

The most powerful MRI scanner provides the first accurate images of the human brain

The world's most powerful magnetic resonance imaging machine provides the first images of the human brain, reaching a new level of accuracy that scientists hope will shed more light on the brain...



Iseult - the world's most powerful magnetic resonance imaging (MRI) machine - has provided the first images of the human brain, reaching a new level of accuracy that scientists hope will shed more light on the brain. , as well as the diseases that haunt our minds.

Over the past few months, about 20 healthy volunteers have become the first people to enter the MRI machine placed by the French Atomic Energy Commission (CEA) in the Plateau de Saclay area, south of Paris - where many technology companies and universities are located.

Physicist Alexandre Vignaud, a member of the above project, said: 'We witnessed a level of precision that had never been reached before at CEA.'

The MRI machine here creates a huge magnetic field of 11.7 Tesla, a unit of measurement named after inventor Nikola Tesla. This capacity allows the machine to record images with 10 times more accuracy than MRI machines commonly used in hospitals, which have a maximum magnetic field of 3 Tesla.

Mr. Vignaud compared the images captured by Iseult with those from a conventional MRI scanner. He asserted: 'With this machine, we can see the small blood vessels that nourish the cerebral cortex or details of the cerebellum - something that was almost impossible to observe before.'

Meanwhile, French Research Minister Sylvie Retailleau, a physicist, also commented that Iseult is incredibly accurate and that this is the first technology in the world that will allow better detection and treatment of diseases. brain disease.

Iseult has a long cylindrical structure, is 5m high and contains a 132-ton magnet, powered by a coil carrying a current of 1,500 amps. The design is the result of 20 years of collaborative research between French and German engineers.

The US and South Korea are also developing similarly powerful MRI machines but have not yet begun scanning human images. The primary goal of these efforts to develop powerful MRI scanners is to improve humanity's understanding of brain anatomy and the role each brain region plays when performing specific tasks.

Scientists have used MRI to demonstrate that when the brain recognizes specific things - like faces, places or words, separate regions of the cerebral cortex become active.

Harnessing the power of the 11.7 Tesla magnetic field will help Iseult 'better understand the relationship between brain structure and cognitive function,' said Nicolas Boulant, the project's scientific director. for example, when we read a book or do a mental calculation.'

Researchers hope that Iseult's potential could also be to shed light on the elusive mechanisms behind neurodegenerative diseases such as Parkinson's or Alzheimer's - or psychological conditions such as depression or schizophrenia .

CEA scientist Anne-Isabelle Etienvre explains: "When we know that a specific area of ??the brain – in this case the hippocampus – is involved in Alzheimer's disease, we focus our research on that. , to find out how cells work in this part of the cerebral cortex."

Scientists also hope to discover how certain drugs used to treat bipolar disorder are distributed through the brain, thereby helping to determine which patients will respond better or worse. with medicine.

Ms. Etienvre emphasized: "If we understand these very dangerous diseases better, we will be able to diagnose them earlier - and from there have better treatment plans."/.

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