

## FENS Forum 2006

For lectures, symposia and workshops, time indicates the beginning of the session.  
For posters, authors are expected to be in attendance at their posters at the time indicated.



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**First author: Sanchez-Vives, Maria V.** (poster)

Poster board 385 - Wed 12/07, 12:15 - Hall Y  
Session 232 - Human cognition and behaviour II  
Abstract A232.21, published in *FENS Forum Abstracts, vol. 3, 2006*.  
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<b>Title</b>	The "virtual arm" illusion: Displacement of sensation of ownership to a virtual arm in virtual reality.
<b>Text</b>	Daily experience suggests that the self-representation of our body image is highly stable. However, there is evidence demonstrating that indeed our body image is malleable. In the "rubber arm illusion" (Bovitnick and Cohen, <i>Nature</i> 391:756, 1998) synchronous but irregular tactile stimulation of the hand of a rubber arm and the subject's own out-of-sight hand results in projection of ownership towards the rubber hand. Here we have explored whether this illusion can be evoked with a 3D virtual arm generated in a virtual reality system. A right virtual arm with origin at the level of the subject's right shoulder was displayed resting on a virtual table similar to a real one placed in front of the subject, and while the real right arm was hidden. The arm was displayed on a single screen (approximately 2'1.5m) with passive stereo and head-tracking. The experimenter held a 'wand' which was also tracked and represented in the virtual reality by a small sphere. The experimenter tapped the back of the subject's real hand with the wand at short irregular intervals while the sphere was seen synchronously to strike the back of the displayed virtual hand. After 8-12 minutes of stimulation subjects started feeling a displacement of ownership so that they felt their arm to be the virtual one. Subjects were asked to position a piece of blue-tack on the side of the table level to where they felt their hand to be, the degree of displacement indicating projection of ownership. A questionnaire revealed further evidence of a temporary incorporation of the virtual hand to their own body image, including some subjects reporting that they felt a "third arm" - a sensation that lasted tens of minutes after the end of their experience. This experiment points to the possibility of using virtual reality as a useful tool to analyze multisensory processes that converge to generate body image. Supported by PRESENCCIA (EU FET 27731). MS was a fellow of Programa Nacional de Movilidad, MEC, Spain.
<b>Theme</b>	Cognition and behaviour Human cognition and behaviour / Other higher functions

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