



### Fluid needs rise with temperature

SCHOOL is out and both days and nights are heating up. Normally, our bodies can adapt to summer's changing temperatures within a fairly rather wide range. However, there are ways we can help our body adjust to these changes. For some people, these adjustments can make the difference between sickness and health and even life and death.

Records from around the world indicate that the incidence of heart attacks, strokes and pneumonia increases within just one to two days of elevated heat. After more than 7 days of hot temperatures, even less serious medical conditions can cause death. And individuals who are in their 70s or older are the most prone. The problem is now so widely recognized that numerous studies are being conducted to evaluate the direct health effects of global warming.

Of course, the main change forced upon our bodies by higher temperatures is increased water loss through sweat production. The evaporation of water from the skin surface is a major physiological adjustment to keep the body from overheating. However, increased water loss also means increased loss of a number of body-regulat-

ing minerals. This in turn can change how the body functions.

FIRST, if a person doesn't drink more fluids to compensate for the sweat loss, less water passes into the urine. This makes urine more concentrated and more likely to form kidney stones. Some physicians call Hawaii the "kidney stone capitol of the world."

The incidence of kidney stones is about 1 to 4 people in 1,000, depending upon geographic location. The most common stone is made of calcium oxalate crystals which form due to high concentrations of oxalates in the urine.

Drinking adequate water is a good preventive method for kidney stones. However, other factors can make a difference. For example, including milk or other high calcium beverages (calcium fortified juice or milk substitutes) in your fluid intake can reduce the chances of kidney stones even more.

It was previously thought that consuming more calcium caused kidney stones since kidney stones contain calcium. It turns out that dietary calcium restriction actually increases the risk of developing kidney stones. Higher dietary calcium binds to the oxalates from foods in the intestine, preventing absorption of oxalates. This de-

creases the oxalate load on the kidneys and the chances of forming those painful stones.

IF you add exercise to hot weather, water loss can increase greatly. It is common for people to sweat off one to two quarts of water per hour of exercise. In hot weather, sweat volume can be even greater. If the exerciser doesn't compensate for this water loss, serious life threatening conditions can develop. For example, reduced blood volume due to excessive water loss can greatly increase the risk of a heart attack

If you find yourself craving salt as the weather heats up, there could be a good reason. Along with water, an average of a half teaspoon of salt (about 1000 mg of sodium) is lost with each quart of sweat. For most people, dietary salt intake makes up for it.

However, overly restricting salt in the diet during hot weather can become a problem since sodium and chloride are essential nutrients. If you restrict salt intake for medical reasons, discuss changes in salt needs due to hot weather and exercise with your physician and pharmacist.

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