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News tips for Science Writers from:

Boston University School of Medicine/School of Public Health and the University Hospital

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The Dangers of Yo-Yo Dieting

People who constantly lose weight only to regain it are at a significantly higher risk for dying of heart disease than those whose weight remains steady, according to a recent study.

The study, published in the *New England Journal of Medicine*, found that men who lost and gained about 20 to 30 pounds over a two-year period faced as much as two times the risk of dying from heart disease as those who maintained a steady weight. Women faced about one and a half times the risk if they lost and then regained 15 to 20 pounds. The study was based on 32 years of follow-up data on 3000 men and women ranging in initial age from 30 to 62 who participated in the Framingham Heart Study.

"It is fairly well known that being overweight raises the chance of heart disease," says **Bernard E. Kreger, M.D.**, one of the authors of the study and an associate clinical professor of medicine at Boston University School of Medicine. "What we are now starting to see is that people who go on diets may be at risk if they cannot keep the weight off," he says.

There may be several reasons for this increased risk, according to Kreger. "We believe it may have something to do with the kinds of food people eat as they regain weight. Often they are high in fat," says Kreger. "It may also mean that something happens to a person's metabolism during weight swings that changes a person's blood lipids, blood pressure and blood sugar—all of which can influence coronary risk."

The bottom line, notes Kreger, is that weight maintenance is as important as weight loss and unless a person keeps the weight off once it is lost, he or she will be at increased risk for heart disease.

Multiple Causes of Alzheimer's Disease Confirmed

Two new studies on the causes of Alzheimer's disease (AD), which were conducted by researchers at Boston University School of Medicine (BUSM) and Harvard Medical School, may provide the basis for more elaborate testing of the underlying causes of the disease.

The first study, published in the *American Journal of Human Genetics*, found that AD may be the result of a number of factors, including the transmission of a single major gene, the interaction of other genetic and environmental factors, or a combination of both mechanisms.

The second study, published in the *Archives of Neurology*, identified young paternal age as a factor that may increase susceptibility to the disease. According to the researchers, a 15-year-old male has a risk five times greater than a 50-year-old male of having a child who will develop late-onset AD. The association was seen only in cases of late-onset AD (those in which patients diagnosed were 67 years or older) and not in early-onset cases. The researchers caution that this study is not grounds for men to delay having children to reduce the risk of AD in their offspring.

AD affects approximately two million Americans. There is a great deal of controversy over the cause of the disease. Some experts believe it is entirely genetic in origin. Other experts believe AD is environmentally caused.

"Ultimately, we hope to be in a position to discriminate genetically determined cases of AD from cases caused primarily by non-genetic factors, which will allow us to better assess the environmental factors that may contribute to the disease," says **Lindsay Farrer, Ph.D.**, an assistant professor of neurology and public health at BUSM and the principal investigator of both studies. "Once we have a better understanding of the underlying mechanisms of this complex disease we may be able to better predict, diagnose and treat it."

(more)



Boston University School of Medicine/School of Public Health and The University Hospital
Department of Public Relations
Office of Media Relations (617) 638-8491; Fax: (617) 638-8044
80 East Concord Street
Robinson 7 (B-7)
Boston, MA 02118-2393

Sleeping the Hot Summer Nights Away

Summer means fun-filled days at the beach, family cookouts and outdoor sports. However, it also can mean hot, humid and, at times, sleepless nights. Hot weather can affect the normal stages of sleep, shorten the amount of sleep time and make a person more irritable, less efficient and less able to cope with everyday stresses, according to **Sanford Auerbach, M.D.**, director of the Sleep Disorders Center at The University Hospital.

"There is a scientific reason why people find it more difficult to get a good night's rest during weather that is hotter than 75 degrees," says Auerbach.

According to Auerbach, hot weather can disrupt important stages of a person's sleep cycle. This is because the body's natural mechanisms that regulate its temperature throughout the day and during sleep do not regulate temperature during the Rapid Eye Movement (REM) or dream stage of sleep cycle, which occurs every 90 minutes. So when a person goes into REM sleep during the hot weather, his or her body temperature rises to match the temperature of the room, often causing the sleeper to wake up. This disruption shortens the duration of the REM stage, which is very important to a person's ability to concentrate and pay attention while awake.

Auerbach advises taking a cold shower before bed and sleeping in a room with a fan or an air conditioner to help maintain a comfortable body temperature. He also suggests drinking plenty of liquids throughout the day to prevent dehydration and give the body added ability to cool itself during the night.

Exercising in Heat and Humidity

Exercising in hot weather is not just difficult, it can also be dangerous, says **Kyle McInnis, Sc.D.**, director of the Nutrition Exercise Program at The University Hospital. Hot weather can overwork the body's thermoregulatory system, which can lead to dehydration, heat exhaustion and heat stroke.

According to McInnis, the body's normal internal response during exercise is to redistribute a small amount of blood volume to the skin to release excess heat. But, in hot, humid environments the body must direct a greater percentage of blood to the skin's surface to release the additional heat caused externally.

"Consequently, less blood is available to the working muscles, so muscles will fatigue more easily," says McInnis. In addition, because the heart is working harder to distribute blood, aerobic capacity is impaired, which affects endurance." The magnitude of these effects, he adds, depends upon both the intensity of the heat and the trained state of the individual.

For those who decide to exercise in extreme heat, McInnis suggests following certain rules:

- Modify your workout routine. In general, you should decrease the duration and the intensity of your workouts so your body's thermoregulatory system can adjust to the heat and humidity .
- Drink plenty of fluids before, during and after workouts. It will help regulate the body's temperature.
- Wear loose clothing that allows heat and sweat to escape.