Interrupted sleep takes toll on memory formation, study says

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A new study seems to confirm what exhausted parents have long suspected but may have been too tired to articulate:

Lack of sleep turns the brain to mush.

More precisely, waking up too frequently prevents the brain from forming new memories.

Although these results come from a study of mice, some sleep-deprived mothers - including the study's author - say the findings ring true. Sleep researcher Asya Rolls, like many mothers, suffered from "momnesia," the mental fog that sets in shortly after delivery and may continue until youngsters sleep consistently through the night.

"I can remember my children as babies, but it's a very hazy memory, based mostly on photographs and videos," says Rolls, a researcher at Stanford University and co-author of a study in this week's Proceedings of the National Academy of Sciences.

Indeed, Rolls found that waking up her lab mice too often gave them a sort of amnesia.

After a good night's rest, her lab mice are highly curious, eagerly investigating new objects in their cages while ignoring older, familiar items, Rolls says.

After a night of poor sleep, however, her mice resembled a group of hungover drunks with no memory of the previous night's debauch, says Rolls, whose kids woke her every 1.5 to 2 hours the first few weeks.

In the lab, Rolls interrupted the animals' sleep by stimulating them with pulses of light every 60 seconds. The next day, she says, they behaved as if they had never seen certain objects, exploring them as if it were the first time they'd seen them.

Lab mice normally wake more frequently than people, Rolls says. Still, arousing them that often may have prevented them from converting short-term memories into long-term ones.

These findings don't necessarily apply to humans, but Ron Szymusiak, a sleep neurobiologist at the University of California-Los Angeles, calls the study a "very elegant experiment" that adds to a growing body of science showing that sleep loss undermines our ability to think clearly. Studies have shown that one night without sleep, for example, impairs a driving ability nearly as much as if they were legally drunk.

There's still no relief in sight for new moms such as Kilie Porter. "If I get 2 hours and 40 minutes of continuous sleep, that's like the best day ever," says Porter, 28, of near Seattle.

"It does take a toll on your mind," Porter says. "You're not as sharp as you once were. The other day I was wondering why the dogs were pacing around. And then I noticed that it was 7 p.m. and I hadn't fed them yet."

And while her husband may not wake up as often as she does, Porter says he may have a harder time adjusting.

"While I can take a nap the next day, he can't," Porter says. "He has to get up at 5:30 a.m. and speak to other people, not just a baby."