Coconut Water: A Natural Rehydration Beverage

The hospital doors burst open and in rushed the medical team carrying the body of Ian, a local resident. Just hours before Ian had collapsed to the floor of his home. Barely alive but conscious, he was having difficulty speaking. His entire left side was weak and uncoordinated. That side of his face drooped and was pooling saliva. Ian had just suffered a stroke.

Ian was admitted to the Atoifi hospital, a 100-bed facility on the remote South Pacific Island of Malaita in the Solomon Islands. Over the next 36 days doctors worked to save Ian’s life. He had difficulty swallowing which required tube feeding and intermittent intravenous (IV) hydration. His condition grew worse each day. He became weak, shaky, and dizzy. Finally, he was unable to tolerate the tube feedings and began vomiting. Intravenous hydration again became necessary.

Within a few hours the hospital’s remaining supply of IV solution was exhausted, putting Ian’s life in jeopardy. New supplies weren’t expected for several days. Ian’s situation became desperate.

With no solution in sight, and Ian’s life on the line, his physician made a bold move. The island had a rich supply of coconuts. The physician had heard that on other islands coconut water, the liquid inside the coconut, was successfully used as an emergency IV solution. With no other options available, he decided to administer coconut water directly into the patient’s bloodstream. A needle was inserted into the soft eye of a coconut. A tube connected this needle with another that was inserted directly into Ian’s arm. Over the next two days he received the water from several coconuts. During this time he made an astounding recovery,
so much so that he was well enough after the second day to be released from the hospital. For 36 days he struggled for survival, commercial IV solution had little effect, but when coconut water was delivered into his bloodstream he made such a miraculous recovery that he was sent home on the 39th day.

Ian’s story was reported in the American Journal of Emergency Medicine 2000. This was not the first instance where coconut water was used as an intravenous rehydration solution. IV coconut water therapy has been around for over 60 years. The first clinical study was reported by a team of doctors in Havana, Cuba in 1942. Previous studies on animals had shown coconut water to be safe when administered intravenously. In this study 12 hospitalized children were given coconut water IVs as part of their treatment. The children tolerated the coconut water well without any adverse effects, demonstrating that coconut water can be used as an IV solution in humans.

At the time this study was published, World War II was raging and before long Japanese and British military doctors were using IV coconut water in field hospitals. After the war, news of the successful use of IV coconut water inspired further investigation and the publication of numerous studies. The consensus among the studies was that fresh coconut water is a suitable substitute for commercial IV solution for rehydration therapy. What makes coconut water useful is that it is naturally sterile (i.e., free of germs), has a chemical profile similar to, although not quite identical to, blood plasma, is low in protein so does not cause immune or allergic reactions, is well tolerated by the body, supplies essential nutrients, causes no harm, and provides much needed fluid.

Using the juice from the inside of a coconut as an IV solution is not as bizarre as it might sound. The composition of coconut water is remarkably similar to human blood plasma. Like plasma it contains a mixture of sugars, minerals, amino acids, vitamins, hormones, and other substances necessary for growth and development. It is the lifeblood of the coconut embryo.

Coconut water has been a popular beverage in the tropics for generations and it wasn’t long before physicians began experimenting with it for oral rehydration. They found that it was just as effective orally as it was intravenously in combating dehydration. Due to coconut water’s chemical composition it is absorbed through the intestinal wall quicker than plain water, bringing about a faster recovery and eliminating the need for IV rehydration therapy.
Today coconut water is used worldwide in as a home treatment for dehydration related diseases such as cholera and influenza. Cholera, which is a major health problem in many underdeveloped countries, is characterized by severe diarrhea and vomiting. Death rates from cholera are high. Death, however, is not caused by the infection itself, but by dehydration resulting from the loss of body fluids. Giving cholera patients adequate amounts of coconut water results in a remarkable 97 percent recovery rate.

One of the secrets to coconut water’s success as a rehydration fluid is its mineral or electrolyte content. Coconut water contains the same major electrolytes as those in human body fluids. When we lose water from diarrhea or perspiration, we also lose electrolytes. It is necessary to replace both water and electrolytes. Coconut water does this, plain water doesn’t. For this reason, coconut water has recently become popular as a natural sports rehydration beverage. Some people call it Nature’s Gatorade, far better than Gatorade.

In hot weather or during heavy physical activity we lose a substantial amount of water as sweat. Not only do you lose water but you also lose electrolytes, particularly sodium and potassium. Electrolytes are essential for energy production and nerve and muscle function. Our bodies require precise amounts of each electrolyte. The loss of just 6 percent of potassium, for instance, can cause heart failure. So maintaining proper electrolyte levels is essential. When we become dehydrated we are generally deficient in electrolytes as well. Drinking water may replenish the lost fluids, but not the electrolytes. An athlete who loses a lot of water and does not adequately replenish electrolytes will experience muscle cramping, weakness, nausea, vomiting, diarrhea, and eventually go into a coma and may die. Electrolyte deficiency is one of the biggest dangers athletes’ face, particularly for those who participate in endurance races such as marathons and triathlons.

It may seem obvious to drink when the weather is hot or during heavy physical activity, but many people underestimate the magnitude of their fluid loss. It is very difficult to avoid dehydration during a long race or when working in the heat because the rate of sweat loss usually exceeds the rate of absorption of ingested fluids. The maximum rate of fluid absorption by the gastrointestinal tract during exercise is approximately 27 ounces per hour. The rate of fluid loss through sweating can easily reach 1 liter (34 ounces) per hour and can soar to 2 liters per hours under very strenuous conditions. If you lose 34 ounces of sweat and drink an equal amount of water you will still become dehydrated because the body can only absorb 27 ounces. Thus, it is not possible to drink enough to stay hydrated and, dehydration will still occur despite drinking plenty of fluid.

Drinking only water, without a source of electrolytes, can dilute the electrolytes in your bloodstream causing a serious electrolyte deficiency. Many athletes have been sent to the hospital for this very reason.

The problem with commercial sports drinks, however, is that their electrolyte content is too low to be of much benefit. Sodium and chloride (salt) are usually the only electrolytes they contain. Potassium, another essential electrolyte that is lost, is often not even included. Commercial sports drinks also contain various questionable additives such as chemical dyes, emulsifiers, and preservatives. Basically these popular sports drinks are nothing more than non-carbonated soft drinks with a
little added salt. Contrary to popular opinion and marketing hype, these drinks are not recommended for preventing serious dehydration.

Coconut water offers a superior option to commercial sports drinks. Unlike these other beverages, coconut water is recommended for rehydration. Coconut water is completely natural with no harmful chemical additives. Unlike sports drinks, it contains all the major electrolytes important to the human body—sodium, potassium, chloride, magnesium, calcium, phosphate, and sulfate as well as important trace minerals such as zinc and selenium and contains more potassium than a banana. It also supplies other important nutrients missing from sports drinks such as amino acids, vitamins, and antioxidants all of which support a healthy body and proper hydration.

Coconut water has proven to be a superior rehydration fluid when taken both intravenously and orally. It is completely compatible with the human body as demonstrated by being injected directly into the bloodstream without any harmful effect. Can you imagine the damage that would occur if you tried to inject Gatorade into your bloodstream? The purpose of consuming rehydration beverages is to replace fluids and nutrients lost from the blood, it is only logical to use a product that can do this effectively and harmlessly.

Coconut water is available in most good health food stores and some grocery stores. It comes packaged in easy-to-carry cans, bottles, and tetra paks. Tetra paks are the most convenient because you can take them with you anywhere, even when you exercise, and don’t have to worry about them breaking. You can even freeze them beforehand so you have a cool, refreshing drink during your workout.

You can also get coconut water straight from a fresh coconut if you desire. You want to make sure you get a “young” coconut. Young coconuts are those that have not fully matured. The water in the mature brown, hairy coconuts you see in the grocery store is too old and tastes much different. Whole young coconuts are also sold in health food stores. They are perishable so you will find them in the refrigerated section.
My newest book *Coconut Water for Health and Healing* describes the many health benefits of this remarkable beverage. It includes a fascinating account of how coconut water has been used as an emergency IV fluid around the world and why it is becoming one of the most popular sports rehydration drinks today.

Coconut water isn’t just for rehydration, however. Studies show it provides numerous health benefits, some of which are: dissolves kidney stones, protects against cancer, balances blood sugar, provides ionic trace minerals, improves digestion, feeds friendly gut bacteria, relieves constipation, reduces risk of heat disease, improves blood circulation, lowers high blood pressure, helps prevent atherosclerosis, possesses anti-aging properties, and enhances immune function.

Coconut water tastes delicious straight from the coconut, but can also serve as the base for a variety of foods and beverages. Included are 36 tantalizing coconut water recipes. With 80 percent less sugar than fruit juice or soda, coconut water makes a healthy, refreshing drink for you and your kids.

For more information about *Coconut Water for Health and Healing* go to www.piccadillybooks.com.

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**The CocoTap**

If you live in the tropics or are fortunate enough to have a local store such as Whole Foods, which sells young green coconuts, you can enjoy the delicious taste and health benefits of fresh young coconuts anytime. When you pick up a whole coconut, your first thought might be: “How in the world am I going to get the water out?” A chain saw is too messy, and unless you don’t mind losing a few fingers you can use a machete. However, I prefer to use the CocoTap, an innovative new tool that taps right into the center of
the coconut quickly, safely, and without making a mess.

The CocoTap produces a hole in the coconut allowing you to access the liquid center. It consists of a sharpened steel tube with a handled on the end. All you do is push the sharp end into the coconut, shell and all. The steel pierces the husk and shell with relative ease. If you have trouble pushing it all the way through, you can simply tap the tool with a hammer. Remove the CocoTap, insert a straw into the opening, and drink the liquid. It's that easy. Or if you like, you can make two holes and pour the water into a glass.

I was introduced to the CocoTap by the inventor, Paul Richardson, when I visited Australia in 2006. We picked fresh coconuts off the tree and drank the liquid without ever having to split open a single nut. It is by far the easiest way to access fresh coconut water.

If you’ve ever tried to open a fresh young coconut, you know it can be a bit tricky. Even the partially shaved young coconuts you get at health food stores can take some practice opening. The CocoTap makes the process simple.

For more information about the CocoTap go to www.cocotap.com.

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Coconut and West Nile Virus

In recent years the West Nile Virus has received a good deal of media attention due to the occurrence of several outbreaks around the country. The virus is of particular interest because it can cause severe illness and even death.

The West Nile Virus was first discovered in the African country of Uganda in 1937. It was recognized as a cause of severe human meningoencephalitis (inflammation in the brain and spinal cord) in outbreaks that occurred in Egypt and Israel during the 1950s. The virus eventually spread into Europe and in recent years has appeared in Canada, Mexico, and the United States. It was first reported in the United
States in 1999 in New York City. Since that time the virus has been detected in humans, animals, and mosquitoes throughout the United States and Canada.

The virus primarily infects birds, but is known to infect humans, horses, dogs, cats, and other mammals. The main route of human infection is through the bite of an infected mosquito.

Mosquitoes spread the disease from infected birds to humans. Blue jays and crows are most susceptible to the virus and usually die within three weeks after being infected. The presence of dead birds is an early indicator of the arrival of the virus.

There is no vaccine for humans. Because the infection is caused by a virus, antibiotics are not effective and no antiviral drugs have been successful used. Therefore, treatment is supportive. It is aimed at improving the symptoms but does not shorten the course of the illness. In mild cases symptoms include fever, fatigue, headache, muscle weakness, and body aches. The virus affects the nervous system causing swelling and inflammation in the brain and spinal cord and in more severe cases can lead to mental confusion and disorientation, tremors, seizures, convulsions, paralysis, loss of consciousness, and death. Symptoms can last a few days or persist for several weeks. Between 1999, when the virus was first reported in New York, and 2006 there have been 26,246 confirmed cases in the U.S. and Canada resulting in 985 deaths.

The medium chain fatty acids in coconut oil are known to kill disease-causing viruses. Consuming coconut oil on a regular basis may provide the body with the protection it needs to prevent an infection from the West Nile virus. Not only might it prevent an infection but evidence shows that it might be able to successfully treat active infections. Colleen Pennington of Medicine Hat, Alberta Canada can testify to the effectiveness of coconut oil in treating West Nile virus. I’ll let her tell her story.

“Late last August 2006, I became infected with the West Nile virus. Just the weekend before, I noticed a dead magpie bird under the plum tree in the front yard. I’m always outside gardening and walking the dogs at the river, where there were also dead birds. I clearly remember the bite that I received on my forearm, as it itched and pussed for around a week. About a week or so after the bite, I started to become very dizzy while rollerblading downtown. That was the first symptom. Shortly thereafter I became very ill with a fever, achy bones and very, very weak. I remember while I was at work, telling my fellow workers that ‘I don’t know what’s wrong with me, but am I very tired and weak!’ My brain felt like it was shaking every time I walked a step. I could hardly remember what product at work went in what bag!

“I was sick for three or four days, and then I went to see my sister who lives a block away. Walking that block was an ordeal. When I got to my sister Beverley’s house, she told me that ‘I don’t feel sorry for you because if you took the coconut oil you wouldn’t be sick!’ She’s tried to tell me for years about the coconut oil, but I thought it was ‘snake oil.’
Boy was I wrong!

“I sat down and Beverley served me coffee with at least an inch of coconut oil floating on top! I was too sick to argue and drank the coffee. Then I went to Dr. Larry Hoogeveen’s office and told him I thought I had the West Nile virus. I had to have a blood test, and was told that if I had the West Nile, there was nothing they could do for me. I then decided that I had nothing to loose, and continued to take very large doses of coconut oil over the next two days. I also juiced myself a fresh apple, three carrots, a beet, and fresh ginger root for the next several days. Within two days of taking the coconut oil I was all better.

“By that time, the Palliser Health Authority called me, with a sad, sorry long tone.

‘Were sorry to inform you Mrs. Pennington, but you have tested positive for the West Nile virus!’ I then replied, ‘Oh I’m all better now!’ and then where was a moment of silence on the other end, and then there was ‘Oh?’ The doctor on the other end sounded shocked! I’m a 41-year-old women who last year was so sick that in the spring of 2006, I had pneumonia, then I always caught everybody’s cold and flu, and then the West Nile, now since taking the coconut oil, I’m never sick!’

This is quit an amazing story and demonstrates the effectiveness of coconut oil in fighting viral infections. Viruses cannot be treated with antibiotics. Antibiotics are only good for bacterial infections. Medications for viruses only treat symptoms and not the disease. Viral infections must run their course while the body mounts its own defense. The medium chain fatty acids in coconut oil can be useful in fighting viruses and ease much of burden placed on the immune system. Whether it is the West Nile, the flu, or some other virus, coconut oil may provide you with the best protection.

To prevent an infection, I suggest taking 2-4 tablespoons of coconut oil daily. If an infection takes hold, start taking coconut oil as soon as you first notice symptoms. The earlier you start, the more effective it is. I suggest taking 4-6 tablespoons of coconut oil during an active infection. The oil should be consumed in divided doses about every two hours throughout the day. It is best taken with food. Once symptoms subside, go back to 2-4 tablespoons daily. Use common sense and seek medical advice when necessary.

If you have had experience using coconut oil to fight off an infection whether it be viral, bacterial, or fungal, and would not mind sharing your story, I would love to hear about it. You can write to me at bruce@coconutresearchcenter.org.
News Briefs

Pears, Apples, Grapefruit Promote Heart Health

A study published this past year in *The American Journal of Clinical Nutrition* found that a diet high in flavonoids was linked to a reduction in deaths from heart disease in a group of over 34,000 women.

Flavonoids are nutritional compounds found in plant foods. They have been found to possess significant antioxidant and anti-inflammatory properties. They now appear to protect the heart as well.

Individual high-flavonoid foods which stood out in this study for being linked to the lowest number of deaths from heart disease were pears, apples, grapefruit, red wine, bran, strawberries, and chocolate.


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Pregnant? Apples and Fish May Protect Your Child

A new study by Dutch and Scottish scientists found that women who ate apples during pregnancy reduced the risk of their children later having asthma.

The same study also found that pregnant women who ate fish protected their children from later having the allergic skin disease eczema.

The researchers collected data on the food eaten by the mothers of 1,212 children. When the children reached age 5, they collected data on the children's health.

The study's results revealed that 5-year-olds of mothers who ate more than 4 apples a week while pregnant were about 50 percent less likely to have asthma than children of mothers who ate one or no apples a week.

The 5-year-olds of mothers who ate fish at least once week while pregnant were 43 percent less likely to have eczema than the children of mothers who did not eat fish.

The researchers speculated that in apples the flavonoids were the protective agents. In fish they assumed that it was the omega-3 fatty acids, but could also have been due to vitamin D and Vitamin A, both of which many American are deficient.

**Best Diabetes Prevention: Diet and Exercise**

On-going research is showing that diet and exercise together can be the most effective way to reduce the risk of developing Type 2 diabetes.

Diabetes -- a life-threatening disease in which the body cannot properly absorb sugars from the blood -- is increasingly showing up in middle-aged and younger Americans. There are now an estimated 50 million Americans who are overweight and have blood sugar levels high enough to be classified as “pre-diabetic.” They don’t have symptoms yet, but they have a high risk of developing the disease.

Researchers at the Diabetes Prevention Program at Washington Hospital Center conducted a study of diabetes prevention in which they tracked hundreds of participants divided into several groups. One group exercised 2.5 hours a week and dieted, another group took diabetes prevention drugs, and a control group did neither.

After about three years, some preliminary results were in: the group that exercised and dieted had fewer people develop diabetes (5 percent) than did the medicine-taking group (8 percent) and the control group (11 percent).

These findings were first published in 2002 in the New England Journal of Medicine and additional studies continue.

The American Diabetes Association web site offers a quick [online test that estimates your risk for diabetes](http://www.diabetes.org).

*Source:* [“Study: Diet, Exercise Key to Staving Off Diabetes,” NPR.org 5/24/07](http://www.npr.org)

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**Fatty Foods Help You Eat Less**

According to a news release from the American Gastroenterological Association, new research has found that starting a meal with a fatty soup significantly reduces the total calories people consumed in that meal.

The researchers, from the University of Texas Medical Branch in Galveston, Texas, offered meals of unlimited quantity to their subjects on two different occasions. In one, the meal began with a fatty soup, and in the other with a protein soup of the same size and with the same number of calories. The fatty soup appetizer reduced food intake by about 20 percent in the study’s subjects.

The researchers explain their results by saying that the absorption of fat in the small intestine at the beginning of the meal quickly creates a feeling of fullness, and so reduces one’s hunger for the rest of the meal.

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