

運動による前頭葉機能への影響に関する研究 — 足趾運動は前頭葉機能に影響を与えることができるのか —

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The Effect of the Exercise on Frontal Lobe Functions Will the Toe Exercise Affect to Frontal Lobe Functions?

by

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ABSTRACT

OBJECTIVE: The purpose of this research was to investigate that toe-grasp exercise affected the frontal lobe functions. **SUBJECTS:** 22 community-based elderly people participated in this study. The subjects were randomized to either an intervention or a control group. **METHOD:** The intervention included toe-grasp exercise such as gathering a towel and passing the bean from one place to another. Intervention group carried on toe grasp exercise four or more times a week for six weeks. All subjects were assessed at baseline, after six weeks and after twelve weeks with Frontal assessment battery (FAB) , toe-grasp strength, plantar's sensation, Functional reach, reaction time and HDS-R. **RESULTS:** Statistically significant differences were found between baseline and after twelve weeks comparing results at FAB and Functional reach. Statistically significant differences were found both between two groups and within an intervention group comparing results at toe-grasp strength and reaction time. Results of HDS-R at an intervention group differed significantly between baseline and after six weeks. No difference between the groups was found in plantar's sensation. **CONCLUSIONS:** It was suggested that toe-grasp exercise affected frontal lobe functions. This study provides

evidence of the benefit of toe-grasp exercise in the activation of frontal lobe functions.

要 旨

本研究の目的は足趾運動が大腦前頭葉機能を活性化させることができるのかを調査することである。

地域在住高齢者22名を対象とし、無作為に介入群11名、対照群11名に分類した。介入群の対象者には局所運動として足趾運動を6週間実施した。運動開始前、6週間後、および12週間後に前頭葉簡易機能検査 (FAB)、足趾屈曲力、足底感覚、反応時間、Functional Reach、HDS-Rの各検査を実施した。

FABおよびFunctional Reachでは、介入群が介入前に比して12週後で有意に増加した。足趾屈曲力は介入群が介入前に比して6週後、12週後で有意に増加した。HDS-Rでは、介入群が介入前に比して6週後に有意に増加した。反応時間は、上肢および下肢ともに対照群が有意に延長した。足底感覚は有意な変化がなかった。

これらより、足趾運動介入により運動機能とともに前頭葉機能が活性化されたものと考えられた。