



It's all you hear on television, in the newspapers and on talk radio. New doctors and dieticians usher in new diets, new fads, and so you've made some lifestyle changes – cutting back on your fat and sweets intake and doing some cardiovascular exercise a few days a week. Despite all this, you still feel burned out, can't drop those extra pounds, and don't have the energy to greet each day with enthusiasm. What are you missing?

The third piece of the puzzle: sleep

Though the exact mechanisms of how sleep works, how sleep rejuvenates the body and mind is still mysterious, one thing sleep specialists and scientists do know is that adequate sleep is necessary for healthy functioning. Research shows that all mammals need sleep, and that sleep regulates mood and is related to learning and memory functions. Not only will getting your zzzs help you perform on a test, learn a new skill or help you stay on task, but it may also be a critical factor in your health, weight and energy level.

Sleep problems and obesity: interacting epidemics

An estimated 24 million Europeans have sleep apnoea, a sleep-related breathing disorder that leads individuals to repeatedly stop breathing during sleep. Not only does sleep apnoea seriously affect one's quality of sleep, but it can also lead to health risks such as stroke, heart attack, congestive heart failure and excessive daytime sleepiness. Sleep apnoea is often associated with people who are overweight – weight gain leads to compromised respiratory function when an individual's trunk and neck area increase from weight gain. These interacting problems of weight gain and sleep apnoea make it difficult to help get off the slippery slope of health problems. From a behavioural perspective, those suffering from sleep apnoea may be less motivated to diet or exercise – daytime sleepiness lowers their energy levels and makes it difficult to commit to an exercise and/or diet program which would improve both their weight and sleep apnoea. Unfortunately, losing a significant amount of weight in a healthy manner can be very difficult, so it is better to treat sleep apnoea first. People feel restored when they are effectively treated for sleep apnoea and are more willing to start exercising then.

Sleep deprivation may also inhibit one's ability to lose weight – even while exercising and eating well! A 1999 study at the University of Chicago showed that restricting sleep to just 4 hours per night for a week brought healthy young adults to the point that some had the glucose and insulin characteristics of diabetics.

Getting in shape: how sleep and exercise do a body good

Though research shows that exercise is certainly good for one's body and health, properly timing exercise is necessary to maximize the beneficial effects. For example, a good workout can make you more alert, speed up your metabolism and energize you for the day ahead, but exercise right before bedtime can lead to a poor night's sleep. Sleep experts recommend exercising at least three hours before bedtime, and the best time is usually late afternoon. Exercising at this time is beneficial because body temperature is related to sleep. Body temperatures rise during exercise and take as long as 6 hours to begin to drop. Because cooler body temperatures are associated with sleep onset, it's important to allow the body time to cool off before sleep.

Diet and sleep: a healthy helping of the right stuff

Lack of sleep creates a vicious cycle – the more tired you are, the more caffeine you'll consume to stay awake during the day; but the more caffeine you consume, the harder it'll be to fall asleep at night. Not only are foods and drinks high in caffeine likely to keep you up at night, but they're also usually loaded with sugar or artificial sugar and not much else. When a healthy snack such as a carrot or granola bar is replaced with a can of 'fizzy' drink, you're at higher risk for putting on weight and it becomes harder to sustain energy for a longer period.

For those individuals who suffer from Gastroesophageal reflux (GERD), commonly known as acid reflux or heartburn, diet and sleep go together. Those individuals with GERD often suffer from night-time heartburn, and according to some commentators, adults who experience night-time heartburn are more likely to report having symptoms of sleep problems/disorders such as insomnia, sleep apnoea, daytime sleepiness and restless legs syndrome than those who don't have night-time heartburn.

Food is also related to sleep by appetite and metabolism. Studies show that people who don't get enough sleep are more likely to have bigger appetites due to the fact that their leptin levels (leptin is an appetite regulating hormone) fall, promoting appetite increase. This link between appetite and sleep provides further evidence that there is a link between sleep and obesity.

What it all means: how diet, sleep and exercise affect you

Health is pretty complex – if one part of the body system suffers, you will probably see consequences in other areas of your life. Though diet and exercise are critical components of healthy lifestyles, it's also important to remember that sleep is inherently linked with how we eat (and how much), how we exercise (and whether or not we lose weight), and how we function on a daily basis. Getting the proper amount and quality of sleep each night is necessary to get through the trials and tribulations of daily life. Quality sleep will help you on the road to good fitness, good eating and good health.

DISCLAIMER: While every effort is made to ensure medical accuracy, this paper should not be used to diagnose or treat a sleep disorder. In all cases the advice of a properly qualified medical practitioner should be sought.

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