

Brain oscillations reveal that our senses do not experience the world continuously

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(Medical Xpress) -- It has long been suspected that humans do not experience the world continuously, but rather in rapid snapshots.

Now, researchers at the University of Glasgow have demonstrated this is indeed the case. Just as the body goes through a 24-hour sleep-wake cycle controlled by a [circadian clock](#), [brain](#) function undergoes such cyclic activity – albeit at a much faster rate.

Professor Gregor Thut of the Institute of Neuroscience and Psychology, said: “Rhythms are intrinsic to biological systems. The circadian rhythm, with its very slow periodicity of [sleep](#) and wake cycles every 24 hours has an obvious, periodic effect on bodily functions.

“Brain oscillations – the recurrent neural activity that we see in the brain – also show periodicity but cycle at much faster speeds. What we wanted to know was whether brain function was affected in a cyclic manner by these rapid oscillations.”

The researchers studied a prominent brain rhythm associated with visual cortex functioning that cycles at a rate of 10 times per second (10Hz).

They used a ‘simple trick’ to affect the oscillations of this rhythm which involved presenting a brief sound to ‘reset’ the oscillation.

Testing subsequent visual perception, by using transcranial magnetic stimulation of the visual cortex, revealed a cyclic pattern at the very

rapid rate of brain [oscillations](#), in time with the underlying brainwaves.

Prof Thut said: “Rhythmicity therefore is indeed omnipresent not only in brain activity but also [brain function](#). For perception, this means that despite experiencing the world as a continuum, we do not sample our world continuously but in discrete snapshots determined by the cycles of brain rhythms.”

The research, ‘Sounds reset rhythms of [visual cortex](#) and corresponding human visual perception’ is published in the journal *Current Biology*.

More information: Romei et al., Sounds Reset Rhythms of Visual Cortex and Corresponding Human Visual Perception, *Current Biology* (2012), [doi:10.1016/j.cub.2012.03.025](https://doi.org/10.1016/j.cub.2012.03.025)

Provided by University of Glasgow

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