別紙様式３

平成 22 年度 博士後期課程学位論文要旨

学位論文題名（注：学位論文題名が欧文の場合は和訳をつけること）

受動的な触覚識別時の脳内機構と学習の影響－機能的 MRI による分析－

Brain Organization during Passive Touch and Tactile Discrimination and the Influence of Learning -a functional MRI Study-

学位の種類：　博士（理学療法学）

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注：1,000 字程度（欧文の場合 300 ワード程度）で、本様式１枚（Ａ４版）に収めること

Objective: To evaluate brain organization during passive touch and tactile discrimination using functional magnetic resonance imaging and to examine the influence of learning.

Methods: Participants comprised 7 who were experienced in playing Mahjong and were able to distinguish a Mahjong tile pattern by thumb touch only, without visual clues; and 10 who were novices with no Mahjong experience. During magnetic resonance imaging, all subjects were in a resting supine position, with eyes closed. They were given touch and tactile discrimination tasks using the dominant thumb.

Results: In both groups, contralateral (thumb) sensorimotor cortex activation occurred during touch and bilateral sensorimotor cortex activation occurred during tactile discrimination. In both groups, there was a significant difference between touch and tactile discrimination tasks. Compared to touch, the activation area was significantly increased during tactile discrimination. Between both groups, no significant difference was observed between touch and tactile discrimination tasks, but during tactile discrimination, the activation area tended to be larger in the "experienced" group.

Conclusion: Brain organization clearly differed between passive touch and passive tactile discrimination. Our findings suggest that with passive tactile discrimination, brain area activation may increase with learning.