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Study links brain memory signals to blood sugar levels

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By **Pooja Yadav** | August 12, 2021



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Researchers at NYU Grossman School of Medicine in the US has discovered that a peculiar signalling pattern in the brain region called the hippocampus, linked by past studies to memory formation, also influences metabolism, the process by which dietary nutrients are converted into blood sugar (glucose) and supplied to cells as an energy source.

The study revolves around brain cells called neurons that "fire" (generate electrical pulses) to pass on messages. Researchers in recent years discovered that populations of hippocampal neurons fire within milliseconds of each other in cycles, with the firing pattern is called a "sharp wave ripple" for the shape it takes when captured graphically by EEG, a technology that records brain activity with electrodes.

Published online in *Nature* on August 11, a new study found that clusters of hippocampal sharp wave ripples were reliably followed within minutes by decreases in blood sugar levels in the bodies of rats. While the details need to be confirmed, the findings suggest that the ripples may regulate the timing of the release of hormones, possibly including insulin, by the pancreas and liver, as well of other hormones by the pituitary gland.

Moving forward, the research team will seek to extend its theory that several hormones could be affected by nightly sharp wave ripples, including through work in human patients. Future research may also reveal devices or therapies that can adjust ripples to lower blood sugar and improve memory.

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