Insomnia could be caused by loose connections in the brain

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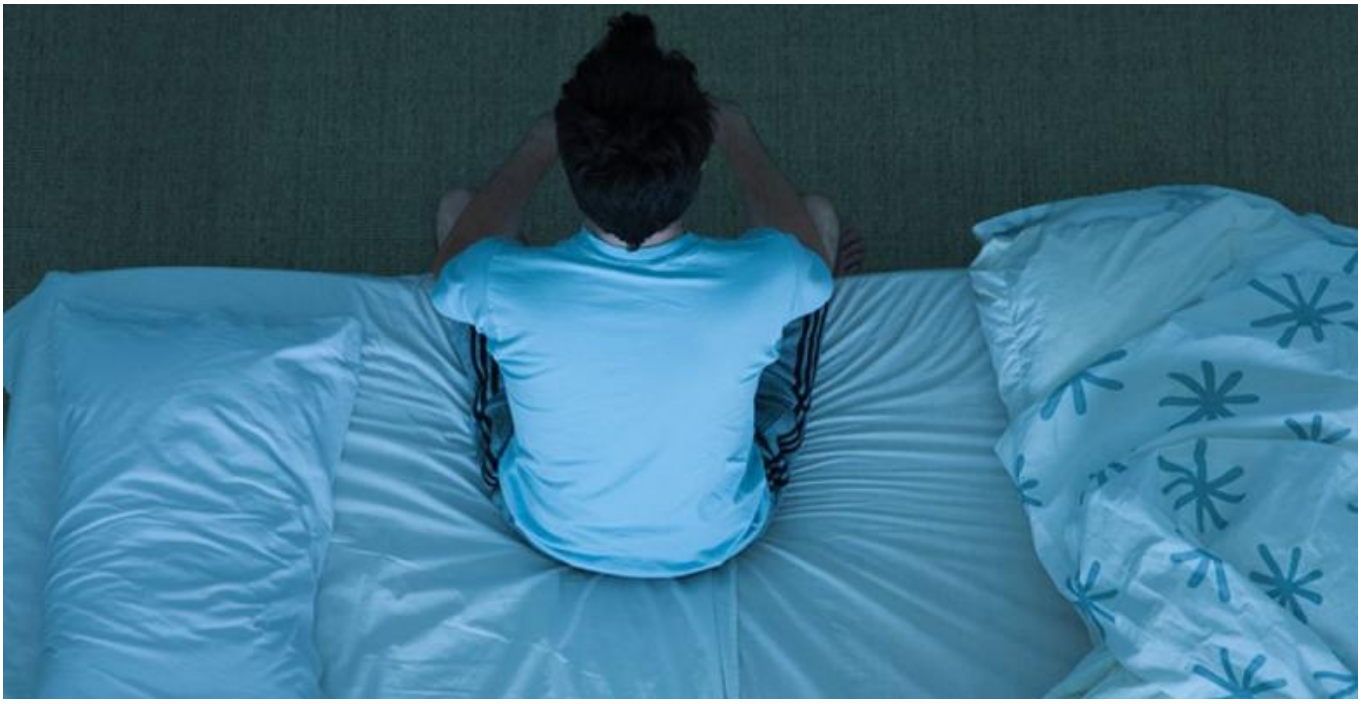

The cell bodies and synapses of our brain cells make up our brain's grey matter, while bundles of their tails that connect one brain region to another make up the white matter. These nerve cell tails – axons – are cloaked in a fatty myelin sheath that helps transmit signals.

Radiologist Shumei Li from Guangdong No. 2 Provincial People's Hospital in Guangzhou, China, and her team, scanned the brains of 30 healthy sleepers and 23 people with severe insomnia using diffusion tensor imaging MRI. This imaging technique lights up the white matter circuitry.

## Axons unsheathed

They found that in the brains of the people with severe insomnia, the regions in the right hemisphere that support learning, memory, smell and emotion were less well connected compared with healthy sleepers. They attribute this break down in circuitry to the loss of the myelin sheath in the white matter. A study in November suggested that smoking could be one cause for myelin loss.

The team also found that the insomniacs had poorer connections in the white matter of the thalamus, a brain region that regulates consciousness, alertness and sleep.

The study proposes a potential mechanism for insomnia but there could be other factors, says Max Wintermark, a radiologist at Stanford. He says it's not possible to say whether the poor connections are the cause of result of insomnia.

"This study takes us one step further in understanding insomnia and a step closer to a potential treatment," says Wintermark. Knowing what the brains of people with insomnia look like is important if we are ever to understand the condition, he says.