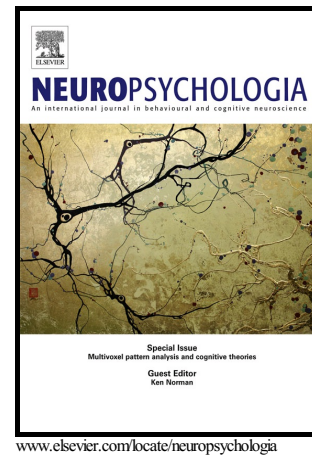


# Author's Accepted Manuscript

Body Schema Plasticity after Stroke: Subjective and Neurophysiological Correlates of the Rubber Hand Illusion

Roberto Llorens, Adrián Borrego, Priscila Palomo, Ausiàs Cebolla, Enrique Noé, Sergi Bermúdez i Badia, Rosa Baños



PII: S0028-3932(17)30007-6  
DOI: <http://dx.doi.org/10.1016/j.neuropsychologia.2017.01.007>  
Reference: NSY6228

To appear in: *Neuropsychologia*

Received date: 1 August 2016  
Revised date: 14 December 2016  
Accepted date: 6 January 2017

Cite this article as: Roberto Llorens, Adrián Borrego, Priscila Palomo, Ausiàs Cebolla, Enrique Noé, Sergi Bermúdez i Badia and Rosa Baños, Body Schema Plasticity after Stroke: Subjective and Neurophysiological Correlates of the Rubber Hand Illusion, *Neuropsychologia*, <http://dx.doi.org/10.1016/j.neuropsychologia.2017.01.007>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Body Schema Plasticity after Stroke: Subjective and Neurophysiological Correlates of the Rubber Hand Illusion

Roberto Llorens<sup>1,2\*</sup>, Adrián Borrego<sup>1</sup>, Priscila Palomo<sup>3</sup>, Ausiàs Cebolla<sup>3,4</sup>, Enrique Noé<sup>2</sup>, Sergi Bermúdez i Badia<sup>5</sup>, Rosa Baños<sup>3,4</sup>

<sup>1</sup>Neurorehabilitation and Brain Research Group, Instituto de Investigación e Innovación en Bioingeniería, Universitat Politècnica de València, Camino de Vera s/n, 46022 Valencia, Spain.

<sup>2</sup>Servicio de Neurorrehabilitación y Daño Cerebral de los Hospitales NISA, Fundación Hospitales NISA, Río Tajo 1, 46011 Valencia, Spain.

<sup>3</sup>Universitat de València, Av. Blasco Ibáñez, 13, 46010 Valencia, Spain.

<sup>4</sup>Fisiopatología de la Obesidad y la Nutrición (CIBERObn), Madrid, Spain.

<sup>5</sup>Madeira-ITI, Universidade da Madeira, Campus universitario da Penteada, 9020-105 Funchal, Portugal.

\***Correspondence:** Dr. Roberto Llorens, Universitat Politècnica de València, Camino de Vera s/n, 46022, Valencia, Spain. Tel: +3496387751. rlllorens@lableni.com

### Abstract

Stroke can lead to motor impairments that can affect the body structure and restraint mobility. We hypothesize that brain lesions and their motor sequelae can distort the body schema, a sensorimotor map of body parts and elements in the peripersonal space through which human beings embody the reachable space and ready the body for forthcoming movements. Two main constructs have been identified in the embodiment mechanism: body-ownership, the sense that the body that one inhabits is his/her own, and agency, the sense that one can move and control his/her body. To test this, the present study simultaneously investigated different embodiment subcomponents (body-ownership, localization, and agency) and different neurophysiological measures (galvanic skin response, skin temperature, and surface electromyographic activity), and the interaction between them, in clinically-controlled hemiparetic individuals with stroke and in healthy subjects after the rubber hand illusion. Individuals with stroke reported significantly stronger body-ownership and agency and reduced increase of galvanic skin response, skin temperature, and muscular activity in the stimulated hand. We suggest that differences in embodiment could have been motivated by increased plasticity of the body schema and pathological predominance of the visual input over proprioception. We also suggest that differences in neurophysiological responses could have been promoted by a suppression of the reflex activity of the sympathetic nervous system and by the involvement of the premotor cortex in the reconfiguration of the body schema. These results could evidence a body schema plasticity promoted by the brain lesion and a main role of the premotor cortex in this mechanism.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات