

# Neuroimaging predicts post-stroke therapy response

November 19 2014

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(HealthDay)—Response to post-stroke restorative therapy is best predicted by a model that includes measures of both neural injury and function, according to research published online Nov. 10 in the *Annals of Neurology*.

Erin Burke Quinlan, from the University of California at Irvine, and colleagues conducted a battery of assessments in 29 patients (three to six months post-stroke) prior to initiation of three weeks of standardized upper extremity robotic therapy.

The researchers found that predictors of treatment gains included smaller corticospinal tract (CST) [injury](#), greater ipsilesional motor cortex (M1) activation, and greater inter-hemispheric M1-M1 connectivity. The best prediction was achieved, according to multivariate modeling, using

both CST injury and M1-M1 connectivity ( $P = 0.002$ ). No patient beyond the threshold of >63 percent CST injury achieved clinically significant gains. Results varied by stroke subtype. In patients with lacunar stroke, gains were exclusively predicted by a measure of intra-hemispheric connectivity.

"Neuroimaging measures were the best predictors and may have an ascendant role in clinical decision-making for post-stroke rehabilitation, which remains largely reliant on behavioral assessments," the authors write.

One author disclosed financial ties to the pharmaceutical and medical device industries.

**More information:** [Abstract](#)  
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Citation: Neuroimaging predicts post-stroke therapy response (2014, November 19) retrieved 16 April 2024 from  
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