FACT SHEET FOR ADOLESCENTS

SLEEP

By Derek Pugh

AN HOUR OF SLEEP LOSS EACH NIGHT LOWERS YOUR COGNITIVE AGE BY TWO YEARS AND INCREASES THE CHANCE OF YOU BECOMING OBESE BY 80%

High school seniors now average less than seven hours sleep per night. That's more than an hour less per night than their parents at the same ages. That's a whole night's sleep lost every week.

During sleep the day's learning is shifted from short term memory areas to more efficient storage systems in the brain. The more you learn during the day, the more sleep you need to remember it.

Brains are under reconstruction in the teenage years. Sleep scientists are beginning to discover what effect this lost hour has on teenagers' brains. They found that sleep problems cause permanent changes in brain structure and that some classic teenage behaviours (moodiness, depression, binge eating) may be sleep loss related.

In a study of 7000 students, teens who received A averages had fifteen minutes more sleep than the B averages and they had eleven minutes more than the C averages who had ten minutes more than the Ds. Every fifteen minutes of sleep counts.

Sleep loss impairs your brain by making it less ‘plastic’ and less able to form synaptic connections to create memories. Emotional contexts of memories affect where it gets processed. The amygdala handles negative stimuli, the hippocampus handles positive. The hippocampus suffers more than the amygdala from sleep loss. The result is the sleep deprived can fail to recall pleasant memories, but have no trouble remembering the gloomy. This may be a physical link to teenage depression.

Kids who miss an hour sleep per night operate their brains at a cognitive level of two years below where they should be. Grade 10s may operate as grade 8s. A teacher with knowledge of how sleep affects students can often point out those in the class who are sleep deprived.

In tired people the prefrontal cortex cannot metabolise glucose well enough. Their ‘executive functioning’ suffers, they have lower impulse control and get distracted more easily.

School start times maybe too early. In the US schools which altered start times to 8.30 am or later found dramatic results (maths and verbal SAT scores rose 15%). In another school they found teenage car accidents dropped 16% after later school starts. If you consider accidents, sleep can affect whether you live or die.

Sleep loss may be linked to the increasing level of childhood obesity. On average, children who sleep less are fatter than those who get their full 10 hours of sleep. In fact kids who get less than eight hours sleep per night are 300% more likely to be obese than others. The University of Texas says your chances of becoming obese rise 80% with each hour of lost sleep. This may be because sleep loss increases the level of the hormone ghrelin which signals hunger, and lowers leptin, which decreases appetite. It also raises cortisol, the famous stress hormone, which also has a role in making body fat.

The University of Michigan discovered that 25% of kids diagnosed with ADHD were actually sleep deprived and once the sleep issues were solved the other symptoms of ADHD disappeared.

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Derek Pugh is an experienced Principal and teacher in both Australian and International Schools. He now runs workshops in Brain Compatible Education for students, teachers, parents and corporate groups worldwide. Workshop participants discover the latest in neuroscience and why knowledge of the brain is a powerful tool in education; the 'SEWBaD model' of preparation for learning; what brain 'plasticity' means to education; individual learning profiles and how to use them for effective learning and teaching; how to teach or learn efficiently; and models of brain operation and function.

He is the author of "The Owner's Guide to the Teenage Brain"

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