

Research suggests why scratching is so relieving

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In the first study to use imaging technology to see what goes on in the brain when we scratch, researchers at Wake Forest University Baptist Medical Center have uncovered new clues about why scratching may be so relieving – and why it can be hard to stop. The work is reported online in the *Journal of Investigative Dermatology* and will appear in a future print issue.

“Our study shows for the first time how scratching may relieve itch,” said lead author Gil Yosipovitch, M.D., a dermatologist who specializes in itch. “It’s important to understand the mechanism of relief so we can develop more effective treatments. For some people, itch is a chronic condition that affects overall health.”

The study involved 13 healthy participants who underwent testing with functional magnetic resonance imaging (MRI) technology that highlights areas of the brain activated during an activity. Participants were scratched on the lower leg with a small brush. The scratching went on for 30 seconds and was then stopped for 30 seconds – for a total of about five minutes.

“To our surprise, we found that areas of the brain associated with unpleasant or aversive emotions and memories became significantly less active during the scratching,” said Yosipovitch. “We know scratching is pleasurable, but we haven’t known why. It’s possible that scratching may suppress the emotional components of itch and bring about its relief.”

The reduced brain activity occurred in the anterior cingulate cortex, an area associated with aversion to unpleasant sensory experiences, and the posterior cingulate cortex, which is associated with memory. When participants reported that the scratching felt most intense, activation in these areas was lowest.

Yosipovitch said patients occasionally report that intense scratching – to the point of drawing blood – is the only thing that relieves chronic itch.

“This is the first real scientific evidence showing that itch may be inhibited by scratching,” he said. “Of course, scratching is not recommended because it can damage the skin. But understanding how the process works could lead to new treatments. For example, drugs that deactivate this part of the brain might be effective.”

The imaging studies also showed that some areas of the brain were made more active by the scratching, including the secondary somatosensory cortex, a sensory area involved in pain, and the prefrontal cortex, which is associated with compulsive behavior.

“This could explain the compulsion to continue scratching,” said Yosipovitch.

One drawback to the study is that the scratching occurred in the absence of itch. Yosipovitch’s team is continuing the research by evaluating whether the findings will apply to chronic itch.

Understanding more about chronic itch is important, Yosipovitch said, noting that more than 30 million Americans suffer from eczema and that almost half (42 percent) of kidney dialysis patients are bothered by moderate to severe itch. In fact, those kidney dialysis patients with itch have a 17 percent higher mortality rate, likely from a loss of sleep, according to a report in *Nephrology Dialysis Transplantation*.

Source: Wake Forest University

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