sphere of typical right-handed subjects has both ipsilateral and contralateral corticospinal projections, but the right hemisphere's corticospinal system of these subjects projects primarily to the opposite side.

Although it is possible that epilepsy influences brain organization, our results suggest that when typical right-handed people use their left hand to perform a skilled behavior, both hemispheres make a contribution to the control of this behavior. However, it remains unclear what contributions each hemisphere specifically makes to the performance of these movements. In addition, our atypical subject group is heterogeneous, containing people who do not prefer to use their right hand and people who have anomalous hemispheric language distribution (right hemisphere or both hemispheres). Because the total number of subjects in the atypical group was small, we could not fractionate this group into subgroups to learn the role of the right and left hemisphere in the control of precise and independent finger movements.

References

- Steinthal P. Abriss der Sprachwissenschaft. Berlin, Germany: Harriwitz and Gossman, 1871.
- Liepman H. Apraxia. *Ergbn Ges Med* 1920;1:516–543.
- Rothi LJG, Mack L, Verfaellie M, Brown P, Heilman KM. Ideomotor apraxia: error pattern analysis. *Aphasiology* 1988; 2:381–387.
- Poizner H, Mack L, Verfaellie M, Rothi LJG, Heilman KM. Three dimensional computer graphic analysis of apraxia. *Brain* 1990;113:85–101.
- De Renzi E, Lucchelli F. Ideational apraxia. *Brain* 1988;111: 1173–1188.
- Ochipa C, Rothi LJG, Heilman KM. Conceptual apraxia in Alzheimer's disease. *Brain* 1992;115:1061–1071.
- Kleist K. Kortikale (innervatorische) Apraxie. *Jahrbuch fur Psychiatrie und Neurologie* 1907;28:46–112.
- Denes G, Mantovan MC, Gallana A, Cappelletti JY. Limb-kinetic apraxia. *Mov Disord* 1998;13:468–476.
- Barbieri C, De Renzi E. The executive and ideational components of apraxia. *Cortex* 1988;24:535–543.
- Meador KJ, Loring DW, Lee G, Nichols M, Heilman KM. Cerebral lateralization: relationship of language and ideomotor praxis. *Neurology* 1999;53:2028–2031.
- Heilman KM, Maher LM, Greenwald ML, Rothi LJG. Conceptual apraxia from lateralized lesions. *Neurology* 1997;49:457–464.
- Varney NR, Benton AL. Tactile perception of direction in relation to handedness and familiar handedness. *Neuropsychologia* 1975;13:449–454.
- Loring DW, Meador KJ, Lee GP, King DW. Amobarbital effects on lateralized brain function. The Wada test. New York, NY: Springer-Verlag, 1992.
- Bucy PC. The surgical treatment of abnormal involuntary movements. *Journal Neurosurgery Nursing* 1970;2:31–39.
- Lawrence DG, Kuypers HG. The functional organization of the motor system in the monkey. II. The effects of lesions of the descending brain-stem pathways. *Brain* 1968;91:15–36.
- Chen R, Cerloff C, Hallett M, Cohen LG. Involvement of the ipsilateral motor cortex in finger movements of different complexities. *Ann Neurol* 1997;41:247–254.
- Barrett AM, Schwartz RL, Raymer AM, Crucian GP, Rothi LJG, Heilman KM. Failure to combine simultaneous preprogrammed movements. *Cognitive Neuropsychology* 1998;15: 685–703.
- Schluter ND, Rushworth MF, Passingham RE, Mills KR. Temporary interference in human lateral premotor cortex suggests dominance for the selection of movements. A study using transcranial magnetic stimulation. *Brain* 1998;121:785–799.
- De Renzi E, Motti F, Nichelli P. Imitating gestures. A quantitative approach to ideomotor apraxia. *Arch Neurol* 1980;37:6–10.
- Rapcsak SZ, Gonzalez Rothi LJ, Heilman KM. Apraxia in a patient with atypical cerebral dominance. *Brain Cogn* 1987;6: 450–463.
- Rapcsak SZ, Ochipa C, Beeson PM, Rubens AB. Praxis and the right hemisphere. *Brain Cogn* 1993;23:181–202.

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Local hyperhidrosis of the left forearm

Anton J.A. de Louw, Christianne A. van Nieuwenhoven,
Marc C.F.T.M. de Krom, Jaap Troost, Maastricht, the Netherlands

A 29-year-old woman presented at the neurology outpatient department complaining of profuse perspiration of the ulnar side of her left forearm (figure). The perspiration pattern of the palms, soles, and armpits was normal.

Neurologic examination was unremarkable, as were EMG, MRI of the cervical spinal cord, and a skin biopsy.

To our knowledge, only one case of local hyperhidrosis of the wrist has been described.¹ Recent work has shown the benefit of intracutaneous botulinum toxin A for the treatment of hyperhidrosis.²

Figure. Sweating of the ulnar side of the left wrist, not according to a dermatome distribution, which started at the age of 8, 1 year after a left sided olecranon fracture. Complaints were successfully treated with botulinum toxin A, resulting in cessation of sweating.

- Goldstein N. Epihidrosis (local hyperhidrosis) nevus sudoriferous. *Arch Dermatol* 1967;96:67–68.
- Naumann M, Hofmann U, Bergmann I, Hamm H, Toyka KV, Reiners K. Focal hyperhidrosis; effective treatment with intracutaneous botulinum toxin. *Arch Dermatol* 1998;134:301–304.

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