

Assessing the chance of successful tactile localization for stroke patients; thermal vs physical stimulation

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Introduction

Perceiving the location of touch is one the most complex processes of the brain and there is no general scientific framework to comprehensively describe it. Recently, for a few patients with focal brain lesions, it has been reported that they are capable of tactile detection but have poor tactile stimulation localization ability on surface of the skin. There are, however, not many systematic clinical experiments for this phenomena to address this issue. In this research, we investigate the patients' response in locating the stimulation of different types (thermal, pressure).

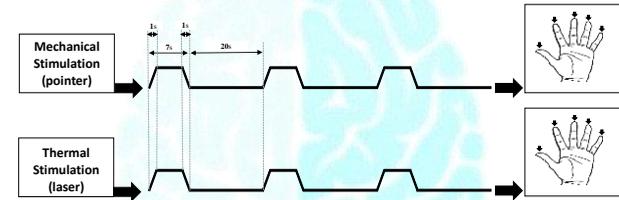
Poster: C17 M882021

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Method



In this study, 20 patients with brain damage incidents within the past 6 months are considered. These patients were capable of tactile detection but had poor tactile stimulation localization ability on the left side of their bodies. They were blind-folded and were subject to 20 pressure stimulations and 20 thermal stimulations (all 5s long with intervals of 20s) on their left hand fingertips. After each stimulation, they were asked about the finger to which the stimulant was applied.

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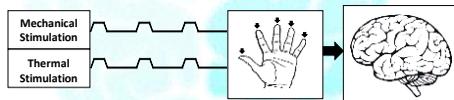
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Discussion

If based on the considered cases, we accept that thermal stimulation increases perceiving the location of touch, we may argue that signals resulting from this type of stimulation are processed differently in the brain of such patients. Given the fact that for healthy people, thermal stimulation has a smaller chance for being correctly localized compared to other types of stimulation, we may be able to analyze this phenomenon and also extend it to numb-touch patients or this new result can novel approach to improve the tactile localization ability of post-stroke patients.



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Results

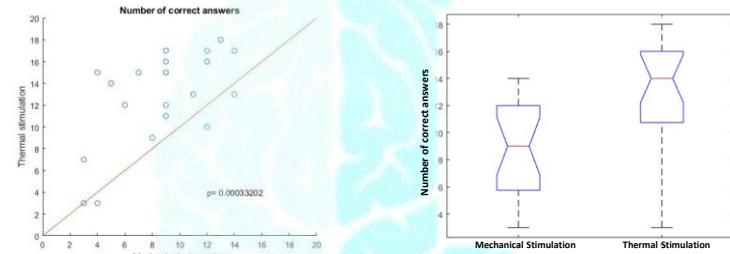


Figure A

Figure B

Figure A and B Statistical measures of two groups. Our data demonstrate that thermal stimulation increases perceiving the location of touch than mechanical stimulation

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