Study: Marijuana may affect neuron firing

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U.S. scientists have discovered the active ingredient in marijuana interferes with synchronized activity between neurons in the hippocampus of rats.

The authors suggest action of tetrahydrocannabinol, or THC, might explain why marijuana impairs memory.

Gyorgy Buzsaki and colleagues at Rutgers University recorded the activity of multiple neurons in the hippocampus of rats. Normally neurons in that region form groups that fire action potentials, or nerve impulses, together at about 4-10 times per second. But when the authors injected THC, or a related synthetic drug, into the hippocampus, that synchrony was disrupted.

The researchers said the drugs did not change the total number of action potentials produced, just their tendency to occur at the same time. Animals with less synchronized neural activity under the drug performed less well in a standard test of memory, suggesting synchronized neural firing is important for normal hippocampal function.

The study appears in the December issue of the journal Nature Neuroscience.