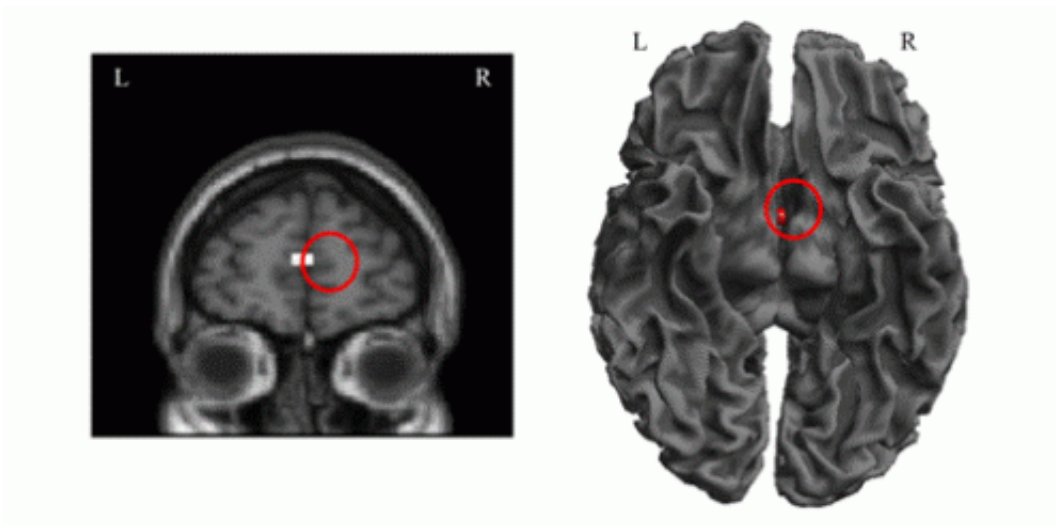


Brain activation when processing Chinese hand-radicals

August 7 2013



Greater activation was found for the hand radical in the right medial frontal gyrus. Credit: *Neural Regeneration Research*

A number of studies in which patients with lesions to frontal pre-motor areas are included have identified deficits in action comprehension. In addition, imaging studies have revealed the activation of brain areas associated with perception or action during tasks involving reading of words with related semantic meaning. For example, the mere passive reading of action verbs such as kick, pick and lick has been found to activate areas of the sensory-motor cortex associated with the legs, hands and face, respectively.

To investigate the semantic processing of Chinese radicals and Chinese characters, Qing-Lin Wu and team from Taiwan Normal University divided 72 high-frequency Chinese characters into four categories: hand-action verbs with and without hand-radicals, and verbs not related to hand actions, with and without hand-radicals.

Twenty-eight healthy participants, aged 21-30 years, underwent functional MRI scans while reading the characters. Compared to characters without hand-radicals, reading characters with hand-radicals activated the right medial frontal gyrus. The findings may be consistent with embodied semantics theory and suggest that [neural representation](#) of radicals is indispensable in processing Chinese characters.

This study by the research team of Qing-Lin Wu, published in the *Neural Regeneration Research* (Vol. 8, No. 20, 2013), enhances our understanding of the neural substrates underlying the process of reading in Chinese, with potential benefits for the development of treatments for dyslexia.

More information: Wu QL, Chan YC, Lavallee JP, Chen HC, Chang KE, Sung YT. Processing Chinese hand-radicals activates the medial frontal gyrus: a functional MRI investigation. *Neural Regen Res.* 2013;8(20):1837-1843.

Provided by Neural Regeneration Research

Citation: Brain activation when processing Chinese hand-radicals (2013, August 7) retrieved 2 May 2024 from <https://medicalxpress.com/news/2013-08-brain-chinese-hand-radicals.html>

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