



PRECISION
BRAIN, SPINE & PAIN




Focused Brain Ultrasound

**IMAGINE YOUR LIFE WITH
LITTLE OR NO TREMOR.**



CALL **+61 (3) 8862 0000** EMAIL focus@precisionhealth.com.au

A woman with long dark hair, wearing a floral patterned top, is smiling and making tea. She is holding a tea strainer over a blue mug on a white countertop. The background is a bright, blurred kitchen.

● “IT WAS GREAT TO GET
BACK THE CONFIDENCE
TO DO THINGS I HAD BEEN
AVOIDING FOR SO LONG”



**DO YOU EXPERIENCE
UNCONTROLLABLE
SHAKING OF THE HANDS,
HEAD OR LEGS?**

**OUR TEAM MAY BE
ABLE TO ASSIST WITH
A PROCEDURE CALLED
NEURAVIVE.**

The team at Precision Brain Spine and Pain have been treating Parkinson’s disease with deep brain stimulation for many years. We now offer even more to our tremor-dominant patients:

We are one of only two practices in Australia to offer the incisionless Neuravive technique, which substantially reduces tremor (uncontrollable shaking) in most patients.

Essential Tremor can be a debilitating condition, a condition that the experienced team at Precision Brain Spine and Pain regularly see in their patients. We are proud to now offer a more extensive solution that increases a patient’s chance of symptom relief, and in some cases, elimination.



ESSENTIAL TREMOR (ET)

A NEUROLOGICAL CONDITION THAT CAUSES SHAKING OF THE HANDS, LEGS, HEAD AND VOICE.

PARKINSON'S DISEASE

A CONDITION CAUSING A VARIETY OF SYMPTOMS, WITH DISABLING TREMOR OCCURRING IN A LARGE PROPORTION OF PATIENTS.

ESSENTIAL TREMOR IS THE MOST COMMON MOVEMENT DISORDER AFFECTING UP TO 4% OF MIDDLE AGED AND ELDERLY PEOPLE WORLDWIDE.

ESSENTIAL TREMOR

Decades of surgical treatment has identified the Vim nucleus of the thalamus in the brain as a target which can be treated to alleviate Essential Tremor. The thalamus is a structure deep in the brain which coordinates and controls movement in the body.

Symptoms of Essential Tremor include uncontrollable shaking, especially when attempting purposeful movement, and can include a shaking voice or tremor of the head. It often occurs in the hand/s first and worsens with age and during periods of emotional stress

TREMOR-DOMINANT PARKINSON'S DISEASE

Parkinson's Disease is a neurodegenerative condition in which a region of the brain called the substantia nigra becomes depleted of an important neurotransmitter known as dopamine.

Patients with Parkinson's commonly experience symptoms such as stiffness, slowness of movement, and unsteadiness. Around one in five of these patients will have tremor-dominant Parkinson's, where tremor is the most problematic symptom.



- NEURAVIVE MRI GUIDED FOCUSED ULTRASOUND PROVIDES A NON-INVASIVE, INCISIONLESS TREATMENT.

NEURAVIVE, OR MR-GUIDED FOCUSED ULTRASOUND (MRgFUS)

Neuravive is a non-invasive, incisionless neurological treatment that reduces tremor.

THE PROCEDURE

It uses MR-guided Focused Ultrasound (MRgFUS) technology which combines high intensity focused ultrasound which is guided by Magnetic Resonance Imaging (MRI).

Ultrasound is a non-ionizing energy that passes through the body, with no exposure to radiation. During the Neuravive procedure, these ultrasound waves pass through the skin, skull and brain without the need for an incision.

When focused with precision, the high intensity focused ultrasound energy raises the temperature of the target area high enough to create a tiny ablation, lesion or 'burn', which produces a therapeutic effect which assists in reducing the effects of tremor.

The entire procedure is conducted inside the Neuravive MRI scanner, while the patient is awake, enabling the surgeon to apply the precise temperature needed to the specific area of the brain.

Neuravive™

TREATMENT BENEFITS



TREMOR IMPROVEMENT

In clinical studies, most patients reported an immediate and significant improvement in tremor.

NON-INVASIVE

Focused ultrasound is capable of penetrating the skull without making an incision. This carries a lower risk of many significant complications than invasive surgery.

QUICK RECOVERY

Since the treatment is non-invasive, it can be performed as an outpatient or overnight stay procedure. Patients usually expect to resume normal activities within days.

YOUR ELIGIBILITY FOR THE PROCEDURE

It is important to consult with one of our Neurosurgeons / Neurologists who have expertise in Movement Disorder Surgery and Focused Ultrasound to determine if the Neuravive treatment is right for you.

To ensure a safe and effective treatment, your Neurosurgeon and Neurologist will perform a medical evaluation to assess your condition and its severity.

Part of this assessment will include:

- A CT scan to ensure that your skull density is adequate for the ultrasound beams to pass through.
- Evaluation of any metallic implants that may have (eg. pacemakers, neuro-stimulators, spine or bone fixation devices, total joints, metal clips, or screws).
- Whether you are able to lie fairly still in the same position for approximately 3 hours.

In addition, if you suffer from any of the following, there is a chance that you may not be a good candidate for this procedure:

- Extensive scarring on the scalp
- Taking blood thinners
- If you are pregnant
- Tumours affecting the skull or brain
- Heart conditions
- Receiving dialysis
- Have an active infection
- Severe haematological, neurological or other uncontrolled disease

BEFORE, DURING & AFTER

PREPARATION

You will be conscious, communicating with the doctors and technicians throughout the treatment.

Your scalp will be shaved and cleaned, you will be given local anaesthetic injections and a special frame will be secured to your head.

Your heart rate, blood pressure and blood oxygen levels will be taken, and monitored throughout the procedure.

If needed, you may be given additional medications to keep you comfortable during the procedure. You may also have a urinary catheter placed to drain your bladder during the procedure if this is a concern for you.

SCANNING AND PLANNING

A series of MRI images will be taken, and your Neurosurgeon, Neurologist or Neuroradiologist will mark the region of your brain to be treated on the software. Low doses of ultrasound energy are then administered to ensure the correct spot in the brain is being targeted.

Cool water will circulate in the helmet around your head and you will be kept warm in case you get cold. You will also be given a “stop” button to indicate to the team that you wish to stop the procedure for any reason.

TREATMENT

During treatment, your Specialist will ask questions and get you to perform tasks in order to confirm the accuracy of the target. Certain tasks may include touching your nose with your finger and/or drawing circles on a board.

Once your Specialist is confident of the location, the Focused Ultrasound will be used to make the permanent lesion, which will assist with your tremor.

Treatment usually lasts around 3 hours from when you get on the treatment table until you are done.

POST TREATMENT:

After your treatment, the head frame will be removed and you will rest for up to 24 hours in a nearby hospital or clinic.

A final MRI scan for post treatment assessment will be arranged. Your neurosurgeon will let you know when you will need to return for any follow-up visits.



RISKS & SIDE EFFECTS

Your specialists will discuss with you all the material risks involved with Neuravive treatment.

As with any medical procedure there are risks, including:

- For short periods of time during the treatment you may experience dizziness, pain or other sensations.
- There is a small possibility that your tremor may return some months or years after treatment, and in those cases, retreatment may be considered.
- There is a small risk that you could develop temporary or permanent muscle weakness, imbalance, and/or gait disturbance, sensory effects (tingling, numbness) in your fingers or elsewhere in your body.
- It is possible that your tremor may not improve.
- This procedure does not treat the underlying disease nor prevent the progression of the disease.

WHAT RESULTS CAN I EXPECT?

The majority of patients who have undergone MRgFUS have shown a significant reduction in tremor, resulting in improvement in performing daily activities such as, eating, drinking and writing.

HOW MUCH DOES IT COST?

The cost of the procedure is typically around \$30,000.

At present, Medicare and the Private Health Funds do not contribute to this cost. Financing may be available for eligible individuals via an unrelated third party.

A COMPREHENSIVE TEAM APPROACH

Your team of Specialists includes Neurosurgeons, Neurologists and Neuroradiologists.

During your evaluation process, all appropriate treatment options will be discussed with you, including (where applicable) medications, deep brain stimulation, and focused ultrasound.

Because our team can offer the full range of treatments, we are able to offer you a choice of the most appropriate therapy for your specific circumstances.

**WE LOOK FORWARD
TO TALKING WITH YOU.**





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To make an appointment, or to be assessed for suitability for MRgFUS/Neuravive, please call **03 8862 0000**, or email **focus@precisionhealth.com.au**