

BENEFITS AND DISADVANTAGES OF BIOMECHANICAL AUGMENTATION

Until recently prostheses were attached to the human body mechanically and had nothing to do with the nervous system.

Dentures can bend with the help of iron hinged joints, but to perform every movement the wearer had to adjust own prosthesis manually.

But scientists made incredible, they attach a mechanical arm to the human nervous system.

Human nervous system generates a signal that enters the limb and so no signal goes off into the void.

In the course of research in biomechanics, scientists managed to "intercept" the nerve impulses and send them to the signal-reading mechanism of the prosthesis.

Researchers from the Technical University Chalmers in Gothenburg (Sweden), together with colleagues from the consortium of NEBIAS (project of several European universities) have gone the other way.

Instead of positioning electrodes on the surface of the skin, where the signal is heavily noisy, scientists have tried to reduce the interference, inserting electrodes under the skin.

But each person's physiology is unique, and we cannot say in advance where to position the electrode to maximize "signal-to-noise" ratio.

Currently the most promising method for control of bionic prosthetic devices is considering read electrical potentials from muscles in the stump is electromyography (EMG).

Such high-tech prostheses have already progressed beyond the laboratory and are produced serially.

However, teach patient to properly manage the denture is still a difficult problem. Bioelectric activity of the prosthesis is basing on the fact that even after the amputation of the hands the vestiges grasp muscles.

When the muscle shortens to the electrodes, prosthesis AC electrical pulse arrives, and resides in electrodes amplification system allowing you to turn on and off the motor which is powerful enough.

Bioelectrical prostheses allow you to capture and hold items to use cutlery, ballpoint pen, a mouse and other small objects.