Nyam News
FROM THE CARIBBEAN FOOD AND NUTRITION INSTITUTE
ISSN 0255-8203
August Nos. 1&2, 2004

WATER – THE FORGOTTEN BUT ESSENTIAL NUTRIENT

When nutrients are discussed water is often forgotten. A nutrient can be defined as "a substance needed for the regulation of energy production or growth". It is normally not produced by the body. Water is certainly important in this respect. In fact, there is no basic biochemical bodily function that occurs without water.

Water is an essential nutrient because our bodies do not make as much water as we require. We therefore need to consume water in our diets to meet our requirements – which are quite high. Approximately seventy-two percent of our fat free weight is water! Our need for water is second only to our need for the air we breathe. A human being can survive for as long as a few months without food, but only a few days without water.

IS ALL THIS WATER SIMPLY LYING AROUND?

Water, a simple combination of the elements hydrogen and oxygen, performs many functions in the body. As the definition of nutrient implies, water is involved in energy production. It is needed to help our bodies release the energy in the foods we eat on a chemical level. In a more direct manner, water also aids in the digestion of the foods we eat, helps to transport those nutrients released around the body and at the end of the digestion process helps to remove our bodies' waste through the production of urine and faeces. Water is even necessary at the beginning of the process. From the time we place food in our mouths, water, as a component of saliva, lubricates the food and aids its passage down our throat. And at the end, again it is there as a component of mucus to help ease solid waste out of our bodies.

Similarly, water is a component of other body fluids and lubricates our joints. Water also provides a cushion for the spinal cord, brain and babies in the womb.

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Water helps us to breathe, and is used to transport the oxygen we inhale around the body, as well as remove the carbon dioxide we need to exhale. Another important function of water involves temperature regulation. Through the production of sweat which is largely a mixture of water and salts, water helps to cool the body. When our bodies produce sweat, the evaporation of the sweat from our skin surface causes the temperature to fall, thus keeping us cool on hot days or during strenuous activities.

WHERE DO I GET WATER FROM?

Our bodies get water from the water we drink, as well as beverages and soups and the foods we eat especially fruits and vegetables. The body also makes water - when fat is broken down a lot of water is produced. These sources usually provide just enough amounts of water or a little extra. Sometimes it is possible to get too little or too much water.

CAN I HAVE TOO LITTLE WATER?

The more frequently occurring situation is for persons not to consume enough water. This may be a chronic situation, where an individual fails to get adequate fluids over a period of time or it may be an immediate state resulting from, for example, intense exercise. In this state a person is said to be dehydrated. Dehydration is defined as a loss of 1% or more of body weight through fluid depletion. For example a person who weighs 150 lbs and drops to 148 lbs right after intense exercise, is likely to be dehydrated.

Feeling thirsty is the usual indication that we are dehydrated. Other signs of dehydration include headache, tiredness, loss of appetite and dry eyes and mouth. Persons may also experience a burning feeling in the stomach, feel light headed, pass urine with a dark colour and a strong odour and have flushed skin. In the more advanced stages of dehydration, persons may experience difficulty swallowing, clumsiness, painful urination, muscle spasms and delirium. The skin may be numb and have a shrivelled appearance.

Dehydration may be caused by losing too much water as well as consuming too little water. The losses may occur through exertion during exercise especially in hot, dry conditions and at high altitudes. Simply being in these conditions can cause dehydration. Diarrhoea and vomiting are well known causes of dehydration. Some medications, alcohol and caffeine-containing beverages like coffee and tea are known as diuretics, that is, they cause water loss. Use of these products can cause dehydration.

An inadequate fluid intake leading to dehydration may simply arise from an unavailability of enough fluids or appetizing fluids (as is often the case with children) or may be due to malfunctioning of the thirst mechanism, which indicates to us that we need to drink some fluids. This abnormality may be due to some medication. Swimmers can be prone to dehydration because swimming causes exertion, but because the body is immersed in water, the swimmer does not feel thirsty and does not drink adequate fluids.

WHY DO I NEED TO GET IT RIGHT?

It is important to stay properly hydrated so that the body has sufficient water to provide for all the varied functions of water. Outside of the short-term consequences to dehydration, in the long-term it is better for our health to maintain proper hydration status. Studies have shown that dehydration diminishes our physical performance as well as our mental performance in the short-term. In the long-term, persons who drink adequate fluids are less likely to have kidney stones. Men who drink a lot of water are less likely to have cancers of the prostate, bladder, kidney and testicle. Women are less likely to have cancers of the renal pelvis, urethra, bladder, colon and breast. Children who drink water are less likely to be obese.

CAN I HAVE TOO MUCH OF A GOOD THING?

On rare occasion it is possible to have too much water. This causes a condition known as hyperhydration, water intoxication or water poisoning, with consequent dilution of sodium in the blood, known as hyponatraemia. Water poisoning results from taking in too much water without a corresponding increase in electrolytes (sodium and potassium salts) over a short period of time. Some persons who have water poisoning may experience no symptoms while others become confused, tired, produce too much saliva, experience vomiting and diarrhoea and become apathetic, or disinterested in what is going on around them. The condition can eventually lead to brain swelling, coma and death. Hyponatraemia is usually seen in marathon runners, who sometimes overestimate how much water they need to stay hydrated, but do not eat any food during the 26 mile race. This absence of food, plus the loss of salts in their sweat, changes the sodium levels in the blood, and throws the electrolytes off balance. Hyponatremia can also occur in persons who drink too much water when trying to get rid of a hangover.

WHAT IS RIGHT FOR ME?

The amount of water/fluid you need to consume everyday depends on your age, sex, size and your metabolism. The water requirement may be calculated based on caloric requirement for the day or using body weight. In general, for an adult living in general conditions (in terms of environmental exposures and how much energy is expended) requires approximately 1 ml of water per calorie consumed. Therefore, if the average caloric requirement for the day is 2000 kcal then that person needs 2 litres of fluid a day. Infants and children need approximately 1.5 ml per calorie consumed. The requirement is higher for children because they lose water faster from the surface of their skin, since relative to their small size they have a large surface area.

The fluid requirement is increased or decreased outside of these average conditions. The requirements are increased if you are exposed to high temperatures, like those here in the Caribbean, dry conditions, and high altitudes. You also need more fluids if your diet is high in fibre and you consume a lot of alcohol and caffeine.

Pregnant women need a bit extra water per day to provide for their own needs as well as the protective cushion, the amniotic fluid, for their baby. Breast feeding women need a lot more extra fluid, approximately 750-1000 ml per day to make breastmilk. Breastmilk is approximately 87% water.

The requirements of bedridden elderly persons are determined based on body weight. It is suggested that they receive 100 ml/kg for the first 10 kg of weight and 50 ml for the next 10 kg, 15 ml/kg for remaining kg of body weight.

It is important to remember to keep hydrated before, during and after exercise. It can take the body as long as twelve hours to become properly rehydrated after exercise.

HOW DO I GET IT RIGHT?

An individual's entire fluid requirement does not have to be met by water alone. Water is the preferred choice, because it is calorie free, inexpensive and for the most part widely available, but other non-caffeinated, non-alcoholic drinks, fruit juices, milk and soups are tasty alternatives, especially for children. Some foods especially fresh fruits and vegetables make significant contributions to our fluid intake and are a part of a healthy diet.

Taking along a water bottle, and taking sips throughout the day maybe a useful habit to adopt. This practice keeps you hydrated, and helps to control hunger pangs, a useful ally if you are trying to maintain or lose weight.

Generally, try to drink enough fluid, preferably water, that your urine is always straw coloured or pale yellow. Whether or not you need 8 glasses of water a day will depend on your individual needs. Just remember to keep moist.

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