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NUTRITIONAL *News*

Sleep Disorders & Nutrition

Nutrition and food – these words can be linked as causes or cures for many sleep problems. As a registered dietitian, I believe people should look to foods for possible answers before resorting to medical tests or medication. The time-honored approach of a cup of warm milk before bed to make you sleepy actually has a lot of science behind it!

Milk contains tryptophan, which is an essential amino acid. Essential amino acids cannot be made by the human body and therefore must be consumed through food. To quote my nutrition professor Dr. Dena Cederquist at Michigan State, "If your body can't make it, you've got to eat it." Tryptophan and a related metabolite, 5-HTP, are the precursors of the neurotransmitter serotonin. Serotonin in the bloodstream increases rapid eye movement (REM) that occurs during the deep stages of sleep.

So, why eat foods with tryptophan? Why not just eat serotonin? Because serotonin does not pass through the blood brain barrier, but tryptophan and 5-HTP do. Foods that contain tryptophan and increase serotonin levels include turkey, cheddar cheese, chicken, tuna and honey (a simple sugar).

Just eating protein foods will not ensure high serotonin production; it's not that simple. Studies indicate that other types of foods can assist tryptophan in crossing into the brain. Eating nearly "carbohydrate only" food triggers insulin production. The insulin clears the other amino acids from the bloodstream and gives tryptophan exclusive access to enter the brain.

Simple carbohydrates such as sugars and sweets have the greatest impact but are not the best choices nutritionally. A recent study in the American Journal of Clinical Nutrition (February, 2007) compared both high and low glycemic index foods and their effect on sleep. One group in the study consumed jasmine rice as a carbohydrate source (high glycemic index food) in a meal eaten four hours before bedtime. That group fell asleep in a shorter time period compared to others eating low glycemic index foods. Does this mean jasmine rice is necessary for everyone to sleep well? Unfortunately, this effect isn't produced in everyone the same way, and people with sleep disorders weren't studied. Though it seems straightforward, more studies about foods inducing sleep need to be completed.

Food can also be the cause of sleep disorders. For example, eating too close to bedtime and consuming large meals or spicy foods can set off gastro esophageal reflux (heartburn), which may disrupt sleep. Consuming alcohol might seem like the answer to inducing sleep, but it can alter sleep patterns in a negative way. Foods that contain caffeine stimulate the brain, so avoiding coffee, cola, chocolate, Rock Star, Vault or Mountain Dew can help you sleep better. Foods containing tyramine including bacon, cheese, ham, aubergines, pepperoni, raspberries, avocado, nuts, soy sauce and red wine might keep you awake at night. Tyramine causes the release of norepinephrine, a brain stimulant. Overweight people have a higher incidence of sleep apnea, which is linked to a higher risk of heart disease and stroke. A ten percent weight loss is one treatment recommended for sleep apnea.

There are also sleep problems that may have a direct effect on diet. Dr. Mindy Engle-Friedman of the City University of New York reported that people with sleep disorders were less likely to eat at home than individuals without sleep problems. Lastly, there is a disorder called night eating syndrome. Though it is not classified as a sleep disorder, it is characterized by an individual who has difficulty falling asleep or may wake at night and use eating as the "cure."

In conclusion, some foods can be a sleep inducer while others can keep you awake. To sleep better, most individuals can benefit from well-planned meals containing protein earlier in the day and a high-carbohydrate snack about one to four hours before bed. Some of the healthiest high-carbohydrate snack choices that boost serotonin levels are pretzels, fruit, wheat toast and jam, or

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popcorn. Don't forget to skip the alcohol or that last cup of coffee, and you won't be counting sheep to get to sleep.❖

About the Author...
Marcia Lester is a dietitian and has a Master of Arts in food science and nutrition from Wayne State University in Detroit and a Bachelor of Science in dietetics from Michigan State University in East Lansing. Marcia served as a clinical dietitian at Michigan Health Care for nine years. She has 14 years experience working in the Detroit Metro area mental health system in community settings – specifically group homes for developmentally disabled adults. She also has nursing home experience. Marcia has been instrumental in developing and presenting educational programs for staff and patients. She is affiliated with the American Dietetic Association, Michigan Dietetic Association, Commission on Dietetic Registration

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The Glycemic Index

The glycemic index (GI) is a numerical scale used to indicate how fast and high a particular food raises blood sugar levels compared to white bread or glucose. It is quite useful in judging the quality of carbohydrate sources, but it doesn't tell you how much carbohydrate is in a typical serving of a particular food. The glycemic load (GL) takes the GI into account, but it gives a more complete picture of the effect that a food has on blood sugar levels based on how much carbohydrate you eat in a serving. Refined carbohydrate sources *(white sugar and white flour products)* tend to have a very high GL while foods that are mostly water *(e.g., apples)*, fiber *(e.g., carrots)* or air *(e.g., popcorn)* will not cause a steep rise in blood sugar even if their GI is high - as long as the portion sizes are moderate.