

Implantable brain-computer interfaces: information leaflet

What is an implantable brain-computer interface?

An implantable brain-computer interface (iBCI) is a device that allows individuals to control other technologies with their brain signals. These devices are surgically implanted into the brain and can detect brain signals, which are then 'translated' into commands for external equipment, like smartphones, tablets, computers or prosthetic limbs. In some cases, iBCIs can help reconnect brain signals to the body to restore movement, for example by stimulating the spinal cord

These devices are currently being tested in research studies. They are not yet available as medical treatments.

What are implantable brain-computer interfaces used for?

Implantable BCIs are mainly used to help people who are paralysed or have lost the ability to speak due to conditions like motor neuron disease (e.g. ALS), spinal cord injury or stroke. With an iBCI, some patients can:

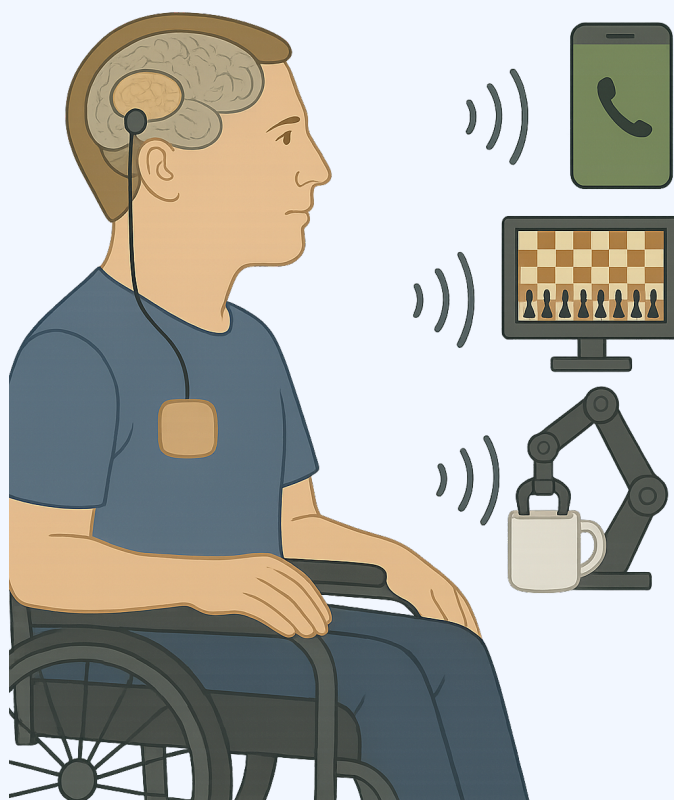
- Move a computer cursor and/or generate a 'click' on a screen;
- Generate speech outputs;
- Control a robotic arm;
- Walk independently for short distances.

How is the device implanted?

Different types of iBCIs are being studied, and how they are implanted varies. Some BCIs are placed on the surface of the brain, or just beneath it, during a neurosurgical procedure. Other BCIs are delivered to the blood vessels, via a vein in the neck. All methods are currently experimental.

What happens after implantation?

If you join a iBCI study, you will receive training on how to use the system. Researchers and engineers will help adapt the system to your needs. You will have regular research visits and check-ups. Participation is voluntary, and you can stop at any time.



**Brain-Computer Interface
Priority Setting Partnership**