

Transcranial Magnetic Stimulation (TMS)

Information for patients, carers,
family and support persons



Community
of Care



Pine Rivers
PRIVATE HOSPITAL
by Healthscope

Transcranial Magnetic Stimulation

Transcranial Magnetic Stimulation (TMS) is a non-invasive form of brain stimulation that can be used to treat depression. In treating depression TMS may be used when patients have not responded to antidepressant medications, have unacceptable side effects to medications or would prefer to try another treatment option.

Research into the use of TMS for treating depression has been going on for over 20 years. This research has confirmed the effectiveness of TMS for this purpose. Following on from this research, a number of countries including Australia have adopted TMS as a treatment option for depression. In the United States, TMS was first approved for use in treating depression in 2008. It has been used at Pine Rivers Private Hospital under trial since 2006 and as an available treatment since 2012.

In TMS, a magnetic field is generated from an electrical coil which is placed over the scalp. The magnetic field travels freely through the scalp and skull and stimulates a small frontal section of the brain called the dorsolateral prefrontal cortex.

This leads to changes in brain activity which are thought to spread to other areas of the brain. Over repeated sessions the changes in brain activity brought about by TMS are thought to correct abnormal brain functioning associated with depression.

Side effects from TMS

TMS treatment is usually well tolerated especially when compared to other treatments for depression such as medications. It is uncommon for patients to cease TMS treatment due to side effects.

Some patients may experience mild discomfort with TMS. This is most likely to occur during initial TMS treatment sessions. The discomfort may occur in the scalp underneath the magnetic coil. Sometimes the discomfort will spread down the face. Other patients may complain of muscle spasm underneath the TMS coil or headache. If discomfort does occur, simple pain killers such as aspirin or paracetamol can be helpful. Some patients may complain of tiredness after having a TMS session.

While TMS is a very safe procedure there are some risks associated with its use. Before being offered TMS, patients are carefully assessed to make sure that this will be a safe form of treatment for them.

- Seizure is the most serious concern with TMS treatment. It is estimated that seizure may occur in one per 30,000 TMS treatment sessions. This risk of seizure is thought to be comparable to, or even lower than the risk of seizure associated with antidepressant medication.
- Patients with bipolar disorder may be at risk of experiencing an episode of mania with TMS.

Risk associated with TMS

- Feeling dizzy or even fainting can occur with TMS.
- During TMS the magnetic coil makes a clicking noise which can be quite loud. This can lead to transient changes in hearing ability. This is easily prevented by using ear plugs which will be offered at the start of every treatment.

Situations where TMS may not be suitable

- If you have epilepsy or have previously had a seizure.
- If you have anything in your head that may be affected by magnetic fields such as surgical clips or implanted devices (for example cochlear implants). Metal may move or heat up and electrical devices may malfunction when exposed to magnetic fields. Likewise, devices outside of the head such as cardiac pacemakers may malfunction if the TMS coil is accidentally operated too close to them.
- If patients have metal inside their head or on the surface of their skull, this can heat up during a TMS session leading to burns. Metal loops can generate currents when exposed to magnetic fields and heat up, so TMS is not appropriate in these circumstances.
- If your health is such that the event of a TMS-induced seizure would be particularly dangerous: for example patients with serious heart disease or raised intracranial pressure.
- If you have an active brain disorder (e.g. recent stroke).
- In children and adolescents. The research into the use of TMS in these populations is extremely limited.
- If there is the possibility of pregnancy.
- Withdrawal from alcohol or other substances - This requires a 7 day detox period before commencing TMS. Careful consideration will be given in these circumstances in consultation with all specialists involved.

What happens during TMS treatment sessions?

Treatment sessions for TMS occur in the TMS suite at Pine Rivers Private Hospital. During your first session you are seated in a comfortable chair and a TMS psychiatrist will work out where exactly on your forehead to place the coil of the TMS machine. This is done by placing the coil over the motor area of your brain and finding the lowest machine intensity setting which will create a small involuntary movement in your fingers. Once this location is found, a simple measurement will show where to place the coil for your treatment sessions.

You are fully conscious and responsive. There is no medications involved in TMS treatment. Treatment sessions for TMS last between 30 and 40 minutes. During this time you will be monitored by a nurse in the TMS suite. During your prescribed treatment you may talk with the nurse, rest or meditate as you see fit.

How many sessions are in a TMS treatment course?

A course of TMS consists of 20 to 30 sessions. Most patients will have 20 sessions. You will have seven sessions of TMS per week. This means that a course of TMS will usually take three to four weeks to complete.

Commonly asked questions

Are the magnetic fields generated during TMS harmful?

We believe the magnetic fields generated in TMS are not harmful. Long term studies looking specifically at the effects of TMS generated magnetic fields would be helpful in confirming this. It has been found that chronic exposure to magnetic fields even greater than those generated during TMS appears to be safe.

Can I have more than one session of TMS per day?

This isn't usually done during the initial course of TMS. Some patients having maintenance TMS will have two sessions per day but this is not always the case and will depend on capacity at the time.

How long will it take for my mood to improve with TMS?

This is quite variable. Generally patients can hope to see some improvement in their mood during the third or fourth week of treatment if TMS is going to work for them. For some patients, a response can be more delayed.

Will TMS affect my memory?

TMS is not known to lead to memory difficulties. You may notice an improvement in your memory as your mood improves.

Will TMS affect my hair or scalp?

There is no evidence stating that TMS does any damage to your hair or scalp.

What do I need to bring to hospital?

- Neck/travel pillow
- GP referral - include physical examination
- Medicare card
- A list of current medications and all your physical medications
- Please leave all valuables at home
- Any current pathology results
- Comfortable clothing
- Ear Buds/headphones to play music

What else happens while I'm in Hospital?

Periodic reviews with your admitting psychiatrist.

Attendance at group programs is expected and helps to provide a comprehensive approach to your mental health care plan, resulting in better outcomes for patients receiving TMS.

Pine Rivers Private Hospital

Pine Rivers Private Hospital is dedicated to providing comprehensive care to individuals experiencing mental illness or dependency issues. We offer both inpatient and outpatient services. Our multidisciplinary team includes skilled and experienced Psychiatrists, Psychologists, Registered Nurses, Social Worker, Diversional Therapist and Music Therapist. Our team is dedicated to providing quality, patient-centred care in a compassionate and confidential environment.

Other services include:

- Electroconvulsive Therapy (ECT)
- Eye Movement Desensitisation and Reprocessing (EMDR)
- Psychology Clinic
- Outpatient Group Day Programs
- Inpatient Group Therapy Programs

How is a patient referred for TMS?

A patient who would like to have TMS as a treatment at Pine Rivers Private Hospital will need to be referred to one of our credentialed specialists.

Referrals can be sent to our Admissions team on **PineRivers.Referrals@healthscope.com.au** or faxed to 3881 7545.





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