

# Nerve Transplantation

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“Rehabilitation Institute of Chicago is known worldwide for being a leader in patient care, advocacy, research, and educating health professionals in physical medicine and rehabilitation” (Singer). It is here that research on prosthetics has been taking strides. Their Sensory Motor Performance Program (SMPP) has gained worldwide renowned in the fields of biomechanics, neuromuscular, and rehabilitation research. It is in these fields that the Biomedical engineers have developed a prosthetic arm that is controlled by the operator like a real arm.

In order for this prosthetic arm to function properly residual nerves in the amputee’s arm must be transplanted to the person’s chest muscles where they integrate into the person’s chest. At the location, when the patient was touched, they felt like their hand and even individual fingers were being touched. Scientist then mapped out the electrical signals of every movement made by the arm, hand, and fingers and are read by processors in the prosthetic arm.

Then working with Liberating Technologies a prosthetic arm was made having the capabilities and sensations of a real arm. “It’s encouraging to see that even after an amputation, the same intention to move the limb can be harnessed to control a prosthetic limb in much the same way that the limb was previously controlled,” (Leigh Hochberg).



One of the first patients with the new prosthetic arm.

Doctors are thrilled with the results in patients “feeling” their hands and fingers in their chest as they believe this will unlock the keys for success in the next generation of prosthetics.

Singer, Emily. "A Prosthetic Arm That Acts Like a Real One". Technology Review published by MIT. 11/2/2009 <<http://www.technologyreview.com/biomedicine/18134/page1/>>.

"Rehabilitaion Institute of Chicago Number 1 Ranked Rehabilitation Hosipital in America". Rehabilitaion Institute of Chicago. 11/2/2009 <<http://www.ric.org/>>.

"Company Info". Liberating Technologies Inc.. 11/2/2009 <[http://www.liberatingtech.com/company\\_info.asp](http://www.liberatingtech.com/company_info.asp)>.