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Putting pain out of mind with an 'out of body' illusion

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Chronic pain is a growing societal concern that warrants scientific investigation, especially given the ineffectiveness of many treatments. Given evidence that pain experience relies on multisensory integration, there have been some recent attempts at using body ownership illusions for reducing acute pain. In the present study, we investigated whether patients' experience of chronic pain could be reduced by full body illusions (FBIs) that cause participants to spatially dissociate from their own body and identify with a 'virtual' body. Participants (n=18) with chronic pain (including sciatica, osteoarthritis, fibromyalgia, muscular pain, IBS and back pain) viewed their own virtual bodies via a video camera and head-mounted display. In the 'back-stroking FBI', their backs were stroked with a stick while they viewed synchronous or asynchronous stroking on the virtual body, and in the 'front-stroking FBI', they were stroked near their collarbone while viewing the stick approach their field of view in a synchronous or asynchronous fashion. Each condition lasted for two minutes. Illusion strength and pain intensity were measured with self-report questionnaires. We found that full body illusions were experienced by patients with chronic pain and further, that pain intensity was reduced by an average of 37% after illusion (synchronous) conditions. The degree of pain reduction was positively correlated with illusion strength in the synchronous back stroking condition. These findings add support to theories that high-level multisensory body representations can interact with homeostatic regulation and pain perception. These data also demonstrate the potential of such illusions for the management of chronic pain.

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