



The  
London  
Psychiatry Centre

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Overcome Depression  
with rTMS Treatment

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“rTMS is a ground-breaking treatment for adult patients with Clinical Depression. It provides a solution to those for whom antidepressant medications have failed to provide satisfactory relief.”

## Do You Suffer From Depression?

Have you obtained little or no relief from antidepressants, or is it difficult for you to tolerate the side effects such as weight gain, sexual dysfunction and sleep problems?

If the answer is yes, then rTMS could be the solution for you.





The patient is relaxed and awake throughout the treatment.



# Effective Treatment For Depression, Without The Side Effects

The London Psychiatry Centre is the first and only clinic in the UK that is able to offer patients rTMS, a safe and ground-breaking treatment for Clinical Depression. The treatment uses magnetic stimulation to target the part of the brain that regulates mood. It is a very effective treatment that often succeeds when drugs have failed, as a method of reducing or eliminating the symptoms of Depression. It is a non-invasive and generally side-effect free treatment.

Distinguished psychiatrist Dr Rafael Euba oversees our team of accomplished rTMS consultants here at The London Psychiatry Centre. He is one of an elite group of brain experts in the UK with a deep clinical understanding of this ground-breaking treatment. He has extensive experience in all areas of psychiatry and particular expertise in the area of brain stimulation for the treatment of Depression.

Over the years, Dr Euba has looked after psychologically distressed patients with all diagnoses, of varying ages and in many different clinical settings. He is an expert in the physical and medical spectrum in psychiatry and has a particular interest in the humanistic aspects of the specialism.

One of our rTMS consultants will evaluate each patient before any treatment is undertaken. Your consultant will meet with you personally, reviewing your symptoms and medical history, in order to determine whether rTMS is right for you.





“After all my many years of treating patients, I believe rTMS to be the best solution for people with treatment-resistant Depression. For many sufferers, it works where other interventions have failed.”

**Consultant Psychiatrist & Head of The London Psychiatry Centre rTMS team, Dr Rafael Euba (Licentiate in Medicine and Surgery (Spain), MRCPsych)**

“At The London Psychiatry Centre, 60% of women and 69% of men who have been treated for treatment-resistant Depression (TRD) with rTMS have recovered.”

The London Psychiatry Centre is the only clinic in the UK that has audited and published rTMS treatment results. Treatment results are for 170 patients – the most patients treated with rTMS by any clinic in the UK. Of 44 centres in the US and Australia that have published rTMS treatment results for treatment-resistant Depression, the remission rate is 29%. The remission rate for H-coil dTMS used by certain UK centres is 31%. For The London Psychiatry Centre, our full remission rate is 63%.

# An Introduction To Depression

If you have been suffering with Depression, you'll know how debilitating it can be. Unlike when a person is simply 'feeling down', Depression can affect a sufferer profoundly – physically, mentally and emotionally. It can hamper your ability to work, sleep, and enjoy personal relationships. It is a complex condition and not one that a person can simply 'snap out of'.

To make matters worse, Depression is often little understood, perhaps even by friends and family. They may wonder why you don't enjoy things the way you used to, or don't seem to want to 'join in'. They may even become frustrated. This can leave a sufferer feeling even more isolated and alone.

## What Are The symptoms?

*If you are depressed, you may be likely to:*

- Lose your ability to enjoy life – even when it comes to those activities you would normally look forward to, such as hobbies.
- Find it harder to connect and enjoy spending time with people, even those you love the most. Sometimes sufferers can even lose the ability to feel love for those closest to them.
- Experience a low mood for extended periods of time.
- Suffer with periods of anxiety. This can be extremely debilitating. Sometimes it may even bother you more than the low mood. It can at times make normal day-to-day activities almost impossible.
- Be troubled by disturbed sleep patterns. For example many people suffer with problems getting to sleep at night, followed by a tendency to wake early in the morning. On the other hand, some people sleep more than usual when they are depressed.
- Notice your appetite is affected. Hunger is often reduced by Depression, although some people comfort-eat as a way of relieving feelings of distress.
- Be irritable.
- Focus a lot on the past, with a sense of regret and low self-esteem.
- Find it difficult or even impossible to concentrate.
- Experience poor short-term memory or a sense of absent-mindedness.
- Avoid social activities.
- Feel a sense of dread or hopelessness about the future.

Being depressed is also bad for physical health. We know, for instance, that the risk of suffering a heart attack, or some other serious medical problem, is significantly increased by the presence of Depression.

Depression is real, and it causes a lot of suffering for those experiencing it.

## What Causes Depression?

The roots of Depression can be complex. It is often a combination of problems and stresses in life, together with certain traits in an individual's personality (such as a tendency to be overly self-critical). A difficult boss or a bad marital relationship could be a significant factor for example. Or in other cases, Depression is brought about by a loss; perhaps the loss of a spouse, a child, or a role in life. Sometimes it is also due to a genetic predisposition.

## Does Depression Affect A Lot Of People?

Depression is the third most common reason for GP consultation in the UK. It is by far the most frequent psychiatric disorder. At any given time, one in every ten people is depressed or anxious. Over the course of their lifetime almost one in every five people will suffer with an episode of Depression and about two-thirds of adults will experience a depressed mood significant enough to interfere with their normal activities. Research has consistently shown that Depression occurs around twice as much in women than in men (NHS Clinical Knowledge Summaries).

## What Are The Treatments?

Clinical Depression can be treated with a number of different interventions, such as antidepressant drugs, psychotherapy (talking therapies), exercise, and in severe cases, ECT (Electroconvulsive Therapy).

There are different 'families' of antidepressants, but there is no evidence that the newer ones are any more effective than the old-fashioned drugs. They may help with Depression and they are easy to administer, but they may also produce significant side-effects, such as stomach problems, sexual dysfunction, disturbed sleep and so on. A combination of drugs and psychotherapy is more likely to help than either of these interventions alone. However, there is a very significant proportion of people who remain depressed after trying these treatments. If you've tried interventions without success in the past, it is easy to assume there is nothing else that can be done.

Thankfully, there is a solution for treatment-resistant Depression. The London Psychiatry Centre is now able to offer a leading-edge alternative: rTMS. So effective that it often succeeds where drugs have failed, unlike ECT, rTMS is non-invasive, and has far fewer side-effects than either drugs or ECT.

# repetitive Transcranial Magnetic Stimulation

## What Is rTMS?

rTMS uses magnetic stimulation to target the part of the brain that regulates mood. The human brain is an inherently electrical organ that functions through the transmission of electrical signals between nerve cells. rTMS treatment works with your body's natural processes by simply increasing the number and frequency of such transmissions. It can selectively alter activity in concentrated areas of the brain, bringing about positive effects that have been shown to be helpful in treating a variety of mental health problems. In simple terms, it could help you get back to your calmer, happier, more capable self.

## Depression treatment with rTMS is:

- An alternative to antidepressants
- Highly effective
- Long lasting
- Non-invasive
- Generally pain free
- Without side effects typically experienced with antidepressants.







## How Can rTMS Help With Depression Specifically?

Brain imaging techniques have shown that people suffering from Depression often display insufficient glucose metabolism levels, lower blood flow in the left dorsolateral prefrontal cortex (DLPFC) and heightened activity in the Limbic system. In treating Depression, rTMS therapy directly addresses the DLPFC (an area located a few inches above the temple beneath the skull). This area is also highly interconnected with Limbic structures, which, as explained, also play an important role in regulating mood.

rTMS induces a magnetic current in the DLPFC to regulate the flow of interactions between brain cells, so as to relieve the Depression. Stimulations last under a millisecond. Several studies have indicated that rTMS increases levels of serotonin and dopamine, which are related to 'feel-good' and reward elements in the brain. Furthermore, rTMS can also affect activity in other remote parts of the brain that are actually not directly accessible to the rTMS coil, through indirect stimulation from the parts of the brain directly treated. Some of these remote brain structures are believed to be related to Depression as well.

## What Our Patients Say

"I'm not able to take antidepressants so I have limited alternatives available. I'm so grateful to be given this option."

"I feel better than I have done in five years and have a much more 'get up and go' attitude. I seem to have regained my ability to sort things out and plan to do things. I feel like I'm ready to face bigger challenges and feel more positive about the future. I hope other people are made aware that there are drug-free alternatives out there with minimal side effects."

**Laura, 50, recently completed a six week rTMS treatment programme.**



“I’d seen leading clinics in the US offering rTMS for depression, so when I had the opportunity to receive treatment closer to home I wanted to give it a try.”

“I noticed an improvement after the second session when I had my first good night’s sleep in years. The treatment shifted the way I approach problems and almost blocks my negative way of thinking.”

**Mary, 45, started a four week programme, receiving treatment once a day, five times a week.**



## How Does rTMS Work?

rTMS is a non-invasive method of brain stimulation. It works through electromagnetic induction using an insulated coil which is placed over the scalp, focused on an area of the brain thought to play a role in mood regulation. The coil generates brief magnetic pulses, which pass easily and painlessly through the skull and into the brain. These pulses are comparable to those generated by magnetic resonance imaging (MRI) machines. When such pulses are administered in rapid succession, the method is referred to as “repetitive TMS “ or “rTMS”, which can produce longer lasting changes in brain activity.<sup>7</sup>

rTMS is based on Faraday’s law of electromagnetic induction, by which electrical activity in the brain tissue can be influenced by a magnetic field. The rTMS machine produces brief pulses of strong electrical current. The magnetic field generated at the coil passes through the scalp and skull, depolarizing the neurons in the cortex (Tyc and Boyadjian, 2006) . High-frequency rTMS seems to facilitate cortical excitability, while low-frequency rTMS can suppress this excitability in the motor cortex.

## rTMS: Safety & Suitability

rTMS is a safe intervention, with a very high rate of patient tolerance – arguably significantly better than that of other antidepressant treatments. Any adverse effects are generally minor – for example scalp pain, headache and a burning sensation, which can appear during or after treatment and doesn’t last long. However, like any medical intervention, there are some people it isn’t suitable for. That is why all our prospective rTMS patients are thoroughly assessed by our rTMS specialist psychiatrist Dr Euba. Indeed, rTMS is unsuitable if a patient:

- Has ocular implants
- Has implanted medication pumps
- Has cardiac pacemakers, implantable cardioverter defibrillators, intra-cardiac lines
- Has conductive, ferromagnetic or other magnetic-sensitive metals implanted in their head or within 30 cm of the treatment coil. Examples include cochlear implants, implanted electrodes/stimulators, aneurysm clips or coils, stents, bullet fragments, etc.
- Has active or inactive Stimulator Devices implants in or near the head, including deep brain stimulators, cochlear implants, vagus nerve stimulators, or device leads
- Is a child
- Has a suicide plan or recent suicide attempt; rTMS is not considered an appropriate treatment in very severe Depression, with psychotic features and suicidal tendencies.
- Has Depression that was substance-induced.
- Seizure is a miniscule risk associated with this treatment: only about 20 fits in total have been reported so far, out of many thousands of patients being treated with rTMS worldwide, over a number of years. Most were receiving doses above the recommended range. However, a history of seizures is considered to make a patient unsuitable for rTMS. Any factors that may lower the epileptic threshold (i.e. make a person more susceptible to seizures) will also be taken into account by our specialist.
- There is no safety data available on pregnant or nursing women.
- For patients that are suitable for this treatment, rTMS can be a revelation. Clinical studies have consistently shown that rTMS is effective in treatment-resistant Depression,<sup>9</sup>, meaning that in many cases, rTMS is successful where antidepressants have failed. In the U.S. rTMS is offered as a standard therapy in a number of high profile health clinics including John Hopkins and the Mayo Clinic.



## What Happens In An rTMS Session?

During treatment you will be comfortably seated in a chair with your head leaning back. A vacuum pillow is placed around your neck to support your head. You will wear a personal cotton cap to ensure correct positioning of the coil, which will deliver the magnetic pulses. The coil is normally positioned on the Left Dorso-Lateral Prefrontal Cortex (an area a few inches above the temple beneath the skull). You won't need to be sedated.

## How Long Will rTMS Treatment Take?

An initial assessment will be required with one of our expert rTMS consultants. The consultation lasts an hour and the consultant will go through all the treatment opinions and consent with you.

rTMS treatment is short but intense. A usual treatment course would consist of 5 sessions per week. A weekly review with the rTMS consultant is required so that they can assess your progress, make any changes if required and re-prescribe your next week's treatment. However, subject to availability and recommendation from your consultant you may be able to have more or less sessions per week to suit your schedule and lifestyle.

We are able to provide rTMS **Monday – Friday from 8am – 8pm**. The average treatment length is **30 minutes**.

## How Much Will rTMS Cost?

For the cost of the initial assessment, weekly review and rTMS treatment please refer to our fees sheet.

Due to the cost of equipment and level of expertise involved, rTMS cannot be a 'cheap' treatment. But when we consider the benefits, the cost pales in comparison.

If you are experiencing Depression you'll know how much of a drain it is on all areas of life, including personal relationships and self-esteem – not least on productivity itself. We spend on cars, kitchens and holidays when it is health that is our most precious asset. rTMS offers patients an opportunity to experience quick and long-lasting relief from Depression without the inhibiting side effects that can come with medication. Indeed, for many patients it has proved the most significant investment they have ever made.

If you've been suffering with Depression without an effective solution, contact The London Psychiatry Centre. Our expert team will take the time to determine if rTMS could be the answer you're looking for.

## FAQs

### Does The Treatment Really Work?

Extensive clinical trials carried out in the United States show that for many patients, treatment with rTMS is more effective than antidepressants. Medical research studies and peer-reviewed articles have confirmed its value in treating a number of mental health problems.

### Who Can Get The Treatment?

Adult patients who have been properly diagnosed by a doctor or psychiatrist, and have been found suitable for rTMS. At the London Psychiatry Centre, all potential patients will be assessed by an elite rTMS specialist psychiatrist before determining if the treatment is suitable.

### Does rTMS Hurt?

No, it does not hurt. During a session, you will hear a clicking sound and feel a tapping sensation on your head. After treatment, some patients report a mild discomfort or headache, but you should be able to resume your daily activities right after your session.

### Is rTMS Safe?

rTMS is regarded as a considerably safe treatment, with a very low risk of side effects. It is completely non-invasive – it doesn't require any needles or anaesthetic. Since the only thing entering a patient's body is pure energy, rTMS is free from responses associated with antidepressant medications (stomach complaints, lowered libido, etc.). It is a milder treatment than ECT.

There is a very small risk of seizure with rTMS – however the University of Michigan reports that in 10,000 treatments there has not been a single seizure episode recorded.

### How Long Does The Effect Last?

rTMS treatment is administered as an outpatient procedure for just over half an hour per session, for an average 10 to 30 sessions. Many people only need one complete treatment course (2-6 weeks). Our expert psychiatrist may prescribe maintenance treatment (one or two sessions) every 4-6 months, or once a year. Treatment requirements vary from individual to individual, but typically you would be prescribed maintenance treatment if it felt like your symptoms were returning.

### Can rTMS Be Used For Any Other Conditions?

The London Psychiatry Centre offers rTMS for the treatment of tinnitus. Research – and experience with our own patients – shows that rTMS has a positive effect on tinnitus. You will initially be assessed by a trusted consultant ENT surgeon and treated on our premises with magnetic stimulation protocol – especially developed for this condition. The protocol targets the areas of the brain that play a part in generating the tinnitus, using both inhibiting and stimulating magnetic frequencies.

Additionally, we offer treatment for fibromyalgia patients suffering with widespread pain, severe fatigue and chronic sleep disruption. rTMS has proven effective for the management of fibromyalgia pain. Patients have seen improvements with just a few sessions. The analgesic effects of the treatment make way for an overall reduction of pain, enabling a lift in mood and a better quality of life.

As leaders and innovators in mental health, The London Psychiatry Centre is the first and only clinic in the UK to offer rTMS for the treatment of Depression. So far, every patient who has completed a treatment course has improved in their symptoms, and most have fully recovered.



<sup>1</sup>George M, Taylor J, Baron Short E, The expanding evidence base for rTMS treatment of Depression, *Current Opinion Psychiatry*, 2013;26:13-18. <sup>2</sup>Li CT, Wang SJ, Hirvonen J, et al. Antidepressant mechanism of add-on repetitive transcranial magnetic stimulation in medication-resistant Depression using cerebral glucose metabolism. *J Affect Disord*. 2010, 127(1-3):219-29. <sup>3</sup>Blumberger DM, Mulsant BH, Fitzgerald PB, et al. A randomized double-blind sham-controlled comparison of unilateral and bilateral repetitive transcranial magnetic stimulation for treatment-resistant major Depression. *World J Biol Psychiatry*. 2012;13(6):423-35. <sup>4</sup>Fitzgerald PB, Hoy K, Gunewardene R, et al. A randomized trial of unilateral and bilateral prefrontal cortex transcranial magnetic stimulation in treatment-resistant major Depression. *Psychol Med*. 2010;41:1187-1196. <sup>5</sup>Galletly C, Gill S, Clarke P, Burton C, Fitzgerald PB. A randomized trial comparing repetitive transcranial magnetic stimulation given 3 days/week and 5 days/week for the treatment of major Depression: is efficacy related to the duration of treatment or the number of treatments? *Psychol Med*. Sep 13 2011;1-8. <sup>6</sup>Holtzheimer PE, 3rd, McDonald WM, Muftic M, et al. Accelerated repetitive transcranial magnetic stimulation for treatment-resistant Depression. *Depress Anxiety*. Oct 2010;27(10):960-963. <sup>7</sup>Carpenter LL, Janicak PG, Aaronson ST, Boyadjis T, Brock DG, Cook IA, Dunner DL, Lanocha K, Solvason HB, Demitrack MA. Transcranial magnetic stimulation (TMS) for major Depression: a multisite, naturalistic, observational study of acute treatment outcomes in clinical practice. *Depress Anxiety*. 2012;29(7):587-96. <sup>8</sup>Connolly KR, Helmer A, Cristancho MA, Cristancho P, O'Reardon JP. Effectiveness of transcranial magnetic stimulation in clinical practice post-FDA approval in the United States: results observed with the first 100 consecutive cases of Depression at an academic medical center. *J Clin Psychiatry*. 2012;73(4):e567-73.



## Appointments and enquiries

Call: 020 7580 4224

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## Opening hours

Monday to Friday: 9.00am – 6.00pm

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