

## Ultrasound-Guided Nerve Entrapment Release

*Percutaneous Neuroplasty — Patient Information Sheet*

### About Percutaneous Neuroplasty

Percutaneous neuroplasty, also called nerve hydrodissection, is used to treat painful nerves that are entrapped in scar tissue from surgery, trauma, or damage from chronic repetitive movements. (Percutaneous means “through the skin.”) This precise ultrasound-guided treatment is a gentle technique that uses injected fluid to mechanically push away scar tissue that is entrapping or pinching a nerve. Relief is often immediate or within a few days.

Dr. Mulvaney did not invent this technique, but he published the very first paper in the medical literature describing its use, in 2011. This safe and versatile technique can be used on any peripheral nerve and even on spinal nerve roots. It can often prevent surgery or the need for medications. The procedure requires a very high level of knowledge of sonographic anatomy and a high level of skill with ultrasound needle guidance — Dr. Mulvaney has been teaching it nationally and internationally for over a decade.

### What to Expect and How to Prepare

Unlike many of our treatments, there is nothing you need to do to prepare for this procedure. Hydrodissection is a mechanical technique, and medications generally do not interfere with it. The limb treated may be numb or even weak for up to two hours, so you may need a driver to bring you home, or you may need to use crutches for a few hours until the numbness wears off. Tobacco use constricts the small blood vessels needed for tissue repair and will limit the effectiveness of any treatment — stopping tobacco use is one of the single greatest actions you can take to improve your health. Avoid toxins like alcohol, which inhibits and depresses the cells needed for tissue repair.

### What Happens During the Procedure?

This is not a painful procedure and is in fact quite comfortable, so there is nothing to worry about. First, you are comfortably positioned. The nerve is then assessed with ultrasound, and its cross-sectional area is measured at the place where it hurts the most. Carefully viewing the nerve with ultrasound allows us to assess whether it is being entrapped, though in some cases the nerve may look fairly normal despite your symptoms. The position of the nerve may be marked on the skin to help the procedure go smoothly.

The skin is cleaned with a surgical skin cleanser, sterile ultrasound gel is applied, and the skin is numbed with lidocaine. The needle is then guided down to the targeted nerve using constant ultrasound guidance, switching between a cross-sectional view and a view along the nerve, while fluid is injected along the nerve in a precise, controlled fashion through the scar or entrapment area. Depending on the nerve, the procedure can take fifteen to forty minutes, with very low risk of nerve injury in skilled hands.

### What to Do After Your Procedure

There may be temporary (one to two hours) numbness or even some weakness in the limb treated. This is not a painful procedure, and there is usually only mild soreness afterward — most patients need little or no pain medication. Avoid NSAIDs such as ibuprofen; acetaminophen can be used for mild discomfort. Avoid showering for one day and avoid immersing the area in water for two days. Bandages can be removed after one day. Depending on the body part treated, you may be placed in a sling or on crutches for a few hours until the numbness or weakness wears off.

Exercise is vital to good health, and finding a way to cross-train around your injury is important for both your physical and mental health — ask Dr. Mulvaney about cross-training options for your injury. A brief period (10 minutes or less) of heat or ice therapy will not interfere with the treatment, though it is not required. Benefits are usually seen within a few days. The procedure may need to be repeated if relief is only partial or if symptoms return.

This sheet is for general patient education and does not replace a conversation with Dr. Mulvaney about whether nerve entrapment release is appropriate for your specific condition.