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*Boston University*

# Immediate

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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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## New Screening Improves Detection Of Down's Syndrome

A new combination of screenings may dramatically increase the number of couples who are able to learn prenatally if they will have a child affected with Down's syndrome. The combined alpha-fetoprotein (AFP) and human chorionic gonadotrophin (HCG) screening is nearly three times more effective in the prenatal detection of Down's syndrome than the standard screening.

The Center for Human Genetics at Boston University School of Medicine (BUSM) is the only center in Massachusetts and one of only a few centers in the country offering the combined screening.

Although the risk of Down's increases with maternal age, amniocentesis—which is 100-percent accurate in testing for Down's syndrome—is not routinely offered to women under the age of 35, because there is some risk associated with the procedure. However, 75 to 80 percent of children born with Down's are delivered by mothers under the age of 35.

Currently, blood samples are drawn from all pregnant women 16 weeks into their pregnancy to determine levels of AFP—a fetal protein—in their blood, which may identify a variety of chromosomal defects. However, only 20 percent of the fetuses affected with Down's are identified by this screening.

The new combined screening for AFP and HCG—a hormone made by the placenta—is effective in detecting 50 to 60 percent of the cases of Down's syndrome.

"This advance represents a highly significant step in the early detection of serious chromosome defects," says Aubrey Milunsky, MB.B.Ch., D.Sc., who is the director of the BUSM Center for Human Genetics and a professor at BUSM. "This screening will help women under the age of 35 who are not routinely tested for Down's syndrome through amniocentesis and who otherwise would not suspect that they would have affected children."

## Drop In Risk Factors Means Drop In Mortality From Cardiovascular Disease

The dramatic decline in deaths from heart disease and stroke over the past 30 years is due primarily to a reduction in such cardiovascular risk factors as smoking, high cholesterol levels and high blood pressure, according to a study in the *New England Journal of Medicine*.

Nationally, deaths from cardiovascular disease (CVD) have declined by more than 30 percent over the past 30 years. This is the first study to relate this decline in deaths to a simultaneous improvement in cardiovascular risk factors.

The research team, led by Pamela Sytkowski, Ph.D., of Boston University School of Medicine and the New England Research Institute, examined the incidence of CVD, CVD deaths and risk factors in 50- to 59-year-old men in the Framingham Heart Study in 1950, 1960 and 1970.

Men initially free of disease in the 1970 group experienced 19 percent less cardiovascular disease and 60 percent fewer CVD deaths than men in the 1950 group. The 1970 group had far fewer cigarette smokers, lower levels of blood cholesterol and fewer cases of uncontrolled high blood pressure.

Says Sytkowski, "This study confirms the influence of risk factors on both the rate of disease and of survival. It also shows that the individual can dramatically increase his chances of survival from CVD if he quits smoking, eats less fatty foods and keeps his high blood pressure under control."

(more)



Boston University School of Medicine/School of Public Health and the University Hospital  
Office of Media Relations, (617) 638-8491  
720 Harrison Avenue, Suite 909  
Boston, MA 02118-2393

## Stay Cool This Summer

Each summer, hundreds of Americans—most of them over the age of 60—die from heat-related conditions. Many of these deaths can be avoided by taking a few simple precautions.

"Summer heat places extra stress on the blood vessels, the heart and the body's central cooling system," says George Rosenthal, M.D., of the University Hospital's Home Medical Service. "Anyone can experience this 'heat stress,' but the elderly are particularly vulnerable."

Excessive heat can cause a number of medical problems, including heat exhaustion, heat stroke, heart failure and kidney failure. Those at highest risk are people who have already suffered a stroke or heart attack, or who have high blood pressure, circulation problems or diabetes. Drinking alcohol or taking certain medications, especially diuretics, can make a person more susceptible.

Two of the milder symptoms caused by over heating—a lack of appetite and energy—are nothing to worry about if they do not persist. However, other symptoms are more serious and require immediate medical attention. They include dizziness, weakness, dry non-sweating skin, rapid heartbeat, breathing difficulty, nausea, diarrhea, throbbing headaches, chest pain, vomiting and cramps.

Staying cool is the best remedy for heat stress. "That means spending as much time as possible in cooler environments, such as in the coolest room in the house or in any air-conditioned place," says Rosenthal.

He also recommends that elders wear light-weight, light-colored clothing and use hats or umbrellas to protect their heads when outside. In addition, he suggests elders drink a lot of water or fruit juice. Rosenthal warns against eating hot foods and heavy meals and increasing salt or potassium intake without checking with a doctor.

Finally, he recommends cutting back on physical activity to lessen the stress on the body.

## Diving Tips Can Prevent Spinal Cord Injury

Summer means long days at the pool or beach filled with swimming, partying and companionship. But without a simple awareness of the dangers of diving, it can also mean debilitating injuries.

Diving is the cause of 33 percent of all sports-related spinal cord injuries, but diving injuries are also the easiest to prevent, according to Murray Freed, M.D., director of the University Hospital's New England Regional Spinal Cord Center.

A severe injury to the spinal cord can result in paralysis of certain parts of the body and a corresponding loss of sensation. The location of the injury determines the amount of damage. Paraplegia refers to paralysis from the waist down, while quadriplegia refers to paralysis from the shoulders down.

"Diving accidents most often result in quadriplegia," says Freed, "because a dive is usually head first and the injury is to the cervical part of the spine."

Freed says that simple awareness can make the difference between a day of fun at the pool or beach and a lifetime handicap.

"If you are going to be diving, do not drink or take drugs beforehand," says Freed. "Many diving injuries are linked to the use of intoxicating substances, which impede judgment and depth perception."

Freed also cautions divers to pay attention to the changing tides at the ocean. What is an acceptable diving depth in the morning may be hazardous only a few hours later. He also recommends checking the depth feet-first before diving into any pool, lake or pond, and examining the bottom for any hidden objects.

"A spinal cord injury can change a person's life forever," says Freed. "People can take steps to make sure it does not change theirs."