

Water: The Forgotten Nutrient

*"Thousands have lived
without love, not one
without water."*

W.H. Auden



6 Essential Nutrients:

- Carbohydrates
- Protein
- Fats
- Vitamins
- Minerals
- **WATER**



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Our bodies need a variety of substances and compounds in order to function properly. From amino acids to zinc, the human body needs a vast array of nutrients in order to maintain health. These substances can be categorized into 6 essential nutrients. The first five are generally well-known to be important for a healthy, functioning body. Water, however, is often overlooked. While it doesn't appear specifically in any of the MyPyramid food groups, water is actually one of the most important and essential nutrients, playing a key role in a number of vital body functions.

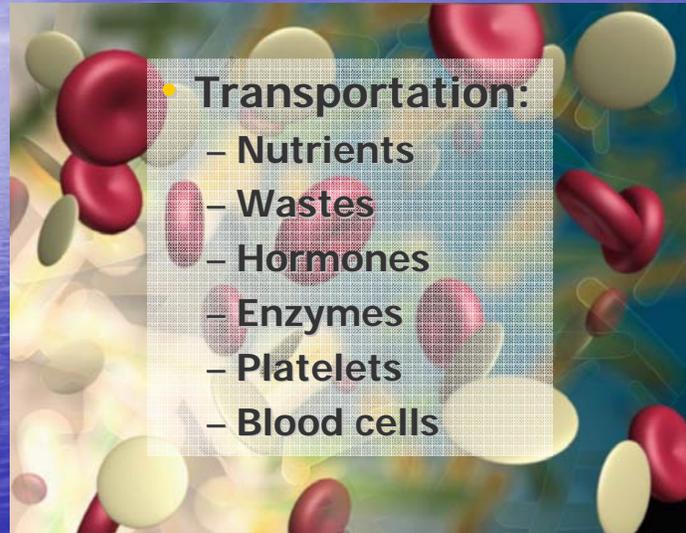
How "Essential" is Water?

- A major component of our body mass.
- A person can only survive a few days without water.
- Without water:
 - Blood pressure rises
 - Heart begins to malfunction
 - Kidneys shut down

Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

So, just how essential is water? Water is a major component of our body mass. Depending on the conditions, a person can only survive a few days without water. No other nutrient deficiency has such a profound effect on our health. Without water, a number of essential body functions are disrupted or stop altogether: blood pressure increases, the heart begins to malfunction, and kidneys shut down.

Functions of Water in the Body



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Water performs a number of distinct and vital bodily functions. It transports nutrients to cells, removes wastes from cells and helps to carry a number of vital substances like hormones and enzymes to other parts of the body. Water is also a major component of blood, which circulates platelets and blood cells throughout the body; bringing nutrients and oxygen to all the body's tissues.

Functions of Water in the Body

- **Lubrication:**

- Joints
- Digestive tract
- Food (saliva)
- Mucous membranes



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Water, combined with other substances in the body, makes lubricating fluids in your body. These fluids serve a number of purposes including:

- Lubricating joints to reduce friction and wear-and-tear on joint tissues, and
- Lubricating mucous in the digestive tract to assist in the movement of food.
- One of these fluids is saliva, which lubricates food as it passes through the esophagus.
- Fluids also serve to lubricate and protect mucous membranes from infectious agents

Functions of Water in the Body

- **Regulation** of body temperature
 - Able to absorb and “store” heat
 - Releases that heat and cools the body as perspiration evaporates.

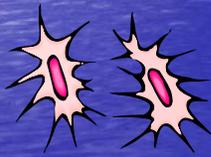
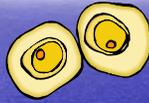


Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Water also helps regulate body temperature. Water can absorb heat with relatively little change in water temperature. By absorbing heat from the body and releasing it through perspiration, water is an integral part of the body's best cooling system.

Functions of Water in the Body

- **Structural:**
 - Cell shape
 - Cell membrane
 - Cushions organs



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Water is also an important structural unit in the body. It maintains cell shape, is essential to the maintenance of cell membranes, and helps cushion and protect our body's organs.

Everybody Leaks?!?!



- Your body loses between 64 and 80 ounces of fluid each day.
- How does this happen?
- Through normal body functions:
 - Perspiration
 - Urination
 - Bowel movements
 - Normal exhalation

Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

this slide is animated to show just one bullet per click of the mouse

click to reveal first bullet Your body loses between 64 and 80 ounces of fluid each day. That equals 8-10 eight-ounce glasses daily. Keep in mind that this is an estimate, and that each person's fluid loss is based on a number of factors that we will discuss in the next slide.

click to reveal second bullet That's a lot of fluid to lose every day. How does this happen? (allow for participants to answer)

click to reveal third bullet Fluid is lost constantly through normal body functions including perspiration (which helps regulate body temperature), urination and bowel movements (which transport wastes from the body) and through normal exhalation (think about when you exhale in front of a mirror or a cold window... that condensation is water vapor being released from your body).

How much water do I need?

- Rely on thirst to gauge hydration
- Conventional wisdom: The 8-glass recommendation
- Water needs vary widely among individuals and depend on a number of factors including:
 - Climate
 - Level of physical activity
 - Age
 - Gender



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

this slide is animated to show just one bullet per click of the mouse

Once people learn how much water their bodies lose each day, the inevitable question arises: “How much water do I need?” This question is a tricky one to answer because people’s water needs vary so widely. You need to replace the water your body loses each day in order to remain properly hydrated.

click to reveal first bullet In most people, thirst does not begin until after they are very mildly dehydrated. Unfortunately, some individuals rely on their own thirst to gauge their body’s level of hydration: they only drink when they’re thirsty.

click to reveal second bullet And I’m sure that most of you have heard of the 8x8 rule: consume eight, 8-ounce glasses of water each day. Using either of these methods may not ensure that you are properly hydrated. The reality is that there are a number of things to consider to determine how much water you should consume each day.

click to reveal third bullet Factors like climate, level of physical activity, age and gender all play a role in determining a person’s hydration needs. For example, individuals who live in a hot climate or who are physically active lose more water daily due to perspiration than individuals who are more sedentary or live in a cooler climate. Water needs also change depending on a person’s age and gender. Individuals who live in an especially hot and/or dry climate may not realize how much water they are losing each day through exhalation and perspiration because it may evaporate quickly and give the individual the impression that they are not sweating very much. While there are no fool-proof methods for determining how much fluid is lost during physical activity, one commonly utilized practice is to record weight before and after physical activity. For every pound lost, a person should replace approximately 2 cups of fluid (preferably water). There are a few things to remember if you choose to utilize this method: take your shoes off before you step on the scale and if you exercise in clothing that retains moisture (such as a cotton t-shirt or sweatshirt), you should probably weigh yourself without those items both before and after your workout.

What about sports drinks?

- Electrolyte replacement is not necessary for most people, but is recommended for:
 - Individuals who exercise for more than one hour at a time.
 - Individuals who are physically active in hot or humid climates.



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Drinking enough water to replace the fluids lost during physical activity allows people to maintain hydration. The purpose of many sports drinks is to help replace not only water but also sodium and other electrolytes lost through perspiration during physical activity.

•In truth, most people do not need electrolyte replacement. Electrolyte replacement is recommended for individuals who are physically active for one hour or more at a time, or who are physically active in hot, humid climates.

People who consume sports drinks are often better hydrated for the simple reason that they taste better than plain water so people drink more, but they do come with added calories and sugar. For most people, water is still the best choice for a post-workout beverage.

Replace What You Lose!

- Drink a minimum of 64 ounces in order to replace what is lost daily.
- High fluid intake is associated with a lower risk of kidney stones, colon cancer and bladder cancer.
- Did you know: Dehydration is the number-one cause of daytime fatigue!



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

- The human body can store some water, but only in very limited supply. In order for our bodies to function normally, we need to replenish any water losses daily. It is recommended to drink a minimum of 64 ounces daily in order to replace your body's losses. Keep in mind that this is an estimate and individuals need consider their own activity levels, age, gender and the climate they live in and replace fluids according to their own needs.
- There are significant health benefits associated with a high fluid intake including a lower risk of kidney stones, colon cancer and bladder cancer. Many individuals also find that consuming enough water to replace what is lost each day, helps reduce headaches associated with dehydration.
- Did you know that dehydration is the number-one cause of daytime fatigue? People who consume enough water just feel better in general, so replace what you lose each day!

There's Some Good News...

- Healthy individuals can stay hydrated by consuming water, but also from juices, milk, coffee, tea, and even soft drinks!
- Some fluid is even absorbed from the moisture content of foods!



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

While many people are intimidated by the idea of replacing 64 or more ounces of water each day, there is some good news: it has been found that healthy individuals can get their required fluids from beverages other than water. That's right! Water in milk, juices, and even caffeinated beverages like coffee, tea, and even soft drinks counts toward a person's total fluid intake. Some fluid is even absorbed by the body from the moisture content of the foods a person eats! This is good news for individuals who choose to drink beverages besides water, HOWEVER...

... And Some Bad News...

- Many beverages people consume also provide additional calories, sodium and fat.
- Even “diet” soft drinks and teas aren’t perfect: chemical sweeteners may actually stimulate a person’s appetite!



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

There is some bad news as well. Many of the beverages that “replace” water in our diet also provide additional calories, sodium and in some cases, fat. The calories that a person consumes from beverages do not “register” the way that calories from food do. This leaves people who consume calories through beverages without any kind of “full-feeling” or satiety. These additional calories pave the way to weight gain... an increase of just 100 net calories per day translates to about a 10-pound weight gain over the course of one year.

Diet drinkers beware: your beverages are not much better. Many diet beverages contain chemical sweeteners. Some studies claim to have found a link between consumption of artificial sweeteners and weight GAIN. These studies state that the artificial sweeteners may actually **stimulate** a person’s appetite!

Healthy Beverage Options

- An 8 oz. glass of water contains no calories, fat, sugar or sodium.
- 8 oz of skim milk contains just 90 calories, no fat and a number of beneficial vitamins and minerals.
- 8 oz of 100% orange juice contains 110 calories, no fat, vitamin C, potassium and folate.



Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Here are a few examples of beverages and how they compare:

- An 8 ounce glass of water contains no calories, fat, sugar or sodium.
- 8-ounces of skim milk contains just 90 calories, no fat and a number of beneficial vitamins and minerals including calcium, vitamin A and protein.
- 8-ounces of 100% orange juice contains 110 calories, no fat and several beneficial vitamins and minerals including vitamin C, potassium and folate.

What About Soft Drinks?



- 8 oz of soft drink contains about 100 calories, no fat, **27 grams of sugar** and **no other vitamins or minerals**.
- A can of soft drink contains 12 oz, a bottle contains 20 oz, and a large fountain drink from a fast-food restaurant may contain up to 44 ounces or more!
- It takes roughly 4 grams of sugar to equal one teaspoon... how many teaspoons are in your favorite beverage?

Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

- An 8-ounce serving of a regular soft drink contains about 100 calories, no fat, 27 grams of sugar and no other vitamins or minerals.
- A can of soft drink contains 12-ounces, a plastic bottle from a vending machine contains 20-ounces, and a large fountain drink from a restaurant may contain up to 44-ounces or more! (if you are going to use the optional activity, go ahead and demonstrate how much sugar is in the fountain drink now. You may wish to compare the sugar in the drink to the sugar in a candy bar or another sweet, sugary treat.)
- It takes roughly 4 grams of sugar to equal one teaspoon... how many teaspoons are in your favorite beverage? (this question may be used to spark a discussion about the beverages that faculty and staff consume daily, the beverages they consume in front of students, the beverages available in vending machines, or the beverages available in the school cafeteria.)

What can I do?



- Remember that beverages other than water include a number of other substances you may not want.
- Keep a bottle of water in your car or at your desk.
- Try to replace one non-water drink with a glass of water each day.

Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

- Remember that you can get your fluid needs from beverages other than water, but many of those beverages, like some fruit juices, soft drinks, coffee and tea, may also include a number of unwanted ingredients including sugar, sodium and fat.
- Try keeping a bottle of water in your car or at your desk to help you increase your daily water intake.
- As a goal for the next 2 weeks, try to replace one non-water drink with a glass of water each day. It only takes about 3 weeks to form a new habit so if you can succeed for 2 weeks, why not try to make a new, healthy habit?

Be a Healthy Role-Model

- Work to be a healthy role-model for the children you serve:
 - Avoid drinking sugared soft drinks in front of students.
 - Discourage parents from bringing in sugared beverages for class parties.
 - Encourage students to drink water by drinking more water yourself... let your students catch you doing something healthy!

Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

There are a number of ways that we can do to be healthier role models for our students. First, avoid drinking sugared soft drinks in front of students. Discourage parents from bringing sugared beverages to class parties. Encourage students to drink water by drinking more water yourself... let your students catch you doing something healthy!

Power Panther Professionals School-Wide:

- Announce to students that for the next 2 weeks, school faculty and staff will be focusing on hydration by increasing their water consumption. Get students involved by:
 - Allowing students to carry water bottle into class.
 - Doing a project/display/lesson about water, hydration etc.
 - Making a bulletin board display about hydration. Post it where students can read it.

Child Nutrition & Wellness, Kansas State Department of Education 120 SE 10th Avenue, Topeka, KS 66612-1182

Optional last slide:

Promoting health and wellness is not something that can be discussed once. As educators, we all know that in order for learning to take place, things need to be applied, reviewed, and discussed over time. We cannot become a healthier school overnight, it takes time and dedication to improve the health and wellness of faculty, staff and students. To make Power Panther Professionals effective school-wide, here are a few examples of things that you can do to share this information with your students.

(If you have chosen to make a competition out of this program, you may choose to award points to faculty and staff for drinking water and/or meeting goals for water consumption for the next 2 weeks.) You can get the whole school involved by extending the competition to students... showing them that they can help their teacher/grade/school's team. Some ideas include "bonus points" for teachers who allow students to carry water bottles to class, or whose classes do a project/display/lesson about water, hydration etc. Try making a bulletin board about hydration and displaying it where students can see it. Feel free to add your own ideas to this list... and share them with Kansas Team Nutrition to include in our e-newsletter or on our website!