The secrets of sleep

Neuroscientist PENNY LEWIS unravels some of the mysteries surrounding our slumber.

How much sleep do we really need?

The amount of time you need to spend asleep depends on your age.

Infants, sleep much of the day, adults only need between seven and eight hours. Over this tend to sleep even less and in many cases never enter the deepest stages of sleep (called slow-wave sleep).

The reason for these differences is unclear but some scientists speculate that sleep is important for brain development.

Fascinatingly, the decline in deep sleep during old age predicts degeneration of the brain and cognitive impairment, so it seems likely that these deep stages are necessary to keep the brain in good shape.

Efficient sleepers fall asleep faster and often spend a greater amount of time in lighter, or restorative deep sleep. As well as those who take a few deep sleepless hours is a good example of the late Margaret Thatcher, who was said to have run the country on only four hours of sleep a night.

How does sleep deprivation affect us?

In the chaos of modern society, sleep is often seen to fit around our busy schedules or, in the worst case, completely neglected. This means many of us are chronically sleep-deprived.

A sleep-deprived brain acts like a brain under the influence of alcohol. And every five hours you spend awake is roughly equivalent to consuming one alcoholic beverage in terms of how your brain will perform.

The more being psychologically, the more your mood suffers from an acute lack of sleep. When overworked, we tend to see everything in a more negative light, our performance also drops and we can be less positive about ourselves and other people.

Sleep deprivation can also impair mental judgment, and having too little sleep over a long period of time can take a huge toll on your health.

Regular sleep deprivation will leave you more likely to fail to work more closely and likely to suffer from mood alterations and memory disruptions. Of course you will probably also feel dreadful so skimping on sleep is a bad idea.

Why do some people suffer from insomnia?

Sleep is an innate need. While it is essential for the body, our brains are working on them nevertheless. Sleep not only strengthens individual memories but also helps us to interpret new information with old and to extract common themes from repeated experiences.

This can help us to become explicitly aware of rules and sequence of actions which we might not have otherwise noticed.

People suffering from mental illness such as depression, anxiety or bipolar disorder are often plagued by insomnia. The use of recreational drugs, alcohol and even too many caffeinated drinks can prevent you from getting a good night’s sleep. If you check the side effects of prescription medications you will find insomnia is a common side effect. Also, people sometimes think that they are awake more of the night when really they are asleep well.

Can sleeping on a problem really help us solve it?

Even though we don’t consciously think about our conundrums while asleep, our brains are working on them nevertheless. Sleep not only strengthens individual memories but also helps us to interpret new information with old and to extract common themes from repeated experiences.

This can help us to become explicitly aware of rules and sequence of actions which we might not have otherwise noticed.

This is normally a spontaneous process. We can’t tell our brains to strengthen that Spanish vocabulary while we sleep, or replay the details of the latest happenings on Neighbours. However, recent research has developed a way to strengthen the memories we are interested in while we snooze. This is done through associations.

By passing a particular scent while studying Spanish verb tenses, you smell that same scent again at certain points during the night, the brain replay the replay of those target memories, resulting in a score of 100 per cent (or at least better than usual).

Penny Lewis is a neuropsychologist at Manchester University and author of The Secret World of Sleep (Palgrave Macmillan, 2019).

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