Diet, Exercise and Sleep

For years your doctor, your mom and your friend who goes to the gym multiple times a week have probably been telling you to eat better and exercise more. 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 18 million Americans have sleep apnea, a sleep-related breathing disorder that leads individuals to repeatedly stop breathing during sleep. Not only does sleep apnea 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 apnea 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 apnea make it difficult to help oneself off the slippery slope of health problems. From a behavioral perspective, those suffering from sleep apnea 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 apnea.

Unfortunately, losing a significant amount of weight in a healthy manner can be very difficult, so Richard Simon, MD recommends treating sleep apnea first: "Unfortunately, we do not have great treatments for obesity that have long term success rates of much greater than 5–10%," Simon says. "Thus I prefer to start therapy with [continue positive airway pressure] (70% success rate) and then add exercise (probably less than a 50% success rate). People feel restored when they are effectively treated for sleep apnea 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. Such sleep restriction may have been a bit extreme, but it is also not altogether uncommon in our society and is a pattern deemed the "royal route to obesity" by Eve Van Cauter, PhD, who conducted the Chicago study.
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. All the jumping jacks in the world won’t make up for a night of tossing and turning! 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

Are you someone who needs a fresh cup of java to coax you out of bed in the morning? Or perhaps you prefer an afternoon jolt from the cola vending machine? Or maybe you’re more the candy bar type – in any case, you’re not alone. In a 24/7 culture, cups of coffee, cans of soda and candy bars are staples of everyday consumers. For some, the day can’t begin without a cup of Starbucks and for many students today no study break is complete without a can of Coke. How did caffeine become the drug (and food) of choice?

In fact, 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 replete 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 Mountain Dew, you’re at higher risk for putting on weight and it becomes harder to sustain energy for a longer period of time.

For those individuals who suffer from gastroesophageal reflux (GERD), commonly known as acid reflux, diet and sleep go hand-in-hand. Those individuals with GERD often suffer from nighttime heartburn, and according to NSF’s 2001 Sleep in America poll, adults in America who experience nighttime heartburn are more likely to report having symptoms of sleep problems/disorders such as insomnia, sleep apnea, daytime sleepiness and restless legs syndrome than those who don’t have nighttime heartburn.

Food is also related to sleep by appetite and metabolism. Research by Dr. Van Cauter shows 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 sleep and obesity are linked. To top it off, the psychological manifestations of fatigue, sleep and hunger are similar. Thus, when you’re feeling sleepy you might feel like you need to head for the fridge instead of bed.

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

By now you probably realize that health is complex – if one part of the body system suffers, you’re likely to 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 of sleep each night is necessary to face the world with your best foot forward. Sleep will help you on the road to good fitness, good eating and good health.

Reviewed by David G. Davila, MD (December 2009).