

# INPLASY PROTOCOL

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None declared.

## Does Electrical Stimulation Through Nerve Conduits Improve Peripheral Nerve Regeneration ? - A Systematic Review

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**Review question / Objective:** The objective of this study is to collect, present and discuss currently available literature concerning treatment of peripheral nerve injuries with the combination of electrical stimulation and nerve guidance conduits (in vivo).

**Condition being studied:** Peripheral nerve injuries.

**Eligibility criteria:** Only in vivo studies on electrical stimulation through nerve conduits will be included. In vitro experiments without in vivo confirmation will be excluded. Only studies on the peripheral nerve system are eligible, research on the central nervous system (spinal cord, brain) will be excluded.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 February 2023 and was last updated on 13 February 2023 (registration number INPLASY202320057).

### INTRODUCTION

**Review question / Objective:** The objective of this study is to collect, present and discuss currently available literature concerning treatment of peripheral nerve injuries with the combination of electrical stimulation and nerve guidance conduits (in vivo).

**Condition being studied:** Peripheral nerve injuries.

### METHODS

**Search strategy:** Systematic search thorough online databases (Pubmed, Embase, Medline, Cochrane).

**Participant or population:** Only in vivo experiments will we included in the search.

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**Intervention:** Electrical stimulation through nerve guidance conduits.

**Comparator:** Not applicable.

**Study designs to be included:** In vivo experiments , different study designs.

**Eligibility criteria:** Only in vivo studies on electrical stimulation through nerve conduits will be included. In vitro experiments without in vivo confirmation will be excluded. Only studies on the peripheral nerve system are eligible, research on the central nervous system (spinal cord, brain) will be excluded.

**Information sources:** PubMed, Medline, Embase and Cochrane.

**Main outcome(s):** The research revealed a total of 15 studies that fit the criteria. High variety was seen among the studies, especially in terms of study protocols and outcome assessment. The results of these studies showed promising outcome in terms of nerve regeneration, however data is too limited and heterogenous for a definite statement on the efficacy of this therapeutic method. More research under standardized conditions is warranted.

**Quality assessment / Risk of bias analysis:** Not applicable.

**Strategy of data synthesis:** Data will be collected by the authors and further assessed and compared with the aid of Excel sheets and Tables created with Microsoft Word.

**Subgroup analysis:** Not applicable.

**Sensitivity analysis:** N.a.

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

**Keywords:** nerve regeneration; electrical stimulation; nerve conduit; peripheral nerve injury; sciatic nerve; plastic surgery.

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