A MODERN PERSPECTIVE ON SOME OF THE MOST HIGHLY CITED JNNP PAPERS OF ALL TIME

Action discrimination: impact of apraxia

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Pantomime comprehension and ideomotor apraxia

Authors: Rothi L J, Heilman K M, Watson R T
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Changes, the frontal lobe seems to be associated with the appropriateness of action representation.

It has also been indicated that left lateralised lesions in the frontal and parietal regions, both of which are essential for the visual discrimination of actions, might be associated with deficits in action production and recognition of sounds that are specifically linked to human actions. The inability to match sounds heard with images of hand and mouth related actions may also depend on tapped resources of the visual and mental representation of actions. Although visuomotor transfer impairments seem to reflect a more common form of disturbance in patients with apraxia, audiomotor deficits might also suggest the existence of more general deficits within the context of the multimodal representation of actions, regardless of whether they are mediated via visual or auditory means.

Finally, and most importantly, we now know that patients with parietal damage and impaired ability to imitate or discriminate an observed action lose the capacity to monitor early phases of planning of their own movements. Apraxia patients with injury in parietal areas not only have major problems in comprehending actions but also frequently exhibit failure of the anticipatory motor process that drives forthcoming movements via predictive mechanisms.

Inspired by the seminal study reported by Rothi et al, several studies have revealed a picture of apraxia that, although probably still incomplete, appears to be quite promising with regards to insights into the neural mechanisms that underlie perceptual motor code actions and an effective neurorehabilitation perspective. Based on the aspects of impairment described three decades ago, bidirectional training on the perceptual and motor codes has been developed to treat limb apraxia; this approach is recommended as being essential for the treatment of this type of disturbance. The relevance of the perceptual–motor coding identified in apraxia has encouraged the advancement of novel and effective treatments to cure the deficits associated with this disorder, and continues to be a valuable approach for gathering conclusive evidence on the role of the motor system in perception and cognition.
REFERENCES
11 Aglioti SM, Pazzaglia M. Representing actions through their sound. Exp Brain Res 2010;206:141–51.