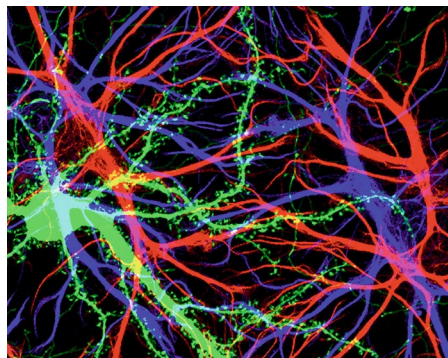


NEUROSCIENCE

Recording conscious memory

Science <https://doi.org/10.1126/science.aax1030>



Credit: Science History Images / Alamy Stock Photo

Intracranial recordings—measuring brain activity from electrodes implanted in the brains of patients in preparation for surgery—have opened up new ways of understanding the human brain. In particular, one important feature is that they allow researchers to map findings in animals, where recordings from the brain have long been a standard approach, to findings in humans, which creates new synergies between research strands.

In a new study, Yitzhak Norman and colleagues from the Weizmann Institute of Science and the Feinstein Institute for Medical Research, used intracranial recordings to better understand sharp-wave ripples, highly synchronous neural activity associated with navigation and memory formation. Because a lot of prior research happened in rats, it has so far been unclear what form of conscious cognition can be related to sharp-wave ripples. Their study suggests that sharp-wave ripples are involved not only in the engraving of new memories, but also in triggering recollection. One significant novel research finding is that content-specific sharp-wave ripples occur shortly before patients form a conscious recollection of a studied item.

The study deepens our understanding of the neuronal mechanisms underlying the interaction between the hippocampus and cortical areas in memory formation and conscious recall.

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