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HOW MODERN SCIENCE AMAZES

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Today the importance of medicine in social life cannot be overestimated. It is by human nature that organism should be sometimes maintained and emerging failures should be corrected immediately. The development of medicine is determined by the development of society inthe whole. That is why modern medicine cannot be compared with the one 40-50 years ago or with the19th century medicine or medicine of the Middle Ages. In the opinion of scientists, mankind is at the highest stage of developmentin the field of medical discoveries.The things that seemed impossible a few years ago, get the actual embodiment now.

 For example, few people know that at the present time there is an active preparation to perform the first successful human [head transplant](https://en.wikipedia.org/wiki/Head_transplant)ation. The Italian neurosurgeon Sergio Kanavero and his colleague, chinese surgeon Xiaoping Ren developed a special projectfor the operation which is called Gemini Heaven.

 A Russian programmer Valery Spiridonov agreed to an unprecedented operation lasting 36 hours. The man suffers from Werding-Hoffmann syndrome, severe genetic disorder that gradually immobilizes a person, and will inevitably lead to death. In fact, this operation is the only chance to live his life at the fullest potential.

At a press-conference in Glasgow Sergio Kanavero demonstrated for the first time a special diamond scalpel, that will enable to carry out the first human [head transplant](https://en.wikipedia.org/wiki/Head_transplant)ation. Professor FaridAmirush (bioengineer at the University of Illinois in Chicago) created the most keen surgical knife in the world. It will enable to separate the spinal cord from the brain thoroughly and with minimal damage to the nerve fibers. Besides, Sergio Kanavero told journalists about a special virtual reality system developed by Inventum Bioengineering Technologies. It is necessary to help patients to go through special psychological training, preparing the person to live in a new body. Moreover, work with the patient by means of virtual reality will be performed both before and after surgery.

The chinese surgeon carried out experiments with mice, working over the process of saving brain vitality at the same time. As Xiaoping Rensays, after the separation of the head from the body, the head will be cooled down to 29-33 degrees. It should contribute to slowing of metabolism and prolongation of life of neurons. Without oxygen and nutrients supply to the human, brain can survive only seven minutes. It is needed about half an hour to attach the head to the new body. During this time, physicians hope to protect the brain from destruction by cooling it and with the help of special blood substitute. This substance is perftoran. Itwas developed at the Institute of Theoretical and Experimental Biophysics. Muscles and blood vessels will be sewn and the end of the spinal cord will be “glued together” with the help of polietilenglicol.

 The body of a donor with a fixed brain death and no serious diseases will be used for the transplantation.After surgery the patient will be put into induced coma for four weeks, so that he does not move until the head grows together with the body.

 The operation is scheduled for December 2017. Now we are only to monitor the progress of preparation for surgery the successful conduct of which could be a real breakthrough in the field of medicine.

Modern science, technological progress, pharmacological research and nanotechnology-related achievements are just tools that make the human existence feasible. While a lot of things are still to be learnt we can now state that the power of medicine is almost boundless.