

MGH Paralysis Center – by Justin Brown, MD

Hi. My name is Justin Brown. I'm an associate professor of neurosurgery at Massachusetts General Hospital and the co-director for the Massachusetts General Paralysis Center. The Paralysis Center is unique in the United States and in the world in that we treat all sources of paralysis.

We treat brachial plexus and peripheral nerve injuries. We treat paralysis related to spinal cord injury, and we test on paralysis affecting half of the body related to the damage to the brain or a stroke.

Our center utilizes the expertise of neurosurgery, neurology, plastic surgery, orthopedics, neuroimaging, and other specialists all of whom get involved in designing the best reconstructive strategy for any given patient's particular deficit.

While treatment strategies that have been discussed on the news include stem cells and other innovative techniques, now what we typically use in our Paralysis Center are more straightforward and time-tested in our treatment modalities.

Treatment modalities offered by the center include nerve transfers, tendon transfers, and innovative therapy techniques. While many people have heard on news research studies about stem cell modalities, they are yet to be implemented in an effective way, but while we wait for those to emerge, we have many things available to us now which can help patients.

Typically, a patient who has any movement at all on a limb is a candidate to have more movement in that limb.

A tendon transfer involves taking a muscle or a tendon that the patient has control of and rerouting it into a position that they didn't formerly have control of. We can sometimes take a wrist extension tendon and cause it to close the fingers, and other tendons that cause them to open their fingers. So we can reroute muscles that the body already has to give them a more important function.

A more recent addition to this is what's called neuro-transfers. Instead of moving the muscle, we can move just a branch of a nerve to the muscle and send the axons or wires within that nerve to a different nerve destination to wake up the original muscle that has been paralyzed. This has become popular over the past five years or so and is showing a lot of promise in a lot of injuries that weren't treatable by tendon transfers.

Next, we can actually transplant a muscle. We can take a muscle from the leg, for example, and move it into the arm to achieve a function that is no longer available in that arm if tendons aren't available for a transfer.

So with those three modalities, we're able to treat a number of paralysis sources. Brachial plexus injuries which are injuries to the nerves affecting the arm usually resulting from a motorcycle accident, we can use each of these modalities to recover the arm that can reach and grasp and reach to the mouth, as well.

We have now applied these to spinal cord injuries so a patient who is wheelchair-bound and cannot use his hands can now have his fingers open and close and triceps function restored as well.

And now we've been able to move that into stroke and brain injury where half of the body is paralyzed and patients formerly were required to use braces and stretching to get the hand to do a functional position, to where we can now use these same modalities to get the hand again to become functional, to open and close, and to accomplish tasks that are part of the patient's daily life routines.

So these are an example of a number of modalities that we have to restore function to patients who've suffered a paralysis from any number of sources. Many referred physicians may not know about these techniques yet, but things to remember are one, it's important to see a paralysis specialist within the first year after injury and ideally before six months.

More options are typically available early than they are late. Even if you have missed this window, it is still worthwhile to come to our clinic because often, we still have some options available that would improve quality of life.

So take away messages, if you've had a paralyzing injury, it is important to get to a center that treats it in a timely fashion, ideally within six months. If you've passed that window, it's still worth an evaluation. And if you're interested in learning more, please call us at our office at 617-643-5687. Thank you very much.