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## Sleep deprivation effects on

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Sleep deprivation effects on the brain can be a little harder to identify than the [physical effects of sleep deprivation](#) – but make no mistake: sleep deprivation effects relating to the brain may be the most dangerous of all the consequences of lack of sleep.

Sleep deprivation's connection to decreased attention and working memory “is well established,” according to the journal [Neuropsychiatric Disease and Treatment](#), “but it also affects other functions, such as long-term memory and decision-making.”<sup>①</sup>

At its most basic, effects of lack of sleep on the brain affect “mood and the ability to make memories and learn,” Dr. Susan Redline of Brigham and Women's Hospital in Boston [told ABC News](#).<sup>②</sup>

At a more advanced level, sleep deprivation can over-stimulate parts of the brain and even lead to permanent brain damage, according to a report on sleep deprivation among students [published by The Guardian](#).<sup>③</sup> “This is because of the brain's ‘neural plasticity’ – which means its ability to adapt to new situations. When it's forced to operate in a different state on a regular basis, it permanently alters itself.”

Well, that's scary, but surely it only affects those who chronically skip sleep – night shift workers, perhaps, or severe sleep apnea sufferers? Not quite. “Our results suggest that just one night of sleep loss significantly alters the optimal functioning of this essential brain process,” according to Andrea Goldstein from the Sleep and Neuroimaging Laboratory at the University of California, Berkeley, in the ABC News article.

Among children, sleep deprivation has been linked to “poorer grades, moodiness and depression,” reports *The New York Times*.<sup>④</sup> The same article describes the effects of sleep deprivation on teenagers as linked to “poorer grades, moodiness and depression ... those deprived of an hour’s sleep performed less well on tests for reaction time, recall and responsiveness than the children who slept the extra hour.”

## Identifying sleep deprivation effects on the brain

One of the most insidious effects of lack of sleep on the brain is that it can be tough to identify – not only cognitive but emotional issues have been reported, and can lead to conflicting feelings of euphoria and depression.

As the ABC News article explains, imaging of the brain strongly suggests that “sleep deprivation can boost activity in the brain’s emotional centers” – meaning that lack of sleep can cause us to feel more confident and less cautious than normal. That’s a basic malfunctioning of the brain that can lead to serious repercussions in the daily choices we make.

On the other hand, the link between sleep deprivation and depression is also well established. “People feel more anxious, restless, irritable, less satisfied,” Dr. Mark Dyken, director of the University of Iowa’s Sleep Disorders Center in Iowa City, is quoted in the ABC News article. “They have difficulty focusing and sometimes feel like they just don’t care anymore.”

“We found that the emotional center of the brain ... was about 60 percent more active in people who had been sleep deprived, which was quite a frightening amount,” said Professor Matt Walker of the University of California, Berkeley, via an article in *The Telegraph*.<sup>⑤</sup> “As the frontal lobe puts the brakes on the brain’s emotional center, it shows that when you’re sleep deprived you’re all accelerator and no

brakes. You don't have control over your emotions.”

That's an extreme effect, resulting from extreme sleep deprivation. Most of us don't suffer from that level of sleep loss. All the same, the lessons of sleep deprivation effects on the brain point to a need to try to maintain the recommended level of sleep – six to eight hours each night.

“Sleep is restorative,” Dr. Dyken reminds us. “And if you don't get it, your health will suffer.”

*This blog post contains general information about medical conditions and potential treatments. It is not medical advice. If you have any medical questions, please consult your doctor.*

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