

CAPITOL *orthopedic*

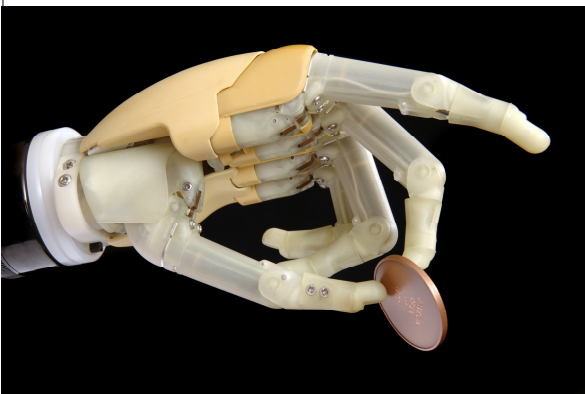
ORTHOTIC AND PROSTHETIC SERVICES

A Step Ahead

October/November/December 2007

Emerging Technology

Imagine a prosthetic hand that would give a patient the ability to grip and key and unlock the front door of his/her house, or be able to fully wrap around an object like a handle on a briefcase or a pitcher of water, or have fine control of the finger and thumb allowing the patient to pick up change, or give the ability to the patient to point with the index finger. Sound impossible? As we look at the history of prosthetics, there are a couple of milestones that have given patients an increased level of function. Flexfeet and microprocessor knees are two examples.



Used with permission from Touch Bionics

At the World Congress of the International Society for Prosthetics and Orthotics in July of this year, Touch Bionics introduced the i-LIMB and ProDigits partial hand system. The i-LIMB is the first artificial hand that has five individually powered fingers which can close tightly around objects. It also has a built-in stall detection system which tells each finger when it has sufficient grip on an object. The individual fingers will lock in position until a muscle is fired by the user to open the finger. The i-LIMB grip patterns, described as key grip, power grip, precision grip and index point, allow the patient a broader range of function. For instance, the index point gives the patient the ability to operate a keyboard and use key pads.

The i-LIMB hand is controlled using a unique and highly intuitive control system along with the traditional two-input myoelectric systems that are already available on the market. The electrical signals from a muscle are picked up on the surface of the skin by electrodes inside the prosthesis. Patients who currently use myoelectric prostheses can master the new hand in a very short period of time. The controlling software provides speed and grip-strength to the hand while the patient is providing the signals needed to control the device. Patients are saying that the hand allows them to more easily accomplish simple tasks and it improves their overall function in activities of daily living.

In addition to the function that previous myoelectric hands provide, the i-LIMB gives the user a thumb that can be used in much the same manner as a human thumb. The thumb can be rotated in to different positions, which gives the patient several additional grip configurations. Since all the fingers articulate, the grasp of the hand is much more human like as well. The fingers will lock in position until the patient sends a muscle signal for them to release. Within the hand is a detection system which tells each individual finger when it has sufficient grip force on an object.

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In addition to the hand, Touch Bionics has a version to help patients with partial hand amputation. There have not been suitable powered partial hand options in the past. ProDigits will provide the patient with opposing forces so that they can do things like hold a fork or a beverage easier. The fingers are modular so they can be custom built and sized to provide the patient with digits of the appropriate length.

This is an exciting breakthrough in the field of prosthetics. This technology is long overdue for upper-extremity amputees who need to maximize function and have been frustrated or held back by the technology that has been available. The i-LIMB moves us closer to where we need to be to help patients accomplish as much as they possibly can. This technology is available through Capitol Orthopedic. If you or your patients have any questions about the i-LIMB, please contact our office and we would be happy to answer questions. Our goal is to be a help and a resource for you in the treatment plan of patients.



LOREN'S LINES



DO YOU HAVE PATIENTS STRUGGLING WITH PHANTOM PAIN ISSUES? DO THEY WANT A DRUG FREE TREATMENT OPTION? HAVE DRUGS BEEN INEFFECTIVE? THERE IS ANOTHER OPTION FOR THEM. ROLL-ON SILICONE LINERS COVERED IN A PATENTED FABRIC HAS PROVEN TO DECREASE THE SYMPTOMS OF PHANTOM PAIN. THE SAME COMPANY ALSO MAKES SOCKS WHICH CAN BE WORN AT NIGHT TO RELIEVE THE PATIENT'S PHANTOM PAIN.

MANY TIMES PATIENTS DO NOT WANT TO TAKE THE DRUGS PRESCRIBED TO HELP WITH THE SYMPTOMS BECAUSE OF THE SIDE EFFECTS. THE SOCKS ARE PROVEN, AND GUARANTEED TO PROVIDE THE PATIENT WITH RELIEF FROM PHANTOM PAIN.

IF YOU WANT MORE INFORMATION ABOUT THIS PHANTOM PAIN TREATMENT OR OUR PRACTICE PLEASE FEEL FREE TO CONTACT ME AT ANYTIME.

TOGETHER WE CAN...

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