

The changing roles of 2 hemispheres in stroke recovery

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Most people who survive a stroke recover some degree of their motor, sensory and cognitive functions over the following months and years. This recovery is commonly believed to reflect a reorganisation of the central nervous system that occurs after brain damage. Now a new study, published in the February 2011 issue of Elsevier's *Cortex*, sheds further light on the recovery process through its effect on language skills.

For almost all right-handed people and for about 60% of left-handers, damage to the left side of the brain causes a condition known as aphasia, an acute or chronic impairment of language skills. The syndrome is strongly associated with damage to the left hemisphere of the brain; however, there is a long-standing controversy regarding the involvement of parts of the right hemisphere in language functions and their contribution to recovery from aphasia. The majority of experts stress the role of the dominant left side in language recovery, while others argue for a complementary (or compensatory) function of the right hemisphere.

Odelia Elkana, from the Hebrew University, Jerusalem, and colleagues investigated the systematic patterns of reorganisation in the brain's language functions, and their relation to linguistic performance, in patients recovering from [childhood brain](#) damage to the left hemisphere. They used functional MRI to detect patterns of [brain activity](#) while patients performed various linguistic tasks inside the scanner. The new study focused on a rare group of children whose [brain damage](#) had occurred after they had already developed [language skills](#) but while the

brain was still developing, and therefore most able to reorganise its language functions.

According to the authors, the findings suggest that "recovery is a dynamic, ongoing process, may last for years after onset and is reflected in an increasing proficiency of inter-hemispheric coordination, rather than just in an increase of activation in one side or the other. Therefore, the role of each hemisphere in the recovery process is not only dependent on the stage of recovery (acute, sub-acute or chronic stage), but also within each of these stages it may continuously change over time."

More information: The article is "Cerebral reorganization as a function of linguistic recovery in children: An fMRI study" by Odelia Elkana, Ram Frost, Uri Kramer, Dafna Ben-Bashat, Talma Hendler, David Schmidt, and Avraham Schweiger, and appears in Cortex, Volume 47, Issue 2 (February 2010)

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