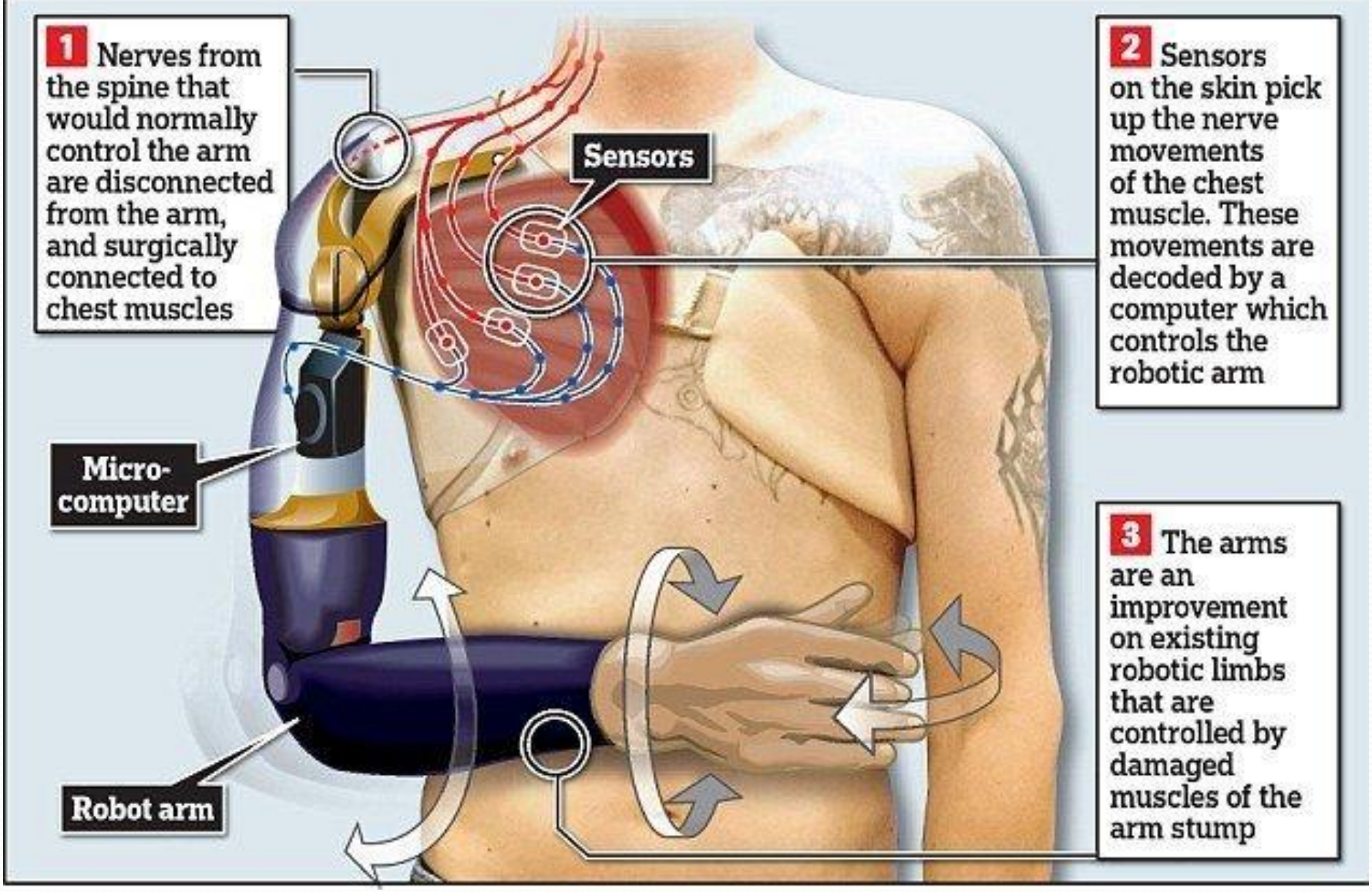
Scientific discovery

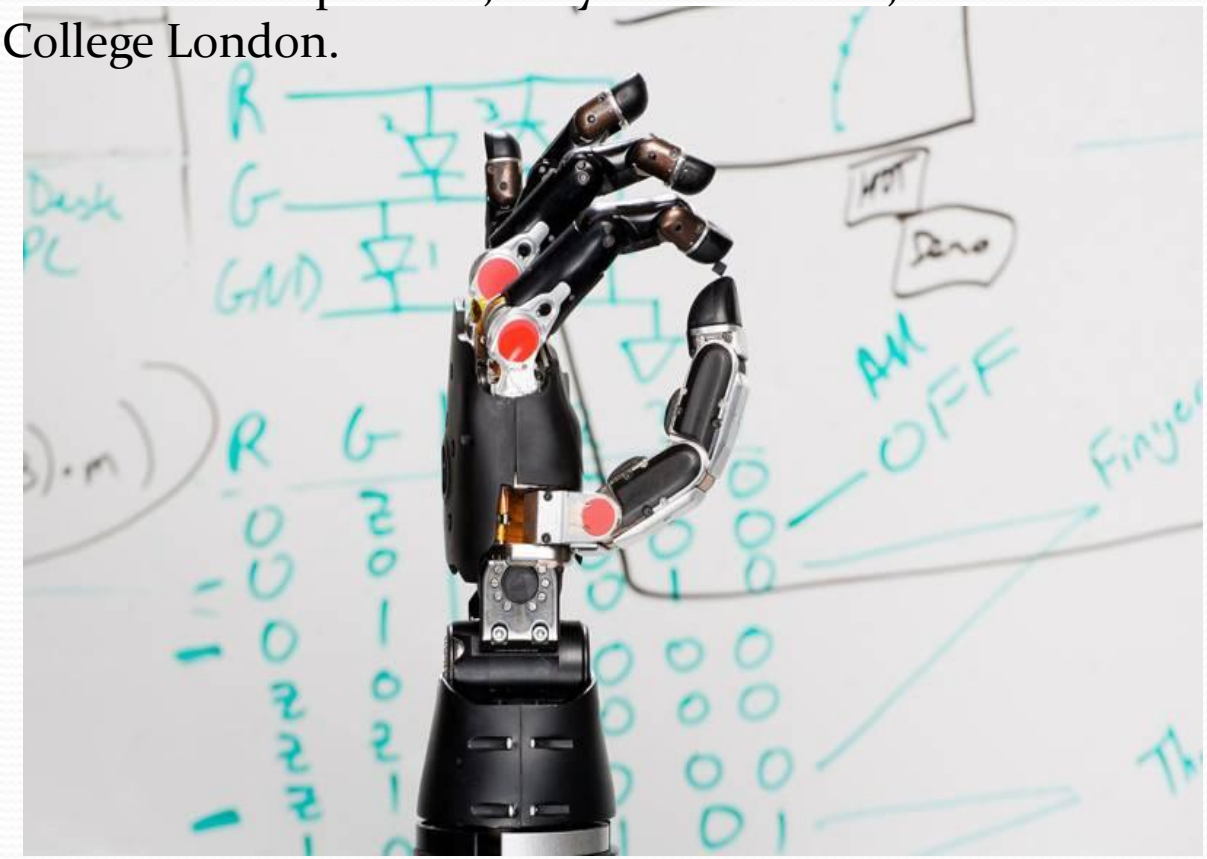
Bionic prostheses

- In February 2017, a message about a bionic prosthetic arm developed by a team of scientists from the USA, Canada, Austria and the UK appeared on the website of Imperial College London. It responds to the signals of neurons of the spinal cord and is controlled by the power of thought of a person without a limb. Up to this point, even the most advanced and advanced prostheses could only respond to muscle impulses, but during amputation, nerve and muscle fibers are damaged and are unable to give clear signals. Therefore, the range of motion of the arm was quite limited.

HOW SPINE-TINGLING GADGET READS THOUGHTS



The researchers conducted laboratory experiments with six volunteers whose arms were amputated to the shoulder or just above the elbow. To participate in the study, they underwent surgical procedures at the medical University of Vienna. The doctors connected spinal motor neurons, which are responsible for controlling the arm, to intact muscles in their body — the pectoral muscle or biceps of the arm. "This technology allows us to detect and decode signals more clearly. This opens the possibility for the development of robotic prostheses that can be much more useful and intuitive for patients, " says Dario Farina, Professor of bioengineering at king's College London.



- The whole premise for the project has been that people living with paralysis or missing limbs will only be able to manipulate objects by controlling their robotic prostheses directly from their brain, and are able to sense what they are touching. After training, volunteers were able to control the prosthesis with the power of thought, simply imagining that it was their own hand. They learned to move the elbow joint and make radial movements, moving the wrist from side to side, as well as compress and unclench the prosthesis brush. Now this development is at the stage of laboratory tests. At the next stage, scientists are going to conduct more extensive clinical tests with a large number of volunteers, and after three years the prosthesis can appear on the market.

Thank you for your attention!