Sleep

Every animal participates in some form of sleep, even though sleep puts us in an incredibly vulnerable position. Anything can get you. Sleep may seem wasteful, but it must perform some function to be worth the risk of being killed by a predator that is on a slightly different time schedule.

Sleep's Greatest Benefit

Researchers recently found sleep's greatest benefit is a physical one.
Your body has a great system for flushing out all our waste. It is called the lymphatic system, but it does not extend to your brain.
Your brain keeps itself locked up behind the blood-brain barrier which tightly regulates everything that comes in and out. Your brain controls everything, so it keeps itself in a high security area where it can't be contaminated. But it has to get rid of its waste products somehow. We've never actually been able to see how, until the Rochester researchers used a new technology called two photon microscoscapy to be able to see the brain's disposal system.

They call it the Glymphatic System. It's a plumbing system that pumps cerebral spinal fluid through brain tissue and then flushes it into your circulatory system and the lymphatic system just takes it from there. And here is where sleep comes in.

The Glymphatic System seems to be about 10 times more active during sleep in mice. Pushing all that Cerebrospinal fluid (CSF) through the system requires a lot of energy. So, your brain makes a choice, run your body or clean itself. That seems to be why our brain uses as much energy when we are asleep as it does when we are awake.

Not only that, it seems brain cells shrink up to 60% during sleep, so all the CSF can wash over it faster. The build up of waste is linked to serious brain diseases like Alzheimer's. If you don't shut down every night, your brain can't flush itself out properly.

Sleep and Healing

Sleep gives time to repair muscles and cells as well as strengthening our immune system. Sleep and rest provide the quickest recovery time when you are unwell or injured. This allows the brain to focus on fighting infection and cell repair.

Sleep and Learning

Sleep provides the brain time for a nightly mental clean-up. Studies show that if you get sleep straight after practicing something that takes fine motor skills, for example, typing or playing an instrument, it helps you retain that knowledge faster. That is, neural connections or pathways are better established.

When we sleep our brain takes everything we've seen and done throughout the day and filters through it. It looks for patterns, sifts through what it finds not essential and decides what to turn into a memory. This process is called Memory Consolidation.

Sleep and Safety

A lack of sleep contributes to a greater than two-fold higher risk of sustaining injury. One night without sleep is equivalent to being legally intoxicated. Innovation, creativity and trying new things may be quashed when tired. Our thinking is muddled and our decision making is poor.

When the brain is tired, it is unable to process well and we are more likely to make poor decisions, to take risks and to indulge in risky behaviours.

Sleep and Mental Health

We are more likely to be happier after a good night's sleep. Research reveals we learn better after a good night's sleep and can better cope with stressful situations.

Due to feelings of well-being associated with sleep, a good night's sleep and regular rest helps build positive relationships and eases conflict.

Symptoms of Missed Sleep:

Missing sleep can interfere with attention, awareness, ability to process information, reasoning and problem solving skills.

When tired we are more easily distracted, less able to implement new strategies, less able to confront new situations, far more reliant on habit (doing what we have always done) and less able to control our mood and performance.

When tired, emotional capacity is diminished which may result in:

- An inability to handle stress
- Less control of our moods and performance
- Being easily upset over trivial things
- Moodiness or mood swings
- Increased depressive feelings and burnout
- Decreased empathy
- Being more likely to pick a fight
- Relationship troubles
- Agitation and, or anger
- Decreased libido
- Irritability or Aggression
- Anxiety
- Sadness
- Slumps in attention, thinking and focus
- Sluggish behaviour
- Hunger
- Zoning in and out
- Mood swings

Children and Signs of Tiredness

Clumsiness

Crying or grizzly

Clinginess or constantly demanding attention

Boredom with regular toys

Fussiness with food

Developing Good Sleep Habits

Food and Drink

Limit your intake of sugars and caffeine after lunch.

Exercise

30 minutes of activity or exercise, preferably outdoors, early or during the day, not near bedtime will help with sleep.

Bedroom

Separate sleep and entertainment by ridding the bedroom of all electronic equipment. De-clutter to make your bedroom tidy, cool, restful, quiet and as dark as possible, not a chaotic war zone.

Bedtime Routine

Establish a regular bed time and wake time.
Develop a bedtime routine for adequate sleep

- Establish a routine for getting ready for bed
- Reduce stimulation to prepare for sleep
- Remove toys
- Have a regular bath time, put on pyjamas, clean teeth, go to the toilet
- Talk quietly in soothing tones
- Reduce the light
- Maybe play some quiet music
- Create a quiet, wind down time with a chat, a song, reading a book or a cuddle.

Persist to develop good habits as settling and sleep may not always come easily. Forming good sleep patterns in the first years of life can help maintain routines with children as they grow.

Small children require a day time nap. Often as they grow, they may still sometimes need a daytime sleep to catch up on missed sleep.

Adults, too, can easily miss out on quality sleep in the business of life. A great way to catch up on sleep is to have a daytime rest or power nap.

Sleep and Health Facts

PNAS Academics Journal found that inadequate sleep affected more than 700 genes including those dealing with the immune system, brain function and the body's response to stress.

Muscles and organs can fully recover when we are wide awake, the brain cannot.

- More than 9hrs sleep means we are more susceptible to obesity
- 7-9hrs sleep is recommended amount.
- Less than 7 hours is the cut off for getting ill more often, lowered immune system and we are 3 times more susceptible to viral infections.
- Less than 6 - associated with cognitive decline, equivalent to 4-7 yrs of aging.
- Less than 5 - can increase the risk of diabetes and high blood pressure.
- Less than 4 - doubles the risk of heart disease.