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**題目 (Title):**

雙手臂密集治療改善半側偏癱腦性麻痺兒童前額葉皮質的活化  
Hand-Arm Bimanual Intensive Therapy Improves Prefrontal Cortex Activation in Children  
With Hemiplegic Cerebral Palsy.

**摘要中文翻譯****目的:**

為了決定半側偏癱腦性麻痺(hemiplegic cerebral palsy；HCP)兒童接受雙手臂密集治療(hand-arm bimanual intensive therapy；HABIT)後在前額葉皮質(prefrontal cortical)活化的變化。

**方法:**

9名HCP兒童和15名一般發展兒童參與此研究，HCP兒童接受50小時的HABIT。我們使用功能性近紅外光譜神經影像技術評估HABIT前後的前額葉皮質活化；並且以協助手評量(Assisting Hand Assessment；AHA)、形狀配對的平均數量、形狀配對錯誤、反應時間、九孔插棒測驗、箱子與積木測驗，評估雙手的協調性和動作任務表現。

**結果:**

HCP兒童接受HABIT之後，前額葉皮質的活化下降，變得與一般發展兒童相似。HABIT後前額葉皮質活化的改善與在協助手評量以及行為表現的改善結果相符合。

**結論:**

HABIT可能改善HCP兒童前額葉皮質在上肢動作的動作計畫之參與。

## **Original Abstract**

### **PURPOSE:**

To determine the changes in the prefrontal cortical (PFC) activation following hand-arm bimanual intensive therapy (HABIT) in children with hemiplegic cerebral palsy (HCP).

### **METHODS:**

Nine children with HCP and 15 children who were developing typically participated in the study. Children with HCP received 50 hours of HABIT. We assessed pre- and post-HABIT PFC activation using functional near-infrared spectroscopy neuroimaging. Bimanual coordination and motor task performance were assessed using the Assisting Hand Assessment (AHA), the average number of shapes matched, the shape matching errors, the reaction time, the 9-hole peg test, and the box and blocks test.

### **RESULTS:**

The PFC activation decreased following HABIT and became similar to what was seen in the children who were developing typically. Post-HABIT PFC activation improvements paralleled with the improvements seen in the AHA and the behavioral outcomes.

### **CONCLUSION:**

HABIT potentially improves the PFC's involvement in the action planning of the upper extremity movements in children with HCP.

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