Repetitive transcranial magnetic stimulation (rTMS) at Toronto Western Hospital

Information for patients and families

Read this resource to learn:

• What rTMS is
• How to prepare
• What to expect during and after treatment
• Where to get more information
What is repetitive transcranial magnetic stimulation (rTMS)?
rTMS is a Health Canada approved treatment for major depression. It is also being studied as a treatment for other disorders such as:

- some eating disorders (anorexia nervosa and bulimia nervosa)
- obsessive compulsive disorder (OCD)
- chronic pain

Most people consider rTMS when other treatments (such as medication or therapy) have not worked for them.

How does rTMS work?
rTMS works by directly stimulating areas of your brain involved in controlling emotions. These areas are thought to be less active in people with depression.

The brain is stimulated by placing a magnetic coil against your scalp in a specific area. The coil directs a series of magnetic pulses through your scalp and skull to the targeted area of the brain.

With repeated treatments, the magnetic pulses change the activity of the brain cells (neurons), returning the brain to normal functioning.
How often will I receive rTMS and for how long?
A full course of rTMS involves 20 to 30 daily treatment sessions. Each session lasts 15 to 30 minutes.

Most patients receive treatment everyday from Monday to Friday for 4 to 6 weeks. Most appointments are booked between 9 am and 5 pm.

Will rTMS work for me?
About half of people who receive rTMS for depression at UHN show significant improvement in their symptoms.

It is not as clear how many people with other disorders (for example: eating disorders and obsessive compulsive disorder) benefit from rTMS. Treatment for these conditions is still in the experimental phase.

What are the possible side effects?
Most people who receive rTMS experience only mild side effects. The most common side effect is scalp pain during treatment. The sensation is similar to static electricity and can be intense in the beginning.
Some patients take ibuprofen (Advil) or acetaminophen (Tylenol) 1 to 2 hours before treatment to reduce the pain. After the first few sessions, the nerves in the scalp adapt to the stimulation and the pain is much less.

There is also a small chance that rTMS could cause a seizure. Seizure occurs in about 1 out of every 10,000 people who receive rTMS.

Side effects will be discussed in more detail at your first appointment. rTMS has been in use since the early 1990s. So far no long-term risks have been shown.

**Can I continue taking my antidepressant medication while getting rTMS?**

Yes. If you are currently on medication for depression you do not need to stop taking it before starting rTMS. You should be on a stable dose of medication for at least 4 weeks before starting treatment.

It is important that you do not make changes to your medication during the 4 weeks before treatment and during the course of treatment. Any changes to medication would make it more difficult to determine if rTMS works for you or not.

**Do I have to pay for rTMS?**

No. Although rTMS is not currently covered by OHIP, the clinic has funds available to cover treatment costs. This includes the MRI, visits to the psychiatrist, and the treatment sessions themselves.

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**Preparing for treatment**

**How do I prepare for rTMS?**

You have 3 appointments to help you prepare:

1. **Initial Appointment:**
   First, you will meet with the psychiatrist in the rTMS clinic who will help you decide if rTMS is right for you.
2. MRI:
If you decide to go ahead with rTMS, you will be scheduled for an MRI (magnetic resonance imaging) scan of your brain. The appointment for the MRI will be booked for you before you leave your first visit.

Your MRI will be done at Toronto Western Hospital in the Medical Imaging Department (see the end of this brochure for directions). MRIs are usually done on a Wednesday or Thursday evening within 2 or 3 weeks of your initial appointment.

3. Calibration Session:
On the Friday after your MRI scan, you will return to the clinic for a “calibration session.” At this visit, the rTMS team will determine the proper site and strength of stimulation for your treatments.

The calibration session involves the following steps:

a) You will fill out a series of questionnaires.
This is to assess your symptoms of depression. You will fill out these questionnaires at every treatment session. The scores will be used to decide if your symptoms are improving with rTMS.

b) The technicians will find the area of your brain that will get treatment.
This is known as the target region. It is found by matching images from your MRI scan to a location on your scalp.

c) The doctor will determine the strength of stimulation your brain will need during treatment.
You may be asked to remove your shoes for this part of the session. The doctor will apply the magnetic coil to an area near the top of your head and will watch for movement in a part of your body (usually your thumb or your toe). The amount of stimulation it takes to move the body part helps to decide your individual stimulation level.

Once the calibration session is done you are ready to begin treatment.
Where do I go for treatment?

We ask that you check in at the rTMS reception desk before each session (see the end of this brochure for directions).

Please arrive 15 minutes early for each session to fill out the daily questionnaires. You can pick up the questionnaires in the waiting room and hand them to the rTMS technician when they are complete. Be sure to call the clinic 48 hours in advance if you need to cancel a session.

What happens during the treatment?

1. During the treatment you will be sitting up in a comfortable chair. You will be awake the entire time. No anaesthesia or medication is needed.

2. The rTMS technician will place the rTMS coil against your forehead. You will be asked to hold your head steady during the treatment. This is so the coil stays in place.

3. When the treatment begins, you will feel short bursts of stimulation on your scalp followed by short pauses. Many patients describe the feeling as similar to static
electricity on their nose, teeth, and forehead. This sensation tends to be the most intense during the first few sessions until the nerves adapt. After that it should be much less painful.

Each treatment lasts from 15 to 30 minutes.

After treatment

**Do I have to restrict my activity after rTMS?**

No. You can return to your normal daily activities right after the session. There are no restrictions on driving after rTMS.

You may bring a support person to the first few sessions, if you choose.

**What happens when I finish my course of treatment?**

Once you finish your 20 to 30 sessions of rTMS, you will be asked to return to the clinic for 2 to 4 follow-up appointments. The clinic administrative assistant will help you to book these appointments.

Your follow-up appointments will be with the psychiatrist. He will monitor your symptoms and help you arrange referrals for follow-up medication or therapy as needed.

It is strongly recommended that you enroll in a course of therapy following a successful course of rTMS treatment. This will help you to prevent your symptoms from returning.

Due to the large number of patients seen in the clinic, we cannot offer long term psychiatric care, therapy, or manage your medications. You will still need to see your family doctor or usual psychiatrist for this.

**In case of an emergency**

If you are having thoughts of harming yourself at any time, please call the Distress Centre Helpline **416-408-HELP (4357)** or visit your closest emergency department. Please do not use the clinic voicemail or email in this situation, as an immediate response may not be possible.
Where can I find more information about rTMS?
UHN rTMS Clinic Website: www.rtmsclinic.ca

Important Locations

Toronto Western Hospital
Toronto Western Hospital is located at 399 Bathurst Street on the northeast corner of Bathurst and Dundas Streets.
Visit www.uhn.ca for more detailed directions and maps.

The rTMS Clinic
The clinic is at Toronto Western Hospital on the 7th floor of the Main Pavilion. You will take the Main elevators up to the 7th floor and follow the signs for “Neuropsychiatry” until you reach the Neuropsychiatry reception desk. They can direct you to the rTMS reception down the hall.

You can contact the clinic at: 416-603-5667

The Medical Imaging Department (MRI)
For your MRI scan, come to the Medical Imaging Reception located on the 3rd floor in the East Wing of the Toronto Western Hospital. You will take the East elevators to the 3rd floor and emerge at the reception desk. Be sure to tell the receptionist that you have arrived so they can contact the MRI technician to take you to the scanner. If the receptionist is not at the desk, use one of the available phones to call the technician directly.

You can contact the medical imaging reception desk at:
416-603-5249