



Basic #2. Get your zzz's.

The World Health Organization States:

*Sleep is a **basic** human need and is essential for good health, good quality of life and performing well during the day. Several indicators can be used to describe sleep disturbance or sleep disorders.*

These indicators are:

- 1) *Sleep latency*
- 2) *Number and duration of nocturnal awakenings;*
- 3) *The total sleep time*
- 4) *Modifications in amount and proper rhythms of particular sleep stages such as slow wave sleep (SWS, or stages 3 and 4);*
- 5) *Rapid Eye Movement sleep (REM sleep), together with modifications in the autonomic functions (heart rate, blood pressure, vasoconstriction and respiratory rate);*
- 6) *Repetitive nights of sleep disruption among one week or one month.*

According to the National Sleep Foundation, A Study of 3000 individuals over the age of 45 found that those individuals that slept less than 6 hours per night had twice the risk of Heart Attacks and Strokes, compared to those individuals that slept for 7-8hours. Also in June 2015, the World Health Organization published a 14 year study that found those participants who had sleep disorders were 2 – 2.6 times more likely to have a heart attack or a stroke. So in other words not only does time spent sleeping but quality of sleep greatly affects your risk.

We also know that our hormones are directly affected by quality sleep.

Hormones released in the body that relate to sleep

Ghrelin:
> Stimulates hunger
 - Produced mainly by cells that line the **stomach**
 - Sleep regulates the levels of ghrelin which tells the brain when we need to eat
 - Poor sleep can make us keep thinking we are hungry

Insulin:
> Controls glucose levels and how the body uses carbohydrates and fats in food
 - Produced in the **pancreas**
 - Levels of insulin are controlled during sleep so that we wake hungry, ready for breakfast
 - Sleep helps control insulin levels so our bodies can use insulin properly

Cortisol:
> Involved in metabolism, immune response and stress response
 - Produced in the **adrenal glands**
 - Levels peak just before waking, making us feel hungry and alert

Aldosterone:
> Helps regulate the levels of sodium and potassium in the body
 - Produced in the **adrenal cortex** (the outer section of the adrenal glands)
 - Levels are high during sleep, which prevents us from needing to go to the toilet

Leptin:
> Regulates body weight by inhibiting hunger
 - Produced in the **adipose tissue** (fat cells)
 - During sleep, levels of ghrelin in the body are regulated so that we do not become hungry

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How Sleep Deprivation Effects our Bodies (Hormones)	
<u>Cortisol</u> levels increase	Appetite Increases
<u>Ghrelin</u> levels increase	Appetite Increases
<u>Leptin</u> levels decrease	Appetite Suppression signal is not received
Insulin secretion decrease	Glucose levels rise & insulin resistance can increase
Thyroid levels decrease	Reduces Metabolic Rate

So the real questions are, is this a cause and effect relationship between overall health management. We know that gaining weight has a direct affect to our health and our risk of heart disease, cancers, and diabetes. If we are sleep deprived we are at risk of gaining weight, because of the above hormone imbalances which puts us at risk for heart disease, cancers and diabetes. When we are tired, we do not make as healthy nutrition choices, we are too tired to move and so we gain weight, as we gain weight we feel more tired, move even less, and sleep even more poorly and make all those not so good decisions over and over again. Seems a little like the Chicken and the egg scenario doesn't it?

Along with the above hormones, during stage 3 Slow wave Sleep (SWS) we have a pulse of Human Growth Hormone (hGH) released into our bodies, which stimulates our muscles and bones to grow, heal and recover from the day's activities. Higher levels of muscles tissue increases our Basil Metabolic Rate (BMR) which helps to burn more calories throughout the day again keeping us within healthy weight ranges. So sleep deprivation is now 3 strikes against our health!

To sum up we need to have good quality sleep for at least 7 hours every night to be healthy, but are you? Once again you need to gather the data for your own sleep patterns to decide if an intervention and new sleep routine needs to be put into place. Hopefully you have had a chance to find a fitness tracker and have started tracking your steps from last week, and

possibly your tracker has a sleep monitor as well? If not there are many Smart Phone apps to track sleep. (remember that these are rough measurements from both the trackers and the apps, as the only way to get accurate data is to go to a sleep center and be monitored by EEG, blood pressure, heart rate, body temperature and rapid eye movement, so If you suspect you have a sleep disorder, contact your GP immediately and request a sleep study, it may just save your life) Use this function to gather the data this week and see if:

1) You are getting at least 7-8 hours of sleep per night

2) You are going through 4-6 sleep cycles per night



We could all brush up on our sleep hygiene, so even if you answered yes to the above, let's take a look at what we know can help to encourage deep restful sleep. And incorporate these points on a daily basis. Now off to bed!

