

# INPLASY PROTOCOL

To cite: Chen et al. Effect of non-invasive brain stimulation on post-stroke sensory impairment: a systematic review and meta-analysis. Inplasy protocol 202350079. doi: 10.37766/inplasy2023.5.0079

Received: 20 May 2023

Published: 20 May 2023

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**Review Stage at time of this submission:** Completed but not published.

**Conflicts of interest:**  
None declared.

## Effect of non-invasive brain stimulation on post-stroke sensory impairment: a systematic review and meta-analysis

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**Review question / Objective:** P: Stroke patient; non-invasive brain stimulation (NIBS); C: Control group received sham treatment or no rTMS; O: measurement of sensory function; S: RCT. The aim is to summarize the current effectiveness of NIBS in the treatment of post-stroke sensory dysfunction.

**Condition being studied:** Stroke is the second leading cause of death in the world and the number one cause of death in China. Stroke survivors also suffer from many functional impairments, for example, half of stroke survivors have sensory dysfunction, which can seriously affect the quality of life of stroke patients. NIBS is a promising treatment technology and previous studies have found its potential in treating sensory impairment.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 May 2023 and was last updated on 20 May 2023 (registration number INPLASY202350079).

### INTRODUCTION

**Review question / Objective:** P: Stroke patient; non-invasive brain stimulation (NIBS); C: Control group received sham treatment or no rTMS; O: measurement of sensory function; S: RCT. The aim is to summarize the current effectiveness of

NIBS in the treatment of post-stroke sensory dysfunction.

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half of stroke survivors have sensory dysfunction, which can seriously affect the quality of life of stroke patients. NIBS is a promising treatment technology and previous studies have found its potential in treating sensory impairment.

## METHODS

**Participant or population:** Stroke patients.

**Intervention:** Non-invasive brain stimulation.

**Comparator:** Control group received sham treatment or no rTMS.

**Study designs to be included:** Randomized controlled trials.

**Eligibility criteria:** Exclusion criteria.(1) suffering from other diseases(2) Articles published, such as reviews, meta-analyses or case reports(3) Results were not mean plus standard deviation but median and quartiles.

**Information sources:** PubMed, Web of Science, Embase, China National Knowledge Infrastructure (CNKI), Chinese scientific journals full-text database (VIP), and Wanfang database.

**Main outcome(s):** (1) Efficacy of NIBS for post-stroke sensory dysfunction  
(2) Efficacy of NIBS for post-stroke sensory dysfunction within one year  
(3) Efficacy of NIBS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between rTMS and tDCS as the intervention method)  
(4) Efficacy of NIBS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between stimulation areas of primary motor cortex (M1), primary sensory cortex (S1) and M1+S1)  
(5) Efficacy of NIBS in treating post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between <10, 10-20 or ≥30 treatments)  
(6) Efficacy of NIBS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between acute, subacute and chronic phases of intervention)

(7) Efficacy of rTMS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between high-frequency rTMS and low-frequency rTMS).

**Quality assessment / Risk of bias analysis:** PEDro Scale; GRADE.

**Strategy of data synthesis:** All statistical analyses were performed using Stata MP 14.0 software. Standardized mean differences (SMDs) of change scores (endpoint minus baseline scores) and corresponding 95% confidence intervals (CIs) were used to summarize the effects.

**Subgroup analysis:** (1) Efficacy of NIBS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between rTMS and tDCS as the intervention method)  
(2) Efficacy of NIBS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between stimulation areas of primary motor cortex (M1), primary sensory cortex (S1) and M1+S1)  
(3) Efficacy of NIBS in treating post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between <10, 10-20 or ≥30 treatments)  
(4) Efficacy of NIBS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between acute, subacute and chronic phases of intervention)  
(5) Efficacy of rTMS for post-stroke sensory dysfunction (subgroup analysis: difference in efficacy between high-frequency rTMS and low-frequency rTMS).

**Sensitivity analysis:** Sensitivity analysis was performed using Stata MP 14.0 software.

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

**Keywords:** Meta-analysis; rehabilitation; stroke; sensory; NIBS; non-invasive brain stimulation.

**Contributions of each author:**

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**Support:** This research was supported by grant 2022YFC2009700 from Natural Key Research and Development Program of China, grant 81974357 and 82072548 from the National Science Foundation of China, grant 202206010197 from Guangzhou Municipal Science and Technology Program.