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Aging Well Part VII Water – Its Crucial Role in Health By James L. Holly, MD Your Life Your Health *The Examiner* January 8, 2004

After a two week hiatus, we return to our series entitled, “Aging Well.” It is often the case that in health we become so infatuated with the exotic, new and expensive that we overlook the most fundamental and simple foundations of good health. So it is with the most important “nutrient” in our daily diet – water!

Your body weight is about 60-70 percent water, with muscle tissue being 70-75 percent water and fat 10-15 percent water. Women will be slightly less hydrated than men, due to the higher level of essential fat. Water is essential to life – it is present in all of your body fluids and tissues. In blood, water transports nutrients and oxygen to your cells, and picks up waste products for elimination. In sweat, water helps cool your body, and in saliva and digestive fluids it helps break down the food you eat. Water is even a key ingredient for healthy, radiant skin!

It is possible to look at human life like “plums” and “prunes.” Babies have smooth, soft skin, largely because they are 80-90% water. As we age, for a number of reasons, we begin to “dry out.” As we lose water content in our bodies, we begin to look more like a “prune” – shriveled and wrinkled – than we do like a plum – smooth and soft.

Water: Vital Link to Life

1. Water serves as the body's transportation system. It is the medium by which other nutrients and essential elements are distributed throughout the body. Without this transport of supplies the body factory would stop. Water also works as the transport for body waste removal.
2. Water is a lubricant. The presence of water in and around body tissues helps defend the body against shock. The brain, eyes and spinal cord are among the body's sensitive structures that depend on a protective water layer. Water is present in the mucous and salivary juices of our digestive systems. This is especially important for moving food through the digestive tract. Persons who experience reduced salivary output soon will realize that foods taste differently and are harder to swallow. As a lubricant, water also is helpful for smooth movement of bone joints.
3. Water participates in the body's biochemical reactions. The digestion of protein and carbohydrates to usable and absorbable forms depends on water as part of the chemical reaction.
4. Water regulates body temperature. Our health and well-being are dependent on keeping body temperature within a very narrow range. The human body, which is made of 60-75 percent water, serves this function quite well. Water itself changes

temperature slowly and is able to help regulate body temperature by serving as a good heat storage material.

Evaporation of water from body surfaces also helps cool the body. Sweat loss that is barely noticeable occurs every day and night. Individuals may lose up to a pint of water each day in this manner. In hot, humid weather or during exercise, increased sweating and losses of water are more visible.

Water Balance

Each day water losses are balanced with water intake. The body has a sophisticated system that works to maintain water balance. Few of us ever experience malfunctioning of this system. Thirst is a trigger that reminds us to take in more water. At the same time our kidneys regulate urinary output.

Is There a Daily Requirement?

Unlike many nutrients, there isn't a specific daily recommendation for water intake. Part of the reason is the variability in individuals related to the climate in which you live, physical activity, age, state of health and body size. Under typical circumstances adults may replenish up to six or eight cups of fluid each day. A good rule of thumb for adult, daily water needs is to take our weight in pounds and divide by two. That is the number of ounces of water you should drink per day on average. That means that a 150 pound person would need about 75 ounces of water a day.

Typical water output is two quarts or more of water each day. Water losses in urine account for about three-fourths of daily losses. Remaining losses come from sweat, as tiny water droplets in the air we exhale, and through feces. Infrequent urination or dark yellow urine may be an indication you could use more fluid intake each day.

Water Sources

Water comes from a variety of sources. All beverages or fluids are a source of water. Even solid foods contain water. Lettuce, celery and other crisp vegetables are composed of 90 percent or more water. Protein-rich foods such as meat, fish or chicken may contain as much as half to two-thirds their weight in water. Even grain products, which don't seem watery at all, may be up to one-third water.

Fats, such as butter or margarine, and sugar are among the foods that contain the least water. Some water, perhaps one to two cups per day, comes from inside our bodies as a by-product of energy metabolism. This amount is small but significant.

It is important to be aware of fluid intake. Even though solid food is a source of water, additional water from drinking fluids is needed. Besides plain water, juices, milk or other beverages boost fluid intake. You have a choice whether your fluid is simply water or an

energy-rich beverage that may or may not contain other nutrients. Base this selection on your need for extra calories/and or additional nutrients.

Special Needs

Under special circumstances, fluid intake and output should be more carefully monitored. Examples of the special circumstances follow:

Infants, young children and older folks. Children have lower sweating capacity than adults. They tolerate high temperature less efficiently. Frequent vomiting and severe diarrhea in infants and young children quickly can lead to water dehydration.

Older folks may be at increased risk for dehydration because their thirst mechanism may not be as efficient as at younger ages. The influence of medications and the presence of disease are other factors that affect fluid intake and water balance. For both the young and the old, encourage water intake often.

Athletes. Of all nutritional concerns for athletes, the most critical is adequate water intake. The athlete's immediate need for water is to control body temperature and to cool working muscles. Lack of water, above all other nutrients, has the ability to hinder performance and lead to serious complications. For example, fluid loss of 2 to 3 percent of body weight by sweating impairs performance. Fluid losses of 7 to 10 percent of body weight result in heat stroke and death.

Two to 3 percent fluid loss in a 150 pound individual represents three to four and a half pounds of body weight or one and a half to two quarts lost water. Marathon runners and other long distance athletes may lose up to three quarts (or six pounds) of sweat per hour. To prevent dehydration during exercise, athletes should drink fluids before, during and after activity. Even exercise in cold weather results in sweat production and requires adequate fluid replacement. Although electrolytes such as sodium also are lost through perspiration, the immediate need is for water alone. In most circumstances sodium and other electrolytes can be replaced after exercise. Seasonings (especially salt) on foods at regular meals usually will do the trick.

During exercise or athletic events thirst is not always a reliable gauge of fluid needs. The best approach is to go into the event with adequate fluid intake.

Water balance in children involved in sports or physical activities is a special concern. Children have lower sweating capacity and less tolerance for hot temperatures. They need frequent fluid intake in order to regulate body temperatures. A water bottle or ready water supply should be handy during all sports activities.

Parents, coaches and others should remember that younger children also take longer than adults to adjust to warm weather following cool winter temperatures. It is especially important to watch fluid intakes during the adjustment time.

Outdoor workers: The combination of hot, humid temperature and physical activity places outdoor workers at special risk for water balance. Anyone who works or plays hard outside, especially in hot weather, needs to keep water handy.

Six Basic Rules for Fluid Replacement during Sports Events

- Cool water between 40-50°F is best.
- Plain water is best. Sugar and electrolytes in fluids may slow emptying from the stomach.
- Don't depend on thirst. Drink ahead of your thirst.
- Drink water before a sporting or activity event. Two cups of water about two hours before an event is about right. Follow this with one cup of water about 15 minutes before the event.
- Sip water during an event (1/3 to 3/4 cup every 10-20 minutes). The body cannot absorb more than about one cup every 20 minutes.
- Weigh before and after a sporting event or heavy workout. After the event replace two cups water for every one pound lost.
- Sipping throughout the work period is better than saving up for scheduled meals or breaks. Pay particular attention as you shift from cool weather to warm weather because it takes a few days for your body to adjust to the warmer temperatures.

Here is a summary of facts which you need to know about hydration – supplying the body with adequate water every day:

- The average human body is 60 to 70 percent water. Water is the most important nutrient the human body needs to survive.
- It is important for individuals to drink eight glasses of water per day in order to keep the body fully hydrated.
- Hot temperatures deplete the body's hydration resources very quickly. It is imperative individuals continually re-hydrate themselves with water when engaging in activities in hot weather.
- Drinking water is not only an important practice when the temperature rises, but also when the weather is cold. The body uses extra energy to keep itself warm when the temperature rises, therefore depleting hydration.
- Water hydration is important during fitness. The human body can sweat out more than one quart of water during a one-hour workout.
- Water facilitates weight loss and helps the body stay healthy and regular.

Here are some healthy tips about hydration and particularly about hydration in children:

- Water aids in the digestive process and carries nutrients to all areas of the human body.
- Regularly drinking water helps keep the human body healthy by maintaining energy and flushing out bacteria.

- It is important for parents to stay on top of their children's water intake because kids can burn excess energy and deplete hydration without knowing it. Drinking water can also help prevent childhood obesity.
- Drinking bottled water can improve the skin's appearance by preventing dry skin and improving general complexion.
- Bottled water is one of the safest beverages to drink as it is regulated by individual states as well as the FDA.
- Drinking bottled water is an excellent replacement for "diet" beverages as it contains no caffeine and is free of calories.
- Increasing water intake stimulates the kidneys, aiding in the reduction of water retention. In addition, this process allows the body to burn more calories.

Drinking More Water

Of all compounds essential to the human body, water is the most important. Your body is more than 60 percent water. When you drink enough, your body maintains normal fluid levels throughout. Drinking eight glasses, or two quarts, of water each day is necessary for optimal metabolism. It also keeps your urinary tract healthy and prevents constipation.

Don't wait till you're thirsty

It's important to drink water whether you feel thirsty or not. Don't cut down on water when you're trying to lose weight. Water has no calories and actually helps burn calories. When you're retaining fluids, increasing water intake will help you to eliminate the excess. Water can also be useful when you're trying to lose weight because sometimes we confuse signals of thirst for signals of hunger.

Be a "plum" and not a "prune." Remember, it is your life and it is your health