

Debate #2: The Ethics of Cognition-Enhancing Brain-Computer Interfaces

Brain-computer interfaces (BCIs) are systems that record brain activity and translate it into commands for an external device. They are currently being tested in clinical trials, mainly to help patients with motor and speech impairments. Brain activity can be measured non-invasively with methods like EEG, fMRI, and functional ultrasound, or invasively with electrodes implanted in the brain. Invasive approaches give much more precise signals, but they require neurosurgery and carry risks like infection, bleeding, and scar tissue forming around the electrodes over time. For someone who is paralyzed, a BCI may make it possible to control a prosthetic limb, type on a computer, or produce synthesized speech using only their brain activity. These technologies could be lifechanging in such cases.

BCIs could also be used in theory to enhance cognitive performance in healthy people. Examples include boosting alertness, improving detection of sensory stimuli, and speeding up reaction times by sending commands directly to a device instead of waiting for muscles to contract. Some companies have openly said their long-term goal is enhancement for the general public, not only treatment for patients. However, the scientific evidence that implants can meaningfully enhance cognition in healthy brains is still very limited.

This raises a question that society may face in your lifetime: If the FDA approves BCIs for patients, should healthy adults be allowed to receive brain implants to enhance cognition as well?

The PRO teams will argue in favor of allowing the use of BCIs in healthy adults.

The CON teams will argue against allowing the use of BCIs in healthy adults.

To get you started thinking about this issue, everyone should read the following two sources:

1. [Singer & Sagan, "Elon Musk's new venture seeks to allow us to add extra memory to the brain" – World Economic Forum](#)
2. [Horgan, "Do We Need Brain Implants to Keep Up with Robots?" – Scientific American](#)

Please carefully review the posted "Guidelines for Discussion Section Debates."

As indicated in those "Guidelines," written assignments are due from EVERYONE. These should be hand-written and a photo should be submitted via bCourses by 11:59pm on Sunday November 15th.