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FOR IMMEDIATE RELEASE

New Collaboration Offers Targeted Muscle Reinnervation Surgery and Prosthetic Fittings for Amputees

Through transplanted nerves, a patient can move a prosthetic limb by just thinking about it

SCHENECTADY, N.Y. – Bill Sampson, CP, president of Sampson’s Prosthetic & Orthotic Laboratory, and Dr. Jerome Chao, F.A.C.S., Certified Plastic Surgery of New York, PLLC, have formed Northeast Advanced Surgery & Prosthetics (NASP). The collaboration is a resource for limb-loss patients who wish to explore the benefits of Targeted Muscle Reinnervation (TMR) surgery and myoelectric prosthetic technology to improve function.

“Dr. Chao and I noted that many amputees could benefit from the surgery, but were not aware that it is available in this area or that there is a prosthetic firm familiar with post-TMR prosthetic fitting and therapy,” Sampson said. “We decided that we would work as a team through NASP to guide amputees, family members, and caregivers through the process, from pre-surgical assessment all the way through to independent control of the prosthesis with simply the thought of flexing a muscle.”

According to Chao, almost every amputee is a candidate for TMR surgery. “In reality, TMR surgery should be something that we do every week on patients,” he said. “There are thousands of patients out there who don’t know that we have this procedure available to them.”

What Is TMR Surgery?

TMR surgery allows a prosthetic arm or leg to respond directly to the brain’s signals through the surgical transfer of nerves that once led to the missing limb. Those nerves are rerouted to intact chest or upper arm muscles. The flexing of those muscles then sets off electromyogram (EMG) signals that reproduce arm movements. Chao, who served as Chief of the Division of Plastic Surgery at Albany Medical Center, was on the surgical team for the first TMR surgery performed in 2002 at Northwestern Memorial Hospital, Chicago. Since then, more than 60 patients have undergone the procedure, primarily in Chicago and at military medical centers. Chao also has performed the surgery at Ellis Hospital, Schenectady.

Prosthetic Technology

TMR surgery is only 50 percent of the journey for a patient to intuitively use a prosthesis. Therapy is needed first to train those newly reinnervated muscles, followed by several weeks of working closely with the prosthetist. During therapy, the patient strengthens reinnervated muscles to generate the EMG signals, detectable by surface electrodes. These signals allow the patient to gradually master the art of knowing which muscles control movement.

“The individual is training or learning to fire that signal from the brain to the intact muscle in order to initiate a contraction of the muscles to produce an EMG signal,” Sampson said. “Then a diagnostic socket is designed and a myoelectric prosthesis will be fit and fabricated. I will see the patient frequently for therapy and adjust the electrodes for optimal function. The end result is that the patient has intuitive and simultaneous control and function of the prosthesis.”

At this time, TMR surgery to intuitively control the prosthesis has not yet advanced to be effective for lower limb-loss patients. However, those patients can benefit from TMR surgery to manage or minimize phantom pain.

Increasing Demand for Improved Prosthetics

Every year, an estimated 185,000 people lose a limb to trauma or disease. Today, an estimated 1.6 million Americans are living without one or more limbs. Through NASP, Sampson and Chao offer patients education and a comprehensive approach to restoring ability and function through TMR surgery and prosthetic technology.

NASP services are available in Schenectady and Latham, and NASP is affiliated with Ellis Hospital and Sunnyview Rehabilitation Hospital. Patients can call NASP’s Schenectady office (800) 374-6011 or the Latham office (518) 203-2582 for more information.

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About Jerome Chao, M.D., F.A.C.S.

Jerome D. Chao, M.D., F.A.C.S., served as Chief of the Division of Plastic Surgery at Albany Medical Center where he directed the clinical, education, and research programs until June 2010. A graduate of Harvard University, Dr. Chao received his medical degree from the College of Physicians and Surgeons of Columbia University and completed his plastic surgery residency at McGaw Medical Center of Northwestern University, Chicago. He also was the Robert E. Carroll Fellow in orthopaedic hand surgery at The New York Orthopaedic Hospital of Columbia University Medical Center.

Dr. Chao is a member of the American Board of Plastic Surgery, American College of Surgeons, American Society of Plastic Surgeons, American Society of Maxillofacial Surgeons, American Society of Reconstructive Microsurgery, and American Association for Hand Surgery.

About Bill Sampson, CP

Bill Sampson has been a board-certified prosthetist (CP) since 1989 and has completed numerous continuing education courses, keeping abreast of the most recent advancements in prosthetics, computer-aided design, and manufacturing technology.

He received his bachelor of science degree in prosthetics and orthotics from the University of Texas Southwestern Medical Center, Dallas. His orthotic and prosthetic residencies were served at the Texas Scottish Rite Hospital for Crippled Children, Parkland Memorial Hospital, and the University of Texas Prosthetic and Orthotic Clinic.

Bill Sampson is a member of the American Board for Certification in Orthotics, Prosthetics & Pedorthics, the American Academy of Orthotists and Prosthetists, and the New York State American Academy of Orthotists and Prosthetists.

