Revolution in the exploration of epilepsy at Hôpital Erasme in Brussels.

22,000 patients could potentially benefit in Belgium.

With funding from a sponsor of the Fonds Erasme pour la Recherche Médicale, Hôpital Erasme is paving the way for a new era in the study of the epileptic brain, with the development of a highly sensitive, wearable magnetoencephalography (MEG) system able to measure the brain's magnetic fields with greater precision.

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Revolution in the exploration of epilepsy at Hôpital Erasme, a teaching hospital and pioneer in neuroscience research

With funding from a sponsor of the Fonds Erasme pour la Recherche Médicale, Hôpital Erasme is opening the door to a new era in the study of the epileptic brain, with the development of a highly sensitive, wearable magnetoencephalography (MEG) system able to measure the brain's magnetic fields with greater precision.

A major breakthrough for Belgium's 22,000 epileptic patients

Second only to migraine, epilepsy is the most common chronic neurological illness. In Belgium, it affects approximately 75,000 people. Thirty per cent of cases are what is known as refractory epilepsy, which cannot be controlled with medication. In these cases, epilepsy surgery, which involves removing the area of the brain responsible for epileptic seizures, is the only treatment option for the patient. To carry out this surgery, the exact region of the brain responsible for the epileptic seizures must be identified.

The only magnetoencephalography system in Belgium

In 2007, Hôpital Erasme, a pioneer in neuroscience research, acquired the first - and still only - magnetoencephalography system (MEG) in Belgium. The exceptional capacities of this instrument, which was renewed in 2015 with the support of the Fonds Erasme, have helped make great strides in the provision of care for patients with refractory epilepsy.

A new era in the study of the epileptic brain

The MEG Unit at Hôpital Erasme recently entered a new era in the study of the epileptic brain. It has carried out the first recordings of epileptic activity in children and adults using a revolutionary, wearable MEG system, designed and developed by the hospital's research teams.

This system is based on the use of new magnetic field sensors called Optically Pumped Magnetometers (OPMs). Positioned directly against the scalp, OPMs detect and pinpoint epileptic activity with greater precision.

Aside from its major impact in clinical neurology, this revolutionary technology will also help to make great strides in the field of human neurosciences. With the further progress it is expected to make,

this new generation MEG could replace the functional neuroimaging methods currently used in research on the human brain.

Figure illustrating the new wearable OPM-MEG system (left) and the traditional MEG system (right) on a non-epileptic child

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What is the Fonds Erasme?

Created in 1982 with the help of donors and bequests, the Fonds Erasme medical research fund is a major pillar of the research conducted at Hôpital Erasme training hospital. Supporting approximately one hundred researchers, it fosters research development and medical progress for the benefit of patients.

Find out more… www.fondserasme.org