
Brazil to Have World's First Robotic-Arm Surgery Controlled by Patient's Brain

Contributed by Newsroom
Thursday, 16 June 2005

Miguel Nicolelis, a world-renowned Brazilian neuroscientist will perform the world's first operation on a human that will allow the brain of the patient being operated on to control robotic arms.

The Teaching and Research Institute of the Syrian-Lebanese Hospital in São Paulo (Instituto de Ensino e Pesquisa do Hospital Sirio-Libanês), announced today a unique scientific agreement in Brazil.

Nicolelis, who is a professor of neurobiology and biomedical engineering and co-director of the Neuroengineering Center of Duke University, signed an agreement on behalf of the Alberto Santos Dumont Association to Support Research (Associação Alberto Santos Dumont de Apoio à Pesquisa - AASDAP) with the Syrian-Lebanese Hospital to provide for the first operation on a human that will allow the patient's brain to control robotic arms.

With the help of specialists from the Syrian-Lebanese Hospital on the surgical team, within about three years, the first operation in the world to implant a neuro-prosthesis (brain-machine interface) to restore mobility to the arms of a patient with severe body paralysis should take place. The patient will use impulses from the brain to control the movement of mechanical prostheses.

As a result of this partnership, the Teaching and Research Institute of the Syrian-Lebanese Hospital will be part of an international network of neuroscience institutes created by Dr. Nicolelis with headquarters in Lausanne, Switzerland.

The network will include the Neuroengineering Center of Duke University, the Neurocomputation Center of the University of Jerusalem, the International Neurosciences Institute of Natal, Brazil, and the Syrian-Lebanese Hospital - the only clinical partner in the network.

With this agreement, the Syrian-Lebanese Hospital will be the first nongovernmental Brazilian organization to contribute to the International Neurosciences Institute, to be built in the state of Rio Grande do Norte.

The Institute will have some 15 research labs for neuroscience research, a school and a mental health center for infants and youths, science museum, nature park, and sports complex.

The Syrian-Lebanese Hospital will donate one million dollars to the social projects of the Institute over the next three years.

"This is a major milestone for Brazilian science. This is the first scientific-social partnership on this scale in our history, which shows that cutting-edge science can be an agent for social transformation in Brazil," said Nicolelis.

According to the CEO of the Syrian-Lebanese Hospital, Mauricio Ceschin, "The agreement reinforces the character of the Institution as a center of excellence focused on health, teaching and research."

The Hospital Sirio-Libanês (Syrian-Lebanese Hospital) is one of the most important hospitals in Brazil and Latin America, the product of philanthropy consolidated with cutting-edge technology, qualified professionals, patient respect, and continuous expansion.

The 54,000-square-meter facility employs 2,500 people, including the most qualified physicians in 60 areas of specialization, 277 beds, two surgical wards, two intensive care units, and capacity for fifty operations per day.

The Brazilian neuroscientist Dr. Miguel Nicolelis is responsible for one of the greatest discoveries in neurology in recent

years, the experiment that opened the way for the creation of robotic arms controlled by the "force of mind."

Nicolelis and his team at Duke University developed a system that allows monkeys to control the arm of a robot by means of brain signals: brain impulses are converted into mathematical commands that can be interpreted by a computer, allowing the animals to control movements.

Electrodes were implanted in the regions of the animals' brains associated with movement. Now Nicolelis is announcing the procedure for a human being.