

YOU  
ARE  
WHAT  
YOU  
DRINK



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**The Culligan WaterWatch Information Bureau** and your local Culligan dealer.

The Culligan WaterWatch Information Bureau serves the public as a free source for water information. If you have questions or comments about water quality, please call **1-800-792-0092**, Monday through Friday, from 9:00 a.m. to 5:00 p.m. Central Standard Time (CST).

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Weights clanking, feet pounding and arms splashing are the sounds of America's confirmed craze—**FITNESS!** For years now, people have been experiencing a heightened awareness of the complex interworkings of health, nutrition and fitness. We've discovered that what we eat, whether we exercise and our state of mind, affect how we live. More importantly we've learned that we **can** improve our health and fitness—by working out, eating right and staying well.

However, with so much emphasis placed on exercise and dieting, the body's most essential nutrient—water—has been ignored or just simply forgotten. We drink a tall, cold glass of water without a second thought about its purity and benefits. Few people realize that water is by far the body's most important nutrient, second only to oxygen in maintaining life.

We are very careful to read the ingredient list on the foods we buy to assure quality nutrition for ourselves and our families. Unfortunately, a glass of tap water carries no ingredient list; if it did, you might change brands. Because water is the one product that your family may consume more than any other, it is necessary to ensure that the water we drink is the highest quality available.

# ***The Forgotten, Yet Most Essential Nutrient***

## ***Is Water Important to Life?***

When Samuel Taylor Coleridge wrote "Water, water, everywhere . . ." he couldn't have been more on target. Water nourishes the world around us, including our own bodies which are made up of 55 to 70 percent water. That's 40 to 50 quarts. Body tissue is up to 75 percent water, blood is almost all water, bones are more than 20 percent water and even your brain cells are composed of 70 percent water.

Without water we would die within a matter of days. We can live longer without food (up to five weeks) than without water (less than five days), making water more important than carbohydrates, vitamins, proteins or minerals to human life.

## ***What Makes Water so Important?***

Every chemical reaction in the body takes place in water. Each cell in the human body is bathed in water, which contains substances it needs. It transports nutrients and oxygen for proper functioning of the body's tissues. Water acts as an apprentice plumber and helps remove waste from the body. Through perspiration, water cools the body and prevents it from overheating, making water a natural air-conditioner.

Water is essential for digestion and absorption of nutrients like vitamins and minerals. It keeps your skin from drying out, your internal organs from sticking together and your joints lubricated.



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Lack of sufficient water may lead to constipation, which unchecked, sets the stage for hemorrhoids, varicose veins, appendicitis, diverticulosis and other problems. Drinking plenty of water helps to prevent these problems as well as preventing kidney and bladder infections.

### ***Does the Body Conserve Water?***

The body keeps reserves of fuel, such as stores of fat, that can be used in emergencies, but although we are made up of 55 to 70 percent water, we have no built-in water tank to tap into when running dry. Water is involved in every bodily process, so it's hardly surprising that its lack can lead to mental and physical changes.

When dehydration is severe the resulting symptoms can be alarming including muscular weakness, loss of elasticity in the skin, severe dryness of the throat, the absence of urine and disorientation. Hallucinations also result, visions of the bedraggled man crawling across the desert and suddenly seeing an oasis of palm trees surrounded by cool, bubbling water really are true. Water—though often ignored and forgotten—is the body's most essential nutrient.

### ***How Much Water Does the Body Need?***

On an average day, the body loses about three quarts of water through breathing, elimination and perspiration. On a hot day or during strenuous exercise, however, the body can lose as much as three quarts of water an hour or six pounds of body weight. This severe water loss can cause muscle cramping, dehydration and heat stroke. Water replacement is essential.

The body normally replaces lost water in three ways: about one to one and one-half quarts from liquids; about one quart from food; and less than one-half quart per day from normal bodily processes. Drinking plenty of water—about 8 to 10 glasses per day above and beyond other liquids—is a good rule of thumb.

Certain groups of people are at special risk and should pay close attention to their water needs. Athletes and older people who can easily become dehydrated, especially during hot weather, must be careful to drink plenty of water. Water intake is of primary importance to infants and those who are ill. And anyone living in a hot climate should be especially careful because of their susceptibility to dehydration and heat illness.

### ***What Are the Best Sources of Water?***

In addition to water, many fruits and vegetables have a high water content, for example, bananas are 76 percent water, apples are 85 percent water and lettuce is 96 percent water. Meats average about 65 percent water, with beef at the low end with 60 percent water and chicken at the high end with 71 percent water. Breads, cereals and starches range from soda crackers with 4 percent water to corn at 74 percent water. The following chart lists the percentages of water in common foods:

### **Percentages of Water in Common Foods**

Lettuce (iceberg) . . . . .	96%
Snapbeans, radishes, celery . . . . .	94
Tomato juice . . . . .	94
Watermelon . . . . .	93

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Cabbage (raw) . . . . .	92
Broccoli, carrots, beets . . . . .	91
Orange . . . . .	88
Cherry soda . . . . .	88
Milk . . . . .	87
Cereals (cooked) . . . . .	87
Apples . . . . .	85
Potatoes (boiled) . . . . .	80
Bananas . . . . .	76
Eggs . . . . .	74
Corn . . . . .	74
Chicken (boiled) . . . . .	71
Fish (baked) . . . . .	68
Prunes (cooked) . . . . .	66
Beef (lean) . . . . .	60
Cheese . . . . .	40
Bread . . . . .	36
Cake (sponge) . . . . .	32
Butter . . . . .	16
Nuts . . . . .	16
Soda crackers, dry cereals . . . . .	4
Sugar (white) . . . . .	trace
Oil . . . . .	0

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Beverages are another good source of water, but you might be surprised to know that milk has only 87 percent water, cherry soda has only 88 percent water and tomato juice has 94 percent water. However, water itself remains the best, most efficient source because it is absorbed by the stomach and moved into the bloodstream faster than any other beverage or food source of water. It is almost totally used by the body for a myriad of functions.

## ***Water Is an Effective Diet Aid***

Water is the single most important nutrient in a successful weight loss program. It is the most inexpensive, readily available, healthful and natural diet aid available. Water has multiple benefits, including maintenance of body system balance, elimination of water retention, suppression of appetite, aiding in the digestion of food, elimination of dieting waste products and acting as a refreshing alternative to other beverages.

### ***How Does Water Aid the Dieter?***

*It maintains body water balance.*

Water is essential for every process in the body. It plays a key role in the digestion and absorption of vitamins and minerals and is key to the success of any weight loss program. Water acts to maintain body system balance, especially when dieting. Fluid in the body is lost as the body efficiently removes the waste products created by the breakdown of fat.

If this fluid is not replaced, normal fluid balance is not maintained. The body will become dehydrated resulting in fatigue, headaches and irritability. This can easily be prevented by drinking eight to ten glasses of clean, pure water daily.

*It helps eliminate excess water weight.*

Another "water advantage" is elimination of excess water weight. Many people believe that



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cutting down on the amount of fluid you drink while dieting will eliminate water retention and, in turn, water weight, but this simply isn't true.

If a limited amount of water is available to the body, it will "hoard" water which will then cause water retention. If one drinks more water, however, the body won't "hoard" water because plenty is available.

However, if your body retains water anyway, you may be eating too many high sodium foods or adding too much salt at the table. Decreasing the amount of salt you eat may reduce water retention.

### *Water is a major part of low-calorie foods.*

Another benefit involves the water hidden in foods. Since fruits and vegetables generally have a high water content with relatively few calories, these foods tend to make snacking satisfying and reduce overeating.

For example, lettuce is 96 percent water and has 10 calories per cup, strawberries are 90 percent water and have 55 calories per cup, and broccoli is 91 percent water and has 48 calories per cup.

### *Water acts as a natural and safe appetite suppressant.*

Water also acts as a natural appetite suppressant, giving the dieter a feeling of fullness. By drinking a glass of water before and during meals, you fill the stomach with water, eat less and add no extra calories to your diet.

Because it can be difficult to remember to drink water, try establishing a daily routine that will quickly become habit. For example, drink

two glasses with each meal and one glass each time you brush your teeth. If you drink at least 12 ounces of water with your meals you're halfway to your daily water quota without a second thought.

Refreshing and thirst quenching water provides a welcome alternative to caloric beverages. The natural flavor can be enhanced by adding a pineapple ring, lemon wedge or orange slice. Try a splash of cranberry juice for a tart twist, or create your own sensation with kiwi, papaya juice or a cluster of juicy purple grapes.

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## ***Water: The Key to Peak Performance***

Strength, endurance and stamina during exercise all depend on one factor—water. No athlete, whether recreational or professional, can be at a peak level without it. In fact, losses of body weight of three or more percent due to water loss can seriously alter performance, making water's importance to athletes indisputable.

### ***How Is Fluid Lost During Exercise?***

During activity, water is largely lost through the skin via perspiration. As much as 8 to 13 pounds or four to six quarts of fluid can be lost by a marathon runner during an event. But even the recreational athlete stands to lose large amounts of body water, especially during hot weather or strenuous exercise.

On a hot day the average athlete loses as much as three quarts of water an hour or six pounds of body weight. Partial fluid replacement before and during exercise is essential to prevent muscle cramping, increased body temperature, lethargy, nervousness and thickening of the blood.

In severe water loss situations, death from heatstroke could result. For example, a marathon runner running in extreme temperatures without replacing lost fluid can easily end up with heat stroke. No matter if you are a professional or recreational athlete, extreme water loss can be fatal.

## **Can Lost Fluid Be Replaced Easily?**

Restoring lost fluid is as easy as H<sub>2</sub>O because water is the best fluid replacement. Water leaves the stomach and enters the bloodstream quicker than any other liquid. Although special sports beverages or electrolyte drinks are popular fluid replacements, they are actually unnecessary for the average athlete.

In fact, these beverages can work against the athlete because sugar (glucose, sucrose, fructose) in these drinks slows stomach-emptying time, making necessary fluid unavailable to the body. Sports drinks, if they are used, should be diluted at least 1:1 with water. Even though sports beverages are easier to absorb than juice or carbonated sodas, they are still more slowly absorbed than plain water.

Sugar-sweetened carbonated beverages are an excellent example of a poor fluid replacement beverage. A 1978 study reported in *Resident Weekly* showed that 15 minutes after drinking a quantity of water, 60 to 70 percent of it will have emptied from the stomach. However, 15 minutes after consuming a sugar-sweetened soft drink only five percent will have left the stomach. Not only does the sugar cause fluid absorption to take longer, but the carbonation may cause cramping during and after exercise.

## **How Does the Body Regulate Fluid Needs?**

Thirst indicates the body's need for fluids. However, due to excitement or the strain of physical activity, the thirst signal may be ignored. If this happens, an athlete may lose up to two quarts of water before fluid loss is noticed.



Unfortunately, another quirk of nature causes the thirst signal to stop long before the athlete replaces all the fluid lost. As we drink water to quench our thirst our brain tells our body that water is no longer needed, and the thirst switch is turned off.

Researchers at the University of Massachusetts found that when fluid replacement was left entirely up to a person's thirst, it took several days after prolonged exercise to re-establish body water balance. So, athletes should drink water, even if they're not thirsty.

### ***Doesn't Cold Water Cause Cramping?***

Many people believe that drinking cold water causes cramping but in actuality, when it's very hot, athletes *should* drink cold water. The water should be about refrigerator temperature or between 40 to 50 degrees Fahrenheit. Not only will the cold water be absorbed more quickly than a warmer beverage, but the body will cool off better. Cold water reduces stomach temperature which, in turn, cools the temperature of the body core and reduces heat stress.

### ***How Can I Stay at a Peak Performance Level?***

The following three steps will assist you to ensure proper body water balance and a peak performance level.

- 1) Drink one to two cups of plain, high-quality water shortly before exercising. This puts fluid into the system, and keeps your body temperature and

heart rate down. Note: High-quality water is free of impurities and is easily absorbed.

- 2) During exercise, drink cool water every 20 to 30 minutes to replace lost fluid. This is especially important during hot weather.
- 3) After exercise, drink more water than is necessary to quench thirst. Though your thirst signal may have stopped, your body still needs water. Your weight will indicate whether you need more water. After exercise, for every pound of weight loss, you should drink two cups (16 oz.) of water to replace the lost fluid. If water is not replaced, you may develop headaches or feel irritable.

High-quality water is a must for the recreational or professional athlete who wishes to maintain peak performance.

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## ***Water Quality Is Important***

Because of its importance to health, it is necessary to ensure that the water we drink is the highest quality available. However, we seldom give a second thought to the quality of the water we provide for our bodies! We scrutinize food labels to be sure we are getting the best nutrition possible. But, do we do the same for water, the product we consume more than any other? Unfortunately, our tap water does not come with an ingredient list. Do you know if your water is high in iron? Lead? Sodium (as in many mineral waters)? Harmful chemical contaminants? Have you ever thought about the quality of your tap water?

In an environment that has been polluted by various sources, it is necessary to consider alternatives to natural water. Even though public water systems are required by law to treat water to make it safe for human consumption, some people are not satisfied with the taste or the quality of their tap water.

### ***What Types of High-Quality Water Are Available?***

There are many alternatives to tap water, including bottled water and treated water.

#### ***Bottled Waters***

*Natural Spring Water* is unprocessed water drawn from one or several springs or natural sources.

It may or may not be bottled directly at the source. Flavors or carbonation may also be added.

Mineral Water is the commercial name for natural spring water in Europe. To be called mineral water in Europe, the water must flow freely from the source, it cannot be pumped or forced from the ground and it must be bottled directly at the source. Mineral waters are constantly monitored and must show proof that their temperature, mineral balance and water pressure have not varied in 10 years.

Mountain Spring Water is pumped from the source and goes through an intensive purification process before going into the bottle. Waters that state "springlike" or "spring-fresh" are not Mountain Spring Waters.

Distilled Water is processed by first vaporizing the water by boiling and then condensing the vapors back to liquid water in a separate chamber. The impurities are left behind in the boiling chamber.

### **Treated/Filtered Water**

Granular Activated Carbon Filtered Water has most organic contaminants removed through a filter which contains granular activated carbon (GAC). Plumbed directly to the incoming water line or at the point-of-use under your sink, it is one of the most effective and economical types of filtration systems available. It provides high-quality, good-tasting drinking water throughout the house.

Reverse Osmosis Water is forced under normal line pressures through special membrane-type



"filters." These units may be under the sink or possibly in another location. When combined with GAC they are considered by many experts to be the best all-around solution for the removal of impurities in water.

Waters treated in these ways are the best source of uncontaminated, high-quality water for drinking, bathing and all other uses.

### ***Is the Quality of Water Important to Health?***

Today, a great many of the substances that can threaten our health have been found in water sources. These contaminants may be either naturally occurring chemicals, or man-made chemicals. Some natural contaminants such as sand, silt, hardness and sulfurous gases may make the water taste bad or look cloudy, but they normally don't pose any real health hazards by themselves.

Man-made contaminants pose an increasing threat to our water supplies. They include substances like gasoline, solvents, industrial chemicals, and herbicides and pesticides used in farming. Many are suspected carcinogens, which means they could cause cancer in humans. Examples include:

*EDB*: Was used as a gasoline additive, pesticide and fumigating agent. Suspected carcinogen.

*Carbon tetrachloride*: Found in industrial degreasing, refrigerating agents, fumigants and chemical manufacturing. Suspected carcinogen.

*Trichloroethylenes (TCE)*: Used in degreasers, paints, drycleaning fluids, solvents and aerospace operations. In addition to being a suspected carcinogen, other effects may include skin rashes,

liver dysfunction and nervous disorders. TCE is also absorbed into the skin through bath and shower water.

Trichloroethanes (TCA): Found in solvents, degreasers and pesticides. Suspected carcinogen.

Trihalomethanes (THM): Result of combining decayed vegetation with chlorine disinfectant. Suspected carcinogen.

Benzene: Found in detergents, solvents and antiknock gasolines. It is a confirmed human carcinogen.

Nitrates: Produced from byproducts of animal wastes and agricultural chemicals among others. Nitrates are not suspected of causing cancer but can cause "blue baby syndrome," an acute condition that can cause death. Thus, nitrates should not be ingested by infants under six months and by expectant mothers.

Dibromochloropropanes (DBCP): Used as a pesticide and fumigating agent in farming until found to cause sterility in men. DBCP is also absorbed into the skin through shower and bath water. Suspected carcinogen.

Vinyl Chloride: Used in production of polyvinyl chloride resins for the building and construction industries. It is a confirmed human carcinogen.

Clearly, it's up to everyone who is concerned about the health and well-being of themselves and their family to find out the quality of their water. Just as you inspect the ingredient lists of the food products you eat, you should find out what's in the water you use every day.

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## ***Water: The Essence of Healthy Good Looks***

A glowing complexion is a major asset in today's health-conscious society and water is vital to our skin's health. Your skin is very dependent upon water. If not for the two million or so sweat glands keeping your skin moist, it would be dry, shriveled and cracked.

### ***How Would a Lack of Water Affect my Skin?***

Without adequate water, a dehydrated body will pull water from the skin tissue in order to provide enough water for vital body functions, such as blood circulation, oxygen and nutrient transportation and waste removal. Consequently, the skin will become dry and wrinkling may result.

Water also facilitates proper circulation which bathes the cells of the body, including skin cells, with substances they need. This provides skin cells with the necessary nutrients to maintain a healthy balance.

### ***What Is the Best Temperature of Water to Use When Cleansing my Face?***

The best water to use on one's face is tepid (about 70 degrees). Cold water can break capillaries, leaving tiny red lines all over the face, especially around the nose and cheeks. On the other hand, hot water tires the skin and has a tendency to give the skin a grayish tone. It also can contribute to premature aging.

For those with oily complexions, cooler water

is better for the health of their skin. Hot water only stimulates the oil glands and complicates the oily condition. People with dry skin should use tepid water *only* for cleansing.

### **What Are the Effects of Poor Water Quality on Cleansing?**

Hard water can have an adverse effect on the skin, hair and scalp because it contains hardness minerals, such as calcium and magnesium. When left unconditioned, hard water leaves invisible deposits on glassware, appliances and clothing, as well as the hair, skin and scalp. It actually causes the hair to become coarse and limp. Soft water, however, leaves hair soft and shining, free of film.

Soap residue left after cleansing with hard water, can attract and hold bacteria and dirt. This may eventually block pores and interfere with your skin's delicate balance, causing chapping, itching and dryness, even infection. Soft water will allow your skin to return to its normal, slightly acid condition after bathing, helping its natural healthy tone.

A soft water shampoo leaves hair cleaner and softer than a hard water wash. Soap tends to cling to hair, giving it a dull, lifeless cast and a stiff or gummy coating. The ability to create an abundance of rich suds comes naturally with a soft water wash and puts an end to stringy, sticky, difficult hair while minimizing the need for special rinses.

Water is not only of prime importance to proper functioning of body systems, but it is of utmost importance to healthy good looks. The health of your face, your skin, your scalp and your hair all depend on proper cleansing with pure, high quality water.



## **Test Yourself! “Water Facts or Fallacies?”**

Now that you understand the importance of water in all aspects of your life—test yourself. How much do you know?

### **Questions:**

- True or False*    1. Water is more important to the body in sustaining life than carbohydrates, proteins, vitamins and minerals.
- True or False*    2. Drinking plenty of water while dieting eliminates water retention.
- True or False*    3. One should never drink cold water when exercising, because it will cause cramping.
- True or False*    4. Water acts as a natural appetite suppressant.
- True or False*    5. Without adequate water, a dehydrated body will pull water from the skin which could cause wrinkling.
- True or False*    6. After exercising, your body has enough water if you don't feel thirsty.
- True or False*    7. Water is a natural air-conditioning system, because it cools the body and prevents it from overheating.

- True or False* 8. A human can live longer without water than without food.
- True or False* 9. Water losses greater than three percent of body weight result in decreased strength and endurance.
- True or False* 10. Tap water may contain unpleasant and even harmful substances.
- True or False* 11. A full glass of water taken both before and with meals, will make one feel fuller and eat less.
- True or False* 12. Drinks that contain glucose are the best fluid replacement beverages.
- True or False* 13. "Cloudy" tap water is a result of air bubbles in the water and is of no concern.
- True or False* 14. The average body holds 40 to 50 quarts of water.
- True or False* 15. We can substitute tea, coffee and other beverages for our 8 to 10 glasses of water a day.
- True or False* 16. Water contaminated with chemicals will smell or taste funny.
- True or False* 17. If body water is not replaced when lost, fatigue, headaches and irritability can result.
- True or False* 18. Tepid water is the right temperature to use when washing your face.

- True or False* 19. Treated water removes most natural and man-made contaminants.
- True or False* 20. Sports drinks are good fluid replacements because they slow stomach-emptying time.

**Answers:**

1. **True.** Water is the body's most essential nutrient. All the body's chemical reactions take place in water.
2. **True.** To avoid water retention you should drink more water. If you deprive your body of water, it will "hoard" body water and cause water retention. If you drink more water—8 to 10 glasses per day—the body has a large supply and won't retain it as excess weight.
3. **False.** Cold water is a better choice than warm, because it leaves the stomach faster and, therefore, is *less* likely to cause cramping.
4. **True.** Water gives the dieter a feeling of fullness. By drinking a glass of water before meals and a glass during meals, you fill the stomach with water, eat less and add no extra calories.
5. **True.** If the body doesn't have adequate water, moisture will be pulled away from the skin in order to provide enough water for vital body functions. The skin will become dry and wrinkling may result.
6. **False.** After exercising, your body still needs

water even if you're not thirsty. It's a quirk of nature that causes the thirst signal to stop long before you have replaced all the fluid lost.

7. **True.** Be sure and drink plenty of water, especially in hot weather or at high altitudes.
8. **False.** Without water, a human would die within a matter of days. A human can live longer without food than without water.
9. **True.** Water is essential to peak performance. Water loss results in decreased strength and endurance.
10. **True.** Water, our nation's most precious resource, is in increasing danger of contamination by one or more of 129 minerals, chemicals and other elements identified in water sources in all 50 states.
11. **True.** Water acts as a natural appetite suppressant by filling the stomach so you won't eat as much. Water has no calories, which is an added plus.
12. **False.** Glucose, sucrose, fructose and others ending in -ose are sugars. As an ingredient in a beverage, they slow down fluid absorption time, which is bad when fluid needs are high. Water is the best fluid replacement.
13. **False.** Cloudy water may indicate the presence of finely divided mineral matter termed "turbidity." Your water can be cleared of "muddiness" by a water treatment system installed in your home.



14. **True.** The human body is 55 to 70 percent water, which accounts for about 40 to 50 quarts.
15. **False.** The body needs water in its pure state to do the most efficient job possible in carrying out body processes.
16. **False.** Contaminated water very often looks and tastes fine. Consumers should be aware of media coverage of contamination problems in their area or call the toll-free WaterWatch Hotline for assistance, 1-800-792-0092, Monday through Friday, from 9:00 a.m. to 5:00 p.m. CST.
17. **True.** If lost fluid is not replaced, normal fluid balance is not maintained and fatigue, headaches and irritability can result. This can easily be prevented by drinking 8 to 10 glasses of clean, pure water daily.
18. **True.** Tepid water cleanses the skin without causing damage to delicate capillaries.
19. **True.** Water systems, such as activated carbon filters or reverse osmosis or their combination, provide high-quality water which is free of most contaminants.
20. **False.** The optimum fluid replacement—water—leaves the stomach and is absorbed by the intestines quickly. Sports drinks contain sugar which slows stomach-emptying time and, therefore, slows absorption in the intestines.

Clearly, water is vital to life—we depend on it for maintenance, replacement, fitness, performance, as well as basic cleansing. Without water we would die within a matter of days. It truly is the most essential nutrient.

It is necessary that the water we drink be as contaminant-free as the food we eat. But because of our polluted environment, water quality may not be what we would expect. As the head of your own household—your body—it's up to you to obtain the highest quality water possible to maintain the health you deserve. Water treatment systems can supply you with the best possible water available.



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