

## The “Bitter” Truth About Your Heart

A couple of years ago, my son developed a sudden and totally unexpected fascination with Leonardo da Vinci. It stemmed from a video game where da Vinci was one of the featured characters. Although I've always believed that the inordinate amount



*Dr. David Williams*

of time kids spend playing video games is generally a detriment to their mental and physical health, in this case I was pleasantly surprised.

Because of this video game, my son started reading books on da Vinci, portrayed him at a science

fair, and developed a deeper interest in discovery and invention.

To be perfectly honest, however, it was not the game's portrayal of da Vinci's art or anatomical discoveries that sparked my son's interest—it was his weapon designs. Centuries before anyone else invented them, da Vinci designed tanks, robots, a glider, the parachute, the crossbow, the helicopter, the machine gun, cluster bombs, the submarine, and the underwater diving suit. He completed these feats of genius around the year 1482, when he was only in his 30s.

(Leonardo da Vinci actually despised war and intentionally inserted a series of flaws into his weapon designs and war-related inventions to make sure they couldn't be used. The faults would only be discovered later, when others tried to build them. To confuse matters more, he scattered the details of these inventions randomly throughout his work. Virtually none of these ideas were implemented, since hardly anyone at the time could even remotely comprehend his futuristic concepts.)

The interests and inventions of da Vinci weren't limited to weaponry. They included music, solar power, mathematics, architecture,

philosophy, astronomy, aviation, zoology, botany, optics, aerodynamics, hydrodynamics, and anatomy. He has rightly been labeled “a genius of all geniuses.”

His work in human anatomy has always fascinated me. I have always been astounded by his accurate and highly detailed drawings of the human body. He was a strong believer in firsthand, detailed observation, and this fueled his interest in dissection.

During his time, dissections of the human body were illegal unless performed by a physician—which he was not. He first illegally dissected the cadavers of criminals under the most disgusting of conditions. (Today, we have the benefits of refrigeration and preservatives such as formaldehyde.)

He had to work quickly on decaying and rotting corpses—a true testament to his unquenchable thirst for knowledge and understanding. Being that dissection was illegal, for years he was unable to share his discoveries. Later, he received permission from the Catholic Church to

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*You will observe with concern how long a useful truth may be known, and exist, before it is generally received and practiced on.*

— BENJAMIN FRANKLIN

dissect and sketch what he learned for a medical book.

### Time to Rewrite Anatomy Books?

In many cases it took decades, if not centuries, to fully comprehend da Vinci's findings about the human body. While we are still trying to uncover how our bodies work on chemical, electrical, and cellular levels, the general consensus has been that we have a full understanding of the body's anatomy. So the focus instead has been on how the body works. At least that was the case until this past year. Researchers have made a couple of major discoveries concerning our anatomy that will require the rewriting of anatomy textbooks for the first time in decades.

A team in Australia discovered that smell and taste receptors, normally found in the nose and mouth, are also present in heart tissue. Most prevalent were receptors that respond to bitterness. (*FASEB J* 2014 Oct;28(10):4497–508) (*Chem Biol Drug Des* 2014 Jul;84(1):63–74)

The sensing of bitter taste is orchestrated by a group of 25 bitter taste receptors. Twelve of these same receptors were found in heart muscle. And apparently these receptors have other important

physiological functions aside from just within the oral cavity.

When the researchers activated the bitter taste receptors with specific chemicals, they immediately affected the contractile function of the heart. The effect was quite dramatic, but the exact physiology behind the phenomenon remains unanswered at this point.

Learning that bitter taste receptors reside in the heart muscle is certainly a new discovery. But the idea that bitter foods and drinks have an affinity for the heart is ancient knowledge in traditional Chinese and Ayurvedic medicine.

### How Ancient Medicine Used Bitters to Heal

Traditional Chinese medicine teaches that bitter foods support heart function. This practice recommends consuming foods such as endive, escarole, broccoli rabe, arugula, bitter melon, kale, and watercress. The tongue is the sensory organ related to the heart, and conditions of the heart can be observed by examining the tongue. When the tongue is a healthy red color, the heart is said to be in balance. If you crave bitter foods, it is thought to be a sign that your heart is asking for support.

In the Indian healing discipline Ayurvedic medicine, Tikta (bitter) is one of the six tastes. Bitters are

well-known digestive tonics. They stimulate gastrointestinal movement and peristalsis, release bile in the liver and gallbladder, and are said to clear the blood of heat. They are also credited with boosting weight loss and metabolism, reducing fat storage, drying up secretions, purifying the skin, and eliminating food cravings.

According to Ayurvedic principles, people who need to balance Pita and Kapha generally need to eat more bitter and astringent foods. This is typically done by not only consuming various spice mixes (often incorporating turmeric and fenugreek seeds) but also by eating many of the same foods recommended in Chinese medicine. In addition to fenugreek seeds and turmeric, some of these include bitter melon, basil, nettle, jicama, leafy greens, curly endive, Japanese eggplant, lettuce, hops, olives, dandelion, asparagus, kohlrabi, vinegar, celery, wild cucumber, pomegranates and pomegranate seeds, aloe vera, and barley. Most people today implement very few of these items into their diets.

European herbalists have long favored bitters to stimulate the digestive system. Their extracts of gentian root have become available worldwide. In fact, Angostura bitters (a tincture of gentian root) are even used in cocktails and can be purchased at most liquor stores.

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Dr. Williams works with Healthy Directions, LLC to develop his unique formulations that supply many of the hard-to-find nutrients he recommends. Dr. Williams is compensated on the sales of these nutritional supplements and health products, which allows him to continue devoting his life to worldwide research and the development of innovative, effective health solutions.

Gentian root has been utilized for centuries and is very safe. Many people find that a teaspoon either before or after meals alleviates digestive symptoms.

The Italians even use the liqueur Campari, a bitter consisting of extracts of various herbs and fruits, in their cocktails. There are several liquid bitter products on the market based on European formulas. Most contain alcohol, since it is used in the extraction process. (Flora Swedish Bitters is one product that's alcohol free.)

Bitter extracts are actually quite easy to make, and you can find recipes online. Alcohol extract, using vodka, whiskey, or some other high-proof spirit, is the easiest method. Prior to and during Prohibition, it was common for people to make their own bitters.

### Raw Cacao—Another Beneficial Bitter

Neem and the herb *Gymnema sylvestre* are other examples of natural bitters. Research has also confirmed the heart benefits of dark chocolate and dark coffee, both of which are bitter.

Several months ago, I discussed the amazing heart benefits of consuming raw cacao. (For the full

article, refer to the December 2014 issue of *Alternatives*.)

During my numerous visits with the Kuna Indians of Panama, I was amazed to find such an extremely low incidence of high blood pressure, stroke, and heart attack. And they had one of the lowest (if not *the* lowest) rates of heart disease of any population on Earth. This can be attributed in large part to their daily consumption of large amounts of raw cacao, which happens to be very bitter.

This is just one of the many reasons I add raw cacao powder to my daily protein shake. I recommend you do the same. And if you *really* want to experience bitter, try munching on a few raw cacao nibs. This has also become a regular habit of mine.

### The Missing Taste

Bitters have become the missing taste in our modern diet. It is frequently written that our body perceives bitter as something poisonous. That is only partially true. Bitter is actually the most common taste in nature, and our ancestors subsisted on diets high in bitters. If you study earlier cultures and Ayurvedic medicine, you'll find that a healthy gut typically eliminated food about six hours

after consumption. This was due, in part, to the stimulation of the intestinal tract and digestive juices thanks to bitters. You still see this in the few indigenous societies that haven't adopted our modern diet. In the past, sweet tastes were rare and highly valued. The foods that contained them were usually seasonal and difficult to procure.

As we became able to manipulate and hybridize our fruits and vegetables to increase sweetness, bitter foods rapidly began to disappear from the marketplace. The trend has been to sweeten everything either naturally or artificially. A few varieties of greens, coffee, olives, and dark chocolate are practically the only readily available bitter choices we have. In fact, the reason most people don't like dark chocolate is because it is bitter, and they are accustomed to highly processed and sweetened milk chocolate.

I have no doubt these new findings will spur researchers to focus on developing drugs to target these bitter taste receptors. Don't be surprised when you see a new category of heart medications emerge, fraught with side effects and questionable results. The real takeaway from this research, however, is to bring bitter foods back into your diet. ■

## Lymph System Linked to Brain Health

**R**ecently, researchers at the University of Virginia uncovered previously undetected lymphatic vessels that directly connect the brain to the peripheral immune system. (*Nature* 2015 Jul;523(7560):337–41)

Although we thought the human body had been totally mapped out,

that clearly wasn't the case. No one had ever found a direct connection between the central nervous and immune systems...until now.

For months, I've been discussing the ever-increasing incidence of diseases of the central nervous system. This new discovery will help explain not only how various

toxins and the immune system influence brain tissue, but also how and why the brain may not be able to remove various toxins before they cause disease.

For example, with Alzheimer's, we're aware of the accumulation of protein chunks in the brain. One of the researchers involved in the



discovery stated, “We think they may be accumulating in the brain because they’re not being efficiently removed by these vessels.” I have no doubt that these new findings will result in further proof that proper brain function and health is dependent on optimizing lymphatic drainage from the brain and throughout the body.

In another new study, researchers found that, with Parkinson’s disease, brain cells become overwhelmed with waste material. The excess protein molecules in the waste “start getting misfolded and dysfunctional.” As these proteins continue to accumulate, they begin to destroy more nerve cells, resulting in even more garbage. The process becomes a vicious circle. (*J Neurosci* 2015 Jul;35(29):10613–28)

Once again, it appears the brain’s natural garbage disposal system (which involves lymphatic drainage) is a critical, causative factor.

### How Early Health Pioneers Viewed Lymph

For decades, I’ve been telling you about the importance of the lymphatic system and how critical it is to your overall health. I’ve never considered the lymphatic system the “red-headed stepchild” when it comes to health, but that’s the way mainstream medicine has treated it. I think we’ll start to see a change in this thinking.

Unfortunately, change occurs slowly in mainstream medicine, particularly when it comes to accepting new ideas. However, we don’t have to wait for their blessing and acceptance. We already know the importance of the lymphatic system and specific techniques

to keep it flowing properly. It has been documented by numerous pioneer natural healers.

Around 400 B.C., Hippocrates reported observing vessels containing “white blood.” In the 1930s, Frank Chapman discovered that, when various reflex points were manipulated, it increased lymphatic drainage in different organs. Dr. George Goodheart later expanded on his work.

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Dr. Emil Vodder and his wife, Dr. Estrid Vodder, coined the term “manual lymphatic drainage.” In 1936, they presented their research on very specific low-pressure massage movements. (For a complete discussion on how to perform a lymphatic massage, including diagrams and instructions, please refer to the January and February 2006 issues of *Alternatives*.)

Practitioners of Oriental medicine and disciplines such as yoga understood that lymph flow is also partially due to a “vacuum effect” that occurs during breathing with the movement of the diaphragm.

Edgar Cayce (1877–1945), the American mystic who famously answered questions concerning health, talked extensively about the importance of the lymphatic system. Cayce also referred to lymphatic fluid as “white blood” or “lymph blood” and considered

it just as important as arterial circulation.

Unlike the arterial system, which has a heart and muscle-lined arteries to help move the blood, the lymph system has no pump. It requires other means to help move waste material from the body. That’s one reason Cayce and the others stressed the importance of massage and exercise. Gentle forms of massages can help move lymphatic fluid, which resides primarily just beneath the skin’s surface. And the rhythmic action of muscles contracting and relaxing works as a pump for lymph fluids. Rebounding (using small, inexpensive personal trampolines) and inversion tables are newer apparatuses that increase lymphatic fluid flow and drainage.

### Crucial for Every Organ

While this latest study involved the discovery of lymphatic vessels that drain the brain, research has found proper drainage is crucial for every organ.

You may remember my discussion about how poor lymphatic drainage has been directly linked to two of the most common forms of cancer, breast and prostate.

Poor drainage also plays a role in the spread of cancerous tumors to other areas of the body. When the drainage of toxic waste from a tumor isn’t adequate, it appears that lymph nodes put out angiogenic-like proteins that trigger the formation of additional lymph vessels, which may actively promote the spread of the tumor. Ensuring proper lymph fluid drainage can help reduce the buildup of toxins that lead to

chronic inflammation, cell mutations, and cancer.

I was recently watching a television program that showed a very graphic surgical procedure. What struck me was just how little consideration was given to the surgical incisions being made. Muscle groups and nerves were severed, as well as the surrounding supportive tissue of various organs. Blood vessels are routinely cauterized to stop the bleeding. (Typically, tissues have other blood supply routes, so that doesn't cause permanent damage.) But severing nerves and muscles is a different situation, and no one seems to consider the consequences of severing lymphatic vessels. Hopefully one day, surgical procedures will be more refined and these things will be taken into account.

Studies have shown that, when lymphatic vessels are destroyed during heart transplant surgery, the implanted heart's ability to release toxic waste is impaired. Surgeons began to notice that patients whose surrounding microscopic lymph vessels were rapidly destroyed started developing clogged arteries following the procedure. This occurred even with no changes in diet or lifestyle.

Up until now, I've primarily talked about the lymphatic system's role in waste removal, but it is also a key component of our immune system. Many of our immune cells "live" in lymph nodes and are transported through the lymph system so they can be readily available to kill invading cells such as bacteria and fungi. Until this latest discovery, it was difficult to understand how these immune cells could gain entry into the brain and wreak havoc and destruction as we see

with autoimmune diseases like multiple sclerosis.

Impaired lymph flow isn't just linked to brain and neurological disease, cancer, and clogged arteries. When the flow of toxic and waste-filled lymph becomes impeded, it can result in problems anywhere in the body.

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Joint pain and stiffness, arthritis (particularly rheumatoid), bursitis, chronic fatigue, high blood pressure, skin diseases, and swelling and fluid accumulation in the extremities are just a few problems associated with poor lymph flow.

## Reduce Swelling and Strengthen Capillaries

Most people, and doctors for that matter, never talk about the lymphatic system. Just about the only time you hear it mentioned is when someone experiences chronic swelling or, more accurately, fluid accumulation in the extremities (primarily the lower legs and feet). This is the most common and recognizable symptom associated with lymphatic problems. (It can also be a result of kidney disease/failure, congestive heart failure, liver disease, sitting for long periods of time, or from taking certain medications such as diabetes and blood

pressure drugs and painkillers like ibuprofen or naproxen.)

The typical recommendations are to elevate the legs and wear compression stockings. These suggestions can provide a degree of temporary relief, but they don't really resolve the issue. They don't correct the underlying problems of poor lymphatic circulation and fluid (plasma from the blood) leaking out of the capillary beds into the surrounding tissues.

When the cause is from leaky capillaries and poor lymphatic circulation, the first order of business is to stop the constant leakage of plasma. To do that, you first need to strengthen the capillaries.

**Horse chestnut** (*Aesculus hippocastanum*) is a tried and true herbal remedy. In the US, this herb has been used safely for decades, and it has become one of the most prescribed medicines for weak capillaries in Germany.

Use a standardized horse chestnut extract from the seed containing 20 percent aescin. Aescin is a natural compound that helps mend breaks in capillary walls. The typical recommended daily dose is 75–250 mg twice daily.

Horse chestnut is a very inexpensive supplement—a month's supply normally costs less than \$5. It doesn't work overnight and may take as long as three or four months to make a noticeable difference. Also keep in mind that, in some people, it lowers blood sugar and may interfere with certain diabetes drugs. It might also slow blood clotting and accentuate the

effects of aspirin and other drugs that slow blood clotting.

**Grape seed extract** is another great product for strengthening capillary walls and blood vessels in general. It is rich in the antioxidants called oligomeric proanthocyanidin complexes (OPCs). A typical daily dosage is 200 mg (two 100 mg capsules containing an extract of 90–95 percent polyphenols).

**Bioflavonoids** are compounds that also reduce permeability and strengthen capillaries. Bilberry, *Ginkgo biloba*, and hawthorn are well-researched bioflavonoid-rich herbs that can be beneficial in dealing with fluid accumulation. If you're taking a high-quality multi-vitamin/mineral product, it should contain bioflavonoids along with vitamin C. These compounds work in conjunction with vitamin C to support capillaries.

### Increase Lymphatic Flow

Along with strengthening the capillaries and reducing swelling, the second issue to address is increasing lymphatic flow. Sitting all day with your legs bent, either at the computer or in front of the television, is a surefire way of accumulating lymph fluid in your lower extremities. Restricting lymphatic flow is one of the main reasons sitting for long periods of time has been linked to heart disease and early death.

I've already mentioned a few excellent techniques to boost lymphatic flow: lymphatic massage, inversion tables, and rebounders. In fact, practically any form of exercise is beneficial. Yoga in particular incorporates muscular contraction

along with various inversion poses and breathing techniques.

**Dehydration** is one of the most overlooked causes of a stagnant lymphatic system, particularly in this country. Lymph is a clear liquid comprised of roughly 95 percent water. (The word "lymph" comes from the Latin word "lympa," meaning "clear water.")

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drinking plenty of water....  
Without adequate water,  
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.....

The rest is white blood cells, proteins and fats from the intestines (called chyle), minerals, and waste material. Oftentimes, since lymph circulates just below the skin, you see this clear fluid seep out of a scrape or shallow cut before any blood appears.

Before you embark on lymphatic massages or using an inversion table or rebounder, make sure you're drinking plenty of water.

I'm shocked at how little water most people drink. Without adequate water, lymphatic fluid simply can't flow properly. The recommended amount of water per day used to be eight cups. But now some are saying you should drink half your weight in ounces per day. For example, if you weigh 160 pounds, that would be 80 ounces (or about 10 cups) per day.

**Digestive enzymes** also play a role in improving lymph flow. The walls of lymph capillary vessels consist of only a single layer of cells, unlike the multilayered walls

of blood vessels. This makes it easier for material in the fluid that has escaped from the circulatory system to enter the lymph system so it can eventually be returned into circulation.

In the villi of the small intestine, lymph capillaries called lacteals transport fats such as essential fatty acids, vitamin A, etc. These fat molecules are too big to pass directly from the intestine into the blood capillaries, so they are transported through the lymphatic system back to the thoracic duct, where they are returned to the bloodstream.

Bile acids, produced in the liver and stored in the gallbladder, are essential for proper fat digestion. And other digestive acids and enzymes are crucial for the breakdown of proteins. When our bodies don't have enough of these, larger fat molecules and undigested complex proteins that are too big to enter the bloodstream pass into the lymph system, impeding lymph flow.

We see this routinely in individuals who've had their gallbladders removed but don't use bile salts as a digestive aid. As their lymph systems become more and more clogged, they begin to experience chronic fluid accumulation.

Individuals with poor digestive enzyme production in the stomach, as well as those who routinely use antacids or acid-blocking medications, can also experience fluid retention. Proteolytic enzymes (enzymes that break down proteins) are one of the principle tools the body uses to "digest" debris in both the bloodstream and lymph system.

These undigested proteins and fats can accumulate in body fat



and other tissue and trigger allergic responses. This becomes an additional drain on the immune and lymphatic systems. Chronic conditions such as these place the efficiency of the immune system at risk and can increase the chances of more serious problems such as cancer.

Lymphomas, cancers that occur in the lymphatic system, are on the rise around the globe, and doctors seem to be at a loss as to why. The US has the highest rate worldwide, with cases having risen by 77.3 percent from 1975 to 2011.

The National Cancer Institute reports non-Hodgkin lymphomas are the sixth leading cause of death in the US, the seventh most common form of cancer, and the second most rapidly increasing malignancy. The average age of diagnosis is 66.

Anyone with chronic lymphatic and/or fluid retention problems should consider taking digestive enzymes. Food sources include kiwi (which contains actinidin), pineapple (which contains bromelain), mature green papaya, pawpaw (which contains papain), and although less potent, figs (which contain ficin). All of these enzymes are proteases, aiding in the breakdown of protein. (Keep in mind, they won't help with fat digestion, which is also crucial, particularly as we get older.)

Of note, each one of these fruits has been the basis of some "miracle" weight loss diet. By including these fruits with each meal, some enzyme-deficient individuals experience a dramatic change in energy levels, fewer food cravings, and decreased appetite. This happens because the enzymes make them

far more efficient at digesting their food.

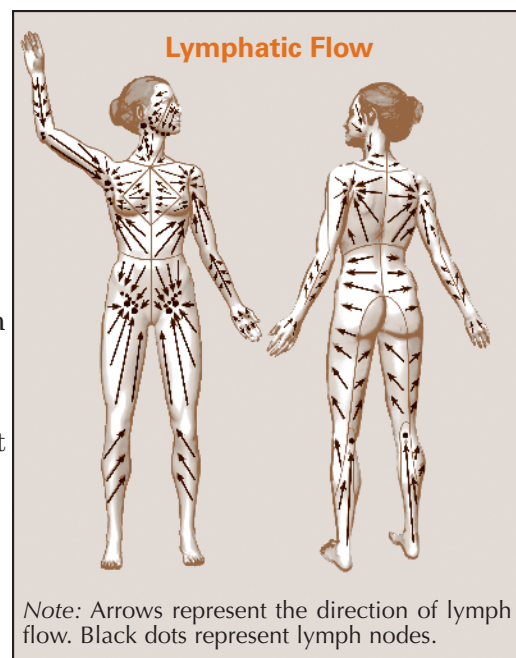
If you have digestive problems after eating a high-protein meal such as steak, try following the meal with a couple slices of pineapple. The bromelain will help break down the protein. For many people, the relief is nothing short of amazing and it's a sure sign that they are enzyme deficient.

**Saunas and steam baths** are another great method of mobilizing lymph. Heavy metals and exposure to toxic chemicals overwhelm the lymph system. But toxins can be eliminated from the lymphatic system through sweat. The heat also increases your heart rate and breathing, both of which help to move lymphatic fluid.

**Hydrotherapy-type treatments** also work wonders by having a direct influence on both your immune and lymphatic systems. For lack of more sophisticated terms, the most beneficial treatment has been referred to as the "warming sock" or the "cold sock congestion treatment."

When you come down with a cold or upper respiratory infection and have nasal congestion, try this technique. (It also works great with kids and allows them to breathe better and get a restful night's sleep.)

You'll need a pair of thick cotton socks (like athletic socks) and a pair of wool socks. If you don't have wool socks, you can use a couple of small wool cloths or a



wool blanket that can be wrapped around both feet.

- **Start by soaking the foot portion of the cotton socks in ice-cold water.**
- **While the cotton socks are soaking, place your feet in a tub of warm to hot water (not hot enough to burn but warm enough to turn them pink).**
- **Remove your feet from the warm water and dry them thoroughly.**
- **Wring out the cold water from the cotton socks and slide them on your feet.**
- **Slide the dry wool socks over the wet cotton socks and get into bed. Keep your feet covered all night.**

Obviously, your feet will be cold at first. But within a few minutes they will warm up as blood rushes to the area. The diversion of circulation will typically begin to improve nasal and upper respiratory congestion within about 30 minutes or so. Most kids and adults will be asleep by that time, which is great. There's no need to change or remove the socks. In fact, it's best to leave them on all night. By morning, all of the socks

will be dry from the surge of body heat to that area.

This can be repeated as often as necessary. Also, if it is repeated during the night, there's no need to submerge the feet in hot water since they will already be warm. Just slip on the cooled, cotton socks followed by the wool ones.

This technique redirects the circulation and helps "pump" lymph fluid as well. And it can be useful in improving blood flow to the lower limbs in cases of diabetes. It also diverts blood flow during migraine headaches or even insomnia.

Another form of hydrotherapy involves contrast showers. You can either alternate a hot shower with two or three cold-water blasts, lasting 15 to 30 seconds, or just finish off every hot shower with about 30 seconds of cold water at the end. Whichever method you choose, always end with the cold water.

**Dry skin brushing** is another way to improve lymph flow. It is really just a modified version of the very low-pressure lymphatic massage utilizing a brush. It's important to follow the drainage paths of the lymphatic vessels to ensure proper drainage. (See the illustration on page 7 for those pathways.)

**Castor oil packs** were introduced to the world by Edgar Cayce. They work to improve lymph flow, stimulate white blood cell production, and detoxify the liver.

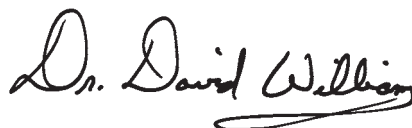
To make a castor oil pack, you will need the following items: cold-pressed castor oil, a standard heating pad, a plastic garbage bag, two or three one-foot square pieces

of wool or cotton flannel, and one large bath towel.

- **Place the heating pad on a flat surface and turn the setting to high.**
- **Lay the plastic garbage bag on top of the pad.**
- **Soak the flannel pieces with castor oil (about ½ cup) and lay them on top of the bag and pad.**
- **The entire pack can now be placed against the body with the oil-soaked flannel on the skin. For general conditions, the pack should be placed on the abdomen. (For treating lower back problems or joint pain, the pack can be placed there.) To help hold the pack in place and to keep oil from getting on bedding, the body can be wrapped in a large bath towel.**
- **The pack should remain in place for at least one hour. The heating pad should be kept at the highest temperature tolerable.**
- **When you remove the pack, the remaining oil can be massaged into the skin or cleaned off using a little soda water made by combining 1 quart of warm water and 2 tablespoons of baking soda.**
- **The flannel can be reused if stored properly after removing the pack. Put the flannel in either a zippered freezer bag or plastic container and place it in the refrigerator. Before using it next time, let it warm up, and always add another 1 or 2 tablespoons of fresh cold-pressed castor oil. (After a month, I recommend using new flannel.)**

I encourage you to try these techniques to keep your lymph system moving freely and clearly. I'd love your feedback; just email me at the address on the right and let me know what benefits you the most!

Until next time,



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