “Swallowing Disorders” [Title/Abstract] OR “Dysphagia”

[Title/Abstract] OR “Oropharyngeal Dysphagia” [Title/Abstract] OR “Esophageal Dysphagia” [Title/Abstract] OR “Dysphagia, Esophageal” [Title/Abstract] #3 #1 AND #2 #4 “Electric stimulation therapy” [MeSH] OR “Therapeutic Electrical Stimulation” [Title/Abstract] OR “Therapeutic Electric Stimulation” [Title/Abstract] OR “Electric Stimulation, Therapeutic” [Title/Abstract]. OR “Stimulation, Therapeutic Electric” [Title/Abstract] OR “Therapy, Electrical Stimulation” [Title/Abstract] OR “Esophageal Dysphagia” [Title/Abstract] OR “Dysphagia, Esophageal” [Title/Abstract] OR “Stimulation Therapy, Electric” [Title/Abstract] OR “Electrotherapy” [Title/Abstract] OR “Electrical Stimulation, Therapeutic” [Title/Abstract] OR “nterferential Current Electrotherapy” [Title/Abstract] #5 “Neurofeedback” [MeSH] OR “Neurofeedbacks” [Title/Abstract] OR “Brainwave Biofeedback” [Title/Abstract] OR “Biofeedback, Brainwave” [Title/Abstract] OR “Alpha Feedback” [Title/Abstract] OR “Feedback, Alpha” [Title/Abstract] OR “Electromyography Feedback” [Title/Abstract] OR “EEG Feedback” [Title/Abstract] OR “Feedback, EEG” [Title/Abstract] OR “Electroencephalography Biofeedback” [Title/Abstract] OR “Alpha Biofeedback” [Title/Abstract] OR “Biofeedback, Alpha” [Title/Abstract] OR “Feedback, Brainwave” [Title/Abstract] #6 “Hyperbaric Oxygenation” [MeSH] OR “Oxygenations, Hyperbaric” [Title/Abstract] OR “Hyperbaric Oxygen Therapy” [Title/Abstract] OR “Oxygen Therapy, Hyperbaric” [Title/Abstract] OR “Therapy, Hyperbaric Oxygen” [Title/Abstract] OR “Oxygenation, Hyperbari” [Title/Abstract] #7 “Transcranial Magnetic Stimulation” [MeSH] OR “Magnetic Stimulation, Transcranial” [Title/Abstract] OR “Stimulation, Transcranial Magnetic” [Title/Abstract] OR “Transcranial Magnetic Stimulations” [Title/Abstract] OR “Transcranial Magnetic Stimulation, Single Pulse” [Title/Abstract] OR “Transcranial Magnetic Stimulation, Paired Pulse” [Title/Abstract] OR “Transcranial Magnetic Stimulation, Repetitive” [Title/Abstract] #8 “Exercise Therapy” [MeSH] OR

“Remedial Exercise” [Title/Abstract] OR  
 “Exercise, Remedial” [Title/Abstract]OR  
 “Remedial Exercises” [Title/Abstract] OR  
 “Therapy, Exercise” [Title/Abstract]OR  
 “Rehabilitation Exercise” [Title/Abstract]  
 #9“Physical Therapy Modalities ” [MeSH]  
 OR “Modality, Physical Therapy” [Title/  
 Abstract] OR “Physical Therapy  
 Modality” [Title/Abstract]OR  
 “Physiotherapy (Techniques)” [Title/  
 Abstract] OR “Physical Therapy Technique”  
 [Title/Abstract]OR.

**Participant or population:** According to the diagnostic criteria of stroke (1996) revised by the fourth national Cerebrovascular Disease Conference of Chinese Medical Association or the Chinese stroke rehabilitation guidelines, dysphagia was diagnosed by CT or MRI. Commonly used clinical screening methods: WaTan’s Drinking Water Test, Gugging Swallowing Function Assessment Tool (Guss), Standard Swallowing Function Assessment Scale (SSA), Scottish Intercollegiate Guidelines (SIG), Toronto Bedside Swallowing Screening Test (TOBSST).

**Intervention:** Experimental group: Different types of physical therapy (exercise therapy; transcranial magnetic stimulation; hyperbaric oxygen; ice stimulation; nerve feedback; electrical stimulation)on the basis of conventional treatment.

**Comparator:** Only routine treatment.

**Study designs to be included:** The included studies will be RCTS in this systematic review regardless of publication status and language. Animal trails, clinical experience, case.

**Eligibility criteria:** The PICOS principles were given full consideration to establish inclusion and exclusion criteria of this systematic review.

**Information sources:** Studies will be obtained from the China National Knowledge Infrastructure (CNKI), Wan Fang Data, Chinese Scientific Journals Database (VIP), PubMed, CBM, Embase, Web of science and Cochrane Library,

regardless of publication date or language. The databases will be retrieved by combining the subject words with random words. The search terms will be adapted appropriately to conform to the different syntax rules of the different databases.

**Main outcome(s):** The primary outcomes should include the National Institutes of Water Swallow Test (Japan), Swallowing function assessment (SSA), the number of effective patients (the objective criteria for cerebral) , and the number of adverse reactions.

**Additional outcome(s):** Secondary outcomes will include the Activity of Daily Living Scale, Health Stroke Scale (NIHSS) score.

**Data management:** According to the Cochrane Handbook for Systematic Reviews of Intervention, the two researchers extracted the author, publication time, participant number, age, race, intervention measures, course of treatment and outcome indicators, filled in the data extraction table, and compared with each other.

**Quality assessment / Risk of bias analysis:** Two researchers will be designated to assess the quality of included RCTs independently by utilizing the Cochrane risk of bias assessment tool. As specified by Cochrane Handbook V.5.1.0, the following sources of bias will be considered: random sequence generation, allocation concealment, participant blinding, outcome assessor blinding, incomplete outcome data, selective reporting, and other sources of bias. Each domain will be rated as high, low or unclear risk of bias as appropriate. The two reviewers will resolve any disagreements through discussion, and a third reviewer may be involved if no consensus is reached.

**Strategy of data synthesis:** The effectiveness and safety of different physical therapies for dysphagia will be performed using Review Manager 5.3.

---

Results the mean difference (MD) or odds ratio (or) was taken as the representative, and the 95% confidence interval ( $P < 0.05$ ) was considered to be significant. The heterogeneity was evaluated by Cochrane Q test and  $I^2$  statistic. When  $p < 0.1$  or  $I^2 > 50\%$  indicates statistical heterogeneity, the random effect model is used to calculate the results, otherwise the fixed effect model is considered. A network evidence diagram will be drawn to visually represent the comparisons between the studies. The size of the nodes represents the number of participants, and the thickness of the edges represents the number of comparisons. Stata 14 and OpenBUGS 14 Software will be used to carry out Bayesian network meta-analysis. Bayesian inference will carried out using the Markov chain Monte Carlo (MCMC) method, the posterior probability will be inferred from the prior probability, and estimation and inference will be assumed when MCMC reaches a stable convergence state. As a result, the rank of the CHI effect will be presented by the surface under the cumulative ranking curve (SUCRA).

Author 5 - Yan Hu.  
Author 6 - Rongrong Xie.  
Author 7 - Yanyan Yuan.

**Subgroup analysis:** If there is high heterogeneity in the included studies, we will perform subgroup analyses to explore the differences in age, sex, race, lesion location, and course of the Intervention time.

**Sensibility analysis:** To ensure robustness of the combined results, sensitivity analyses will be performed to assess the impact of studies with a high risk of bias. We will compare the results to determine whether lower-quality studies should be excluded.

**Country(ies) involved:** China.

**Keywords:** network meta-analysis, physiotherapeutics, stroke, dysphagia, protocol.

**Contributions of each author:**

Author 1 - Ying Li.

Author 2 - Runmin Li.

Author 3 - Dongying Li.

Author 4 - Jia Xiao.