The marble-hand illusion

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Abstract
Our body is made of flesh and bones. We know it, and in our daily lives all the senses — including touch, vision, and audition — constantly provide converging information about this simple, factual truth. But is this necessarily always the case? Here we report a surprising bodily illusion demonstrating that human observers rapidly update their assumptions about the material qualities of their body, based on their recent multisensory perceptual experience. To induce an illusory misperception of the material properties of the hand, we repeatedly gently hit participants’ hand, while progressively replacing the natural sound of the hammer against the skin with the sound of a hammer hitting a piece of marble. After five minutes, the hand started feeling stiffer, heavier, harder, less sensitive, and unnatural, and showed enhanced Galvanic skin response to threatening stimuli. This novel bodily illusion, the ‘Marble-Hand Illusion’, demonstrates that the experience of the material of our body, surely the most stable attribute of our bodily self, can be quickly updated through multisensory integration.

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