



*A division of Crystal Clinic Orthopaedic Center*

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**CRYSTAL CLINIC SURGEONS PERFORM AREA'S FIRST SHOULDER LEVEL  
TARGETED MUSCLE REINNERVATION PROCEDURE  
Surgery offers hope to patients who have had arm or leg amputations**

**Fairlawn, Ohio, Jan. 21, 2020** – Crystal Clinic Orthopaedic Center hand and upper extremity surgeon, John Dietrich, M.D., and Crystal Clinic Plastic Surgeons physician Derek Cody, M.D., teamed up in October 2019 to perform Northeast Ohio's first targeted muscle reinnervation (TMR) procedure at the shoulder/brachial plexus level.

Targeted muscle reinnervation surgically transfers damaged nerves to new motor nerve targets to provide easier prosthesis control and relieve phantom limb pain in patients who have had arm or leg amputations. The technique also reduces painful scar tissue around the nerves.

The patient, whose arm was amputated near the shoulder after battling a flesh-eating bacterial infection, initially approached Dr. Dietrich to see what he could do to help with the unremitting pain that prevented her from using a prosthesis. From there, Dr. Dietrich brought Dr. Cody in to formulate a surgical plan.

"With this technique, it's a combination of things we've done in other parts of the body, but we've never used TMR to address this specific challenge," Dr. Dietrich explained. "Dr. Cody and I have discussed this for a long time, but this was the first opportunity we had to collaborate."

Together they operated on the patient for nearly five hours to surgically reroute nerves in the brachial plexus, a network of nerves from the neck area that controls the upper extremities, to new muscle targets in the chest. This very intricate and delicate surgery requires advanced expertise.

"While the patient has experienced some pain relief since having the surgery, we anticipate that will continue to improve with time," said Dr. Dietrich. "Nerve pain doesn't go away instantaneously. Nerve reinnervation in muscles takes several months."

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### **Crystal Clinic Surgeons Performs Area's First Targeted Muscle Reinnervation**

One of the goals of the surgery is to make it easier for the patient to wear a prosthesis. Dr. Cody explained that TMR gives patients who have lost an arm or a leg more control over their myoelectric prosthesis, allowing more natural movement because the muscles fire like they normally would. A transducer picks up the electric impulse and sends the signal to the prosthesis to do what the brain wants it to do.

For this specific patient, the procedure targeted certain muscles to enable her to bend and extend her prosthesis at the elbow and provide control of her hand. As a result, she will be able to comb her hair and feed and dress herself more easily and naturally.

"Patients can now expect to wear their device longer because they aren't in pain," Dr. Cody said. "This is also a real breakthrough treatment for people who have diabetes, cancer, or traumatic work injuries."

According to Dr. Cody, TMR surgery has been in use for the past 10 years. It was originally pioneered for military veterans who had traumatic amputations. He has performed the surgery for about three years, helping several breast reconstruction patients and below-the-elbow and shoulder-level amputees.

Both Dr. Dietrich and Dr. Cody want amputees to know they don't have to suffer with phantom or post-amputation pain. And, they no longer must travel to distant locations for this innovative treatment.

"It's great for our community to have this service for upper and lower extremity amputees," said Dr. Cody. "We can transform people's lives by providing relief from phantom limb pain and improving their ability to function and get back to more of the activities that are meaningful to them."

To learn more, call Crystal Clinic Plastic Surgeons at 330-668-4065 or Crystal Clinic Orthopaedic Center's hand and wrist group at 330-668-4055. You can also visit [CrystalPlasticSurgeons.com](http://CrystalPlasticSurgeons.com) or [CrystalClinic.com](http://CrystalClinic.com) for additional information.

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### **About Crystal Clinic Plastic Surgeons**

Crystal Clinic Plastic Surgeons is a division of the nationally renowned Crystal Clinic Orthopaedic Center, a physician-owned hospital system. Crystal Clinic Plastic Surgeons is one of the largest plastic and reconstructive surgery groups in Northeast Ohio with six surgeons on staff and offices in Barberton, Broadview Heights, Canton, Green, Hudson and Montrose. The group specializes in a wide range of procedures, including comprehensive care for complex reconstructions and treatment of soft tissue defects related to orthopaedic injuries. They provide the entire spectrum of plastic surgery, including breast reconstruction, skin cancer surgery, facial cosmetic surgery, post-weight-loss body contouring, rhinoplasty, as well as non-surgical, facial rejuvenation options. For more information, visit [CrystalPlasticSurgeons.com](http://CrystalPlasticSurgeons.com).

**About Crystal Clinic Orthopaedic Center**

Nationally renowned for orthopaedic care, Crystal Clinic Orthopaedic Center is a physician-owned, orthopaedic specialty hospital system with board-certified and fellowship-trained orthopaedic surgeons who perform more than 17,000 surgeries each year. Crystal Clinic Plastic Surgeons, a division of Crystal Clinic Orthopaedic Center, are experts in treating soft tissue defects related to orthopaedic injuries. They provide the entire spectrum of plastic surgery – from reconstruction to cosmetic procedures. With locations throughout Northeast Ohio, Crystal Clinic Orthopaedic Center is one of only 13 hospitals in the nation, and the only one in Ohio, to earn Joint Commission certifications in total hip, total knee, total shoulder and spinal fusion procedures. The Centers for Medicare and Medicaid Services awarded Crystal Clinic Orthopaedic Center its highest rating for Overall Hospital Quality. In ratings of America's Top-Quality Hospitals, Crystal Clinic Orthopaedic Center is among the Top 15 in the nation for major orthopaedic surgery, and rated #1 in Northeast Ohio for spinal surgery and joint replacement, according to the medical-specific CareChex National Quality Rating Database (Quantros Analytics).