

Implanted into the Self: BMIs and Bodily Integrity

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Discussion surrounding the use of brain-machine interfaces (BMIs) may have forged a successful path to formulating ethical principles for the use and design of future advances in medical technology by isolating control and manipulation as two crucial factors for deeming the design of BMIs ethical, and by developing a distinction between therapeutic or beneficial, as opposed to socially risky and unethical uses of the devices. Even in brain-machine interfaces strictly limited to therapeutic purposes, however, one further concern arises. BMIs are by their very nature intrusive: they are inserted into one's body and, by extension, into one's bodily self. What is the nature of the intrusion suffered, however? To examine this question, my paper discusses possible scientific advances that may enable motor skill acquisition via sensory feedback about touch and proprioception through BMI technology. Focusing on brain-implanted neuroprosthetic limbs, I will construct a neuro-phenomenological account of the bodily self in order to develop a notion of "intrusion" which, I will argue, is just as much worthy of ethical consideration as discussions concerning the invasive nature of BMI technologies.

While invasiveness addresses ethical concerns related to the autonomy of a person, intrusion impacts the bodily, pre-reflective self. The intrusiveness of BMIs should be seen as a corollary to the possible restoration of the body's integrity through interactions between the brain-implanted neuroprosthetic limbs and the body schema. The body schema is modified through the enhancement of synoptic neural plasticity: its coordination of the proprioceptive, sensorimotor and intermodal functioning of the pre-reflective self is not simply inserted with a device, but also with the possibility to regain its integrity through self-modification. Closer scrutiny of the intrusiveness of BMIs, I will argue, opens up a fruitful dialogue about the ethics of BMIs because it captures an ethically relevant duality inherent in portended technological advances.

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