

Are you getting enough?

Steve Wooding 2004

Sleep is a strange thing when you stop and really think about it. We all do it, in fact nearly all animals do and even some single-celled organisms show cycles of activity and inactivity that resemble wakefulness and sleep. The truly odd thing is that, on a personal level, we have no conscious awareness during or recollection afterwards of what actually happened to us as we slept.

Sure, we dream whilst we sleep (most people, and a lot of animals too, dream during sleep) and some of us can recall the dreams when we awake. Most of the time we forget our dreams within minutes of waking unless the dream was particularly unusual or emotional. But we are totally unconscious of actually lying in bed all night, ignorant of each toss and turn, completely unaware of the passage of time.

So why do we spend roughly one third of our lives out for the count, unconscious, dead to the world and therefore apparently unable to do anything productive or engage in anything exciting? Well, within the riddle lies a paradox - it seems we cannot function in the waking state without having had sufficient sleep, and we cannot get sufficient sleep unless we are functioning well in the waking state.

Stress, depression, anxiety and other related problems can contribute to insomnia - the inability to fall asleep or maintain the state of sleep. For most this is a temporary thing whilst for an unfortunate few, thanks to biology or accident, it is a permanent aspect of life. To complete the vicious circle, getting insufficient sleep can make us more prone to stress, depression, anxiety and other related problems. The flipside to this is that people

who do get sufficient sleep on a regular basis are generally happier and healthier, more alert, more positive in their outlook on life, and less prone to the problems already mentioned.

The function of sleep - the underlying reason for us doing so much of it - is still the subject of much debate and research (the science of sleep research is only 50 years old, just an infant in the grand scheme of scientific endeavour). To cut a long story short, the basic ideas that most of those in the know agree on, some of which are fairly obvious and common sense, are these: rest, repair and recovery for the body, and information processing, dealing with the emotions of the day, and integration of learning for the mind. Although we often take breaks from mental and physical activity during each day, we have a fundamental need to shut down each day too.

Getting the driver out of the car

It's a bit like Formula One racing. During the race, the driver is essentially in control, with the guys in the pits monitoring the performance of the car and (until recently) offering advice to the driver. During the race the driver will occasionally pull into the pits, either at predetermined intervals or when a problem arises, and the pit crew will rush to conduct a rapid repair, refuelling, or replacement.

The race will continue until either the car sustains damage that cannot be repaired in the pits, the driver crashes, or the car and driver successfully cross the finish line. However, that is far from the end of the story. Once the driver has left the car, the engineers, designers, technicians and other behind-the-scenes staff will scrutinise the data collected during the race, take the car apart and repair, replace, clean and rebuild. Although the driver may be given updates every so often, he largely remains unaware of the detail of what's

happening and probably knows little of the technical details of how the car does what it does. However, he trusts that when he comes to get in the car again, all will be well, with possible improvements having been made in his absence. And so he fires up the engine again and roars off to another race.

Just as a Formula One car cannot race continuously without regular checking and servicing, neither can we. The pit crew could not repair the car or replace tyres whilst it was being driven, and we are similar in that, in order to make repairs and adjustments and get sufficient down-time to rest and recuperate, your body effectively has to get the driver out of the car by setting your conscious mind to one side so there is a little interference as possible.

Another useful metaphor would be that of making modifications to a house; we could decorate a room without moving the furniture but we'd run the risk of causing more damage than we'd repair or take a lot longer than is necessary. To decorate or modify the room in any meaningful way requires that we stop using it for its normal purpose for a while and focus on the work that needs to be done. Only when we've finished do we go back to using it and living in it again.

Such is our need for sleep that being deprived of it has increasingly detrimental and bizarre consequences. Even a single hour can have noticeable effects; in a survey of traffic accidents in the US, there was a 7% increase on the day after Daylight Savings Time kicked in (their equivalent of the clocks going forward in spring, resulting in the loss of one hour of sleep). Beginning with increases in irritability, slowing of reflexes and other reactions and a decreasing ability to focus attention after a few hours of sleep debt, extremes of sleep deprivation can result in waking dreams and hallucinations, delusions, paranoia and eventually psychosis.

And so we are driven to sleep by a combination of processes beyond our conscious control. Obviously we have some say over whether we succumb to these drives in the short-term, but sooner or later our unconscious processes take over and we are forced to sleep whether we want to or not, whether at home in front of the TV or driving down the motorway late at night.

Am I getting enough?

So, the first question is, "How do I know that I'm getting enough sleep?" Well, one of the first indications is whether you normally wake up just before or with your alarm in the morning (if you use one) and can get up fairly briskly, or whether it takes several alarm rings and a lot of self-persuasion before you can drag yourself out of bed. It doesn't take a genius to figure out that if you have trouble waking up and getting up in the morning, chances are you aren't getting enough sleep (or you aren't timing your sleep correctly - more about that later).

Remember that most adults need about 7-8 hours sleep as a minimum. Yes, there are always exceptions and the older and less mentally and physically active we get the less sleep we seem to need and the less able we are at maintaining the sleep state too. Kids, on the other hand, start out spending about two-thirds of the day sleeping and, despite their protestations, teenagers still need around 9 hours sleep every day. Given the amount of physical and psychological change that occurs during childhood and the transition to adulthood this isn't surprising.

Interestingly, in situations where there is less time-pressure, e.g. more rural societies or those with a much looser time culture (as the world in general was before the 20th Century) or in experiments where time cues are removed, adults also sleep for around 9-10 hours per day. If this is an indication of the ideal amount of sleep (rather than just a minimum) then that would infer that our western time-fixated society is running on a permanent sleep debt of 1-2 hours per day! Perhaps our generally accepted habit of sleeping in at the weekend is good evidence of this.

Another indication of whether you're getting enough sleep is how much time elapses between you putting your head on the pillow and actually falling asleep. If it's inside 5 minutes or so, that's a good indicator that you're sleep-deprived. If it's more than 30 minutes or so, chances are you're experiencing stress or have something about which you are anxious playing on your mind.

One more sign of an existing sleep debt is a proneness to nodding off during the day (if you live in a society where siesta or afternoon napping isn't

normal), for example, at your desk or during classes or meetings or, even more dangerously, whilst operating machinery or driving. So, if sleep is so fundamental to our well-being then perhaps we should take a look at how we can give ourselves a head-start in the sleep stakes.

Getting a sleeping head-start

One of the simplest ways to ensure we get enough involves a bit of forward-thinking and some simple maths. In most adults sleep occurs in a series of hour-and-a-half cycles during which we have a portion of non-dreaming sleep and a chunk of dreaming sleep (REM or Rapid Eye Movement). So, if we're an 8-hour sleeper, we have 5 cycles of sleep (7½ hours) with a ¼ hour to drop off and a ¼ hour to wake up again. Here's the maths: work out what time you need to get up in the morning and go to be 8 hours before that.

Yes, it really is that simple, but given our penchant for late-night TV, socialising, working or studying into the night, we often ignore the simple things and assume that we'll be OK and wake up when the alarm goes off. However, each cycle of sleep finishes with dreaming and the amount of dreaming increases with each successive cycle until we wake in the morning. If we wake in the early part of a cycle we often feel groggy and disoriented as this is the part of the cycle when we're most deeply asleep - if we don't time our sleep effectively, our alarm may well wake us during this bit of the cycle. In order to wake up properly your body has to complete that cycle whilst you're trying to function consciously (like the pit crew still trying to tighten the wheel nuts and wipe the drivers visor as the he's already pulling out of the pit lane), which results in that all-too-familiar sensation of it taking an age for us to feel like we're really awake.

Next on the agenda is **timing our activities to fit in with our bodies**. We can do this by not trying to sleep while we're still working on the initial stages of digesting our last meal as this means that part of us is still active while we're trying to sleep. Simply put, don't eat anything for an hour or two before going to bed. Of the soundest sleepers I know, most don't eat after around 8:00pm. This gives our bodies time to do the most intensive part of digesting our

last meal and our body is already beginning a state of rest-readiness.

In addition, there's the issue of what our body will do with the energy we've just got from the food we've ingested - if we eat late in the evening then we're not active and our bodies will store the unused excess energy as fat! Eating foods high in sugar before going to bed (which includes many off-the-shelf cereals - even 'healthy' bran flakes are around 16% sugar) can also result in a drop in blood sugar before bedtime as the excess is mopped up, followed by a compensating rise to restore normal levels which can result in us waking up.

Along the same lines, we should avoid watching TV, working, or reading anything engaging or emotionally stimulating for at least an hour before going to bed. **This gives the mind and body time to calm down and disengage before sleep.** Just as we slow down gradually at a stop sign when we're driving (though some do it more gradually or smoothly than others!) we should do the same with our mind and body. Otherwise we're expecting our bodies to do the sleep equivalent of an emergency stop, with all the accompanying problems.

We can also cue our bodies to move towards sleep by **developing a bedtime routine** that we follow as closely as possible every night. This works wonders for children and can help adults too. If we do the same things in the same order each night before bed, making sure we've taken all other possible steps to prime ourselves for sleep, we condition ourselves to expect sleep to follow as the last step in the pattern. However, it's important that this is done carefully - if we set a pattern whilst suffering from insomnia, for example, we prime ourselves to expect wakefulness to follow as the last step, thus messing up the routine. To make the routine even more effective we can use explicit relaxation techniques such as focussed breathing, progressive relaxation or self-hypnosis.

We can also help the relaxation of our minds by off-loading anything that's still occupying our thoughts by writing it all down before bed, almost like we're giving ourselves a break from thinking about these things. We can pick them up again in the morning if they're still relevant. Taking this one step further is the classic approach of keeping a diary or journal to

condense, order and write down our thoughts and feelings about the events of the day.

Having taken care of the internal matters, we can also make sure **the environment is as suitable as possible for sleep** by creating a relaxing atmosphere in our bedroom. As we've already said, we shouldn't work or watch TV there as that creates an association of emotional and mental stimulation, precisely to opposite of what we want.

Your bedroom should also be a degree or so cooler than the rest of the house - once you're under the covers you'll be warm enough for sleep. If the temperature is too warm, you'll experience more wakeful episodes. However, you should make sure that your feet are adequately covered as your feet will get cold before the rest of you and that can also result in fitful sleep.

Additionally your bedroom should be as dark as possible when you're intending to sleep, so use thick curtains. This is because a gland in the brain (the pineal gland) responds to the cycle of light and dark by varying the production of substances that regulate sleep (melatonin and serotonin). If there's too much light in the room this cycle can be interfered with and we can't maintain a proper pattern of sleep. We can actually aid this cycle by gradually reducing the amount of light we expose ourselves to during the evening by, for example, dimming the lights in the house as our bedtime approaches, or using lower wattage bulbs or table-lamps instead of full room lights in the late evening. This can be a double-edged sword though, as if we're using thick curtains there's no rising sunlight to cue the body to begin to awake. There are innovative alarms that use a slowly increasingly intense light to wake you by simulating a sunrise. Personally I sleep in room with a roughly North-East facing window with normal thickness curtains so the rising sun shines on the window in the morning and provides the cue to begin to awake.

Early to bed, early to rise

"Early to bed, early to rise makes a man healthy, wealthy and wise." At least that's what the old saying promises. However, behind it there's some sound biology. At around midnight for most adults the body goes through a detoxification process

involving the gall-bladder. If we're not asleep this process is disrupted and the toxins don't get flushed properly and so accumulate. Since the gall-bladder and liver only have a limited capacity to store and process these nasties, continued disruption can result in unprocessed toxins floating around in the body and accumulating elsewhere, which will obviously affect our health. By making sure we are asleep when this is taking place we give the body time and space to do it most efficiently and effectively. It would be similar to trying to tidy up a room in the middle of a party in full swing, instead of afterwards when everyone has gone home.

Sleep is vital

Sleep is a fundamental requirement for both **mental and physical health**. In our busy-busy, must-rush western society, we'd do well to take a look at the higher levels of contentment and happiness in cultures where life is a little slower and people take time to listen to their bodies instead of try to dictate to them. Perhaps it's time to look at how much time you allow your pit crew to do their work before you insist on getting in the driving seat again..?