

MagVenture TMS Research

Magnetic stimulation for rehabilitation



- What is magnetic stimulation?
- What is it used for?
- Why do rehabilitation research?
- What are the current studies?



MagVenture TMS Research
Making impossible possible.

Please note that this brochure is not intended for US audiences.

What is magnetic stimulation?

Monitor and modulate neuronal activity

Magnetic stimulation is used to monitor and/or modulate activity in nerve cells in the brain or nerve fibers in the body. In order to activate muscle response, magnetic pulses are applied either on the patient's head or body.

The pulses will travel freely through clothes and human tissue, including bones, and create a magnetic field.

Magnetic stimulation is a non-invasive procedure and does not require anesthesia or surgery.



A magnetic coil is used to apply the magnetic pulses.

What is magnetic stimulation used for?

By placing the magnetic coil on the head and by stimulating the brain, it is possible to induce a muscle response.

Magnetic stimulation can also be applied on the body and upon peripheral nerves to induce a muscle response. Magnetic stimulation – either applied on the head or body – may be used as an electro-physiological aid to assess diagnosis and to monitor diseases of the central and peripheral nervous system.

Researchers are currently using magnetic stimulation for a variety of purposes, such as:

- A diagnostic tool to diagnose neurological diseases.
- An aid to assess the individual motor function (movement, motorics, strength, etc.).
- A way to re-activate impaired muscles (due to injury or disease).
- A physiotherapeutic add-on tool for neuromuscular stimulation.

Magnetic stimulation in short

- Magnetic pulses applied to the head or body
- No anesthesia
- Non-invasive – does not enter the bloodstream
- Penetrates muscles and tissue
- May be used as both in- and outpatient procedure



The research of magnetic stimulation

Why do rehabilitation research?

Researchers doing rehabilitation research work to find out how to restore lost or damaged body functions in people with diseases and injuries of the central and peripheral nervous system in order to develop new, effective rehabilitation technologies.

So far, small publications with low number of patients indicate effect of focal TMS on rehabilitation patients, but studies with more patients and studies combining TMS with other rehabilitation technologies still need to be done.

If you are also interested in working with clinical rehabilitation research, please contact your local MagVenture partner to get more advice on local research rules and how to get started.

Selected research articles

- *Comparison of different stimulation parameters of repetitive transcranial magnetic stimulation for unilateral spatial neglect in stroke patients.* Yang, et al, 2015, J Neurol Sci.
- *Daily Repetitive Transcranial Magnetic Stimulation for Post-stroke Upper Limb Paresis in the Subacute Period.* Hosomi et al, 2016, J Stroke Cerebrovasc Dis.
- *Evidence-based guidelines on the therapeutic use of repetitive transcranial magnetic stimulation (rTMS): An update (2014-2018).* Lefaucheur et al, 2019, Clin Neurophysiol.
- *Functional magnetic stimulation for conditioning of expiratory muscles in patients with spinal cord injury.* Lin, V. W. et al, 2001, Arch Phys Med Rehabil.
- *Functional Magnetic Stimulation for Restoring Cough in Patients with Tetraplegia.* Lin, V. W. et al, 1998, Arch Phys Med Rehabil.
- *Peripheral neurostimulation and specific motor training of deep abdominal muscles improve posturo-motor control in chronic low back pain.* Masse-Alarie, H. et al, 2013, Clin J Pain.
- *Functional magnetic stimulation using a parabolic coil for dysphagia after stroke.* Momosaki, R. et al, 2014, Neuro-modulation.
- *Musculoskeletal Ultrasonography Assessment of Functional Magnetic Stimulation on the Effect of Glenohumeral Subluxation in Acute Poststroke Hemiplegic Patients.* Yang, C. et al, 2018, Biomed Res Int.



5 reasons to choose MagVenture TMS Research

- 1 Strong local representation through an extensive global distributor network
- 2 Globally known and recognized for our highly advanced, safe, and durable solutions.
- 3 Long-term close collaborations with research institutions worldwide.
- 4 A proven track-record spanning almost 30 years.
- 5 Wide selection of coils and stimulators to suit all needs within clinical and research applications.



Who is MagVenture?

MagVenture is a Danish medical device company specializing in non-invasive magnetic stimulation systems for the treatment of major depressive disorder and neuroscience research. Through collaborations with leading neuroscientists around the world, MagVenture has – for well over two decades – helped researchers push the technology forward in fields such as neurophysiology, neurology, cognitive neuroscience, rehabilitation, and psychiatry, thus shaping the future path of TMS.

Our coils and magnetic stimulators are ranked among the most powerful, advanced and durable on the market and sold globally through direct sales subsidiaries in the USA, Germany, the UK, Brazil, and through a network of distributors in Europe, Asia, Middle East and the Americas.

Regulatory note

The MagPro is intended as an electro-physiological aid to assess diagnosis and to monitor diseases of the central and peripheral nervous system, based on the use of Motor Evoked Potential (MEP).

Magnetic stimulation for rehabilitation is not included in the intended use for MagVenture stimulators. The use of MagVenture stimulators for applications outside the approved intended use in a given country is the responsibility of the researchers performing the trials.

For more information

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