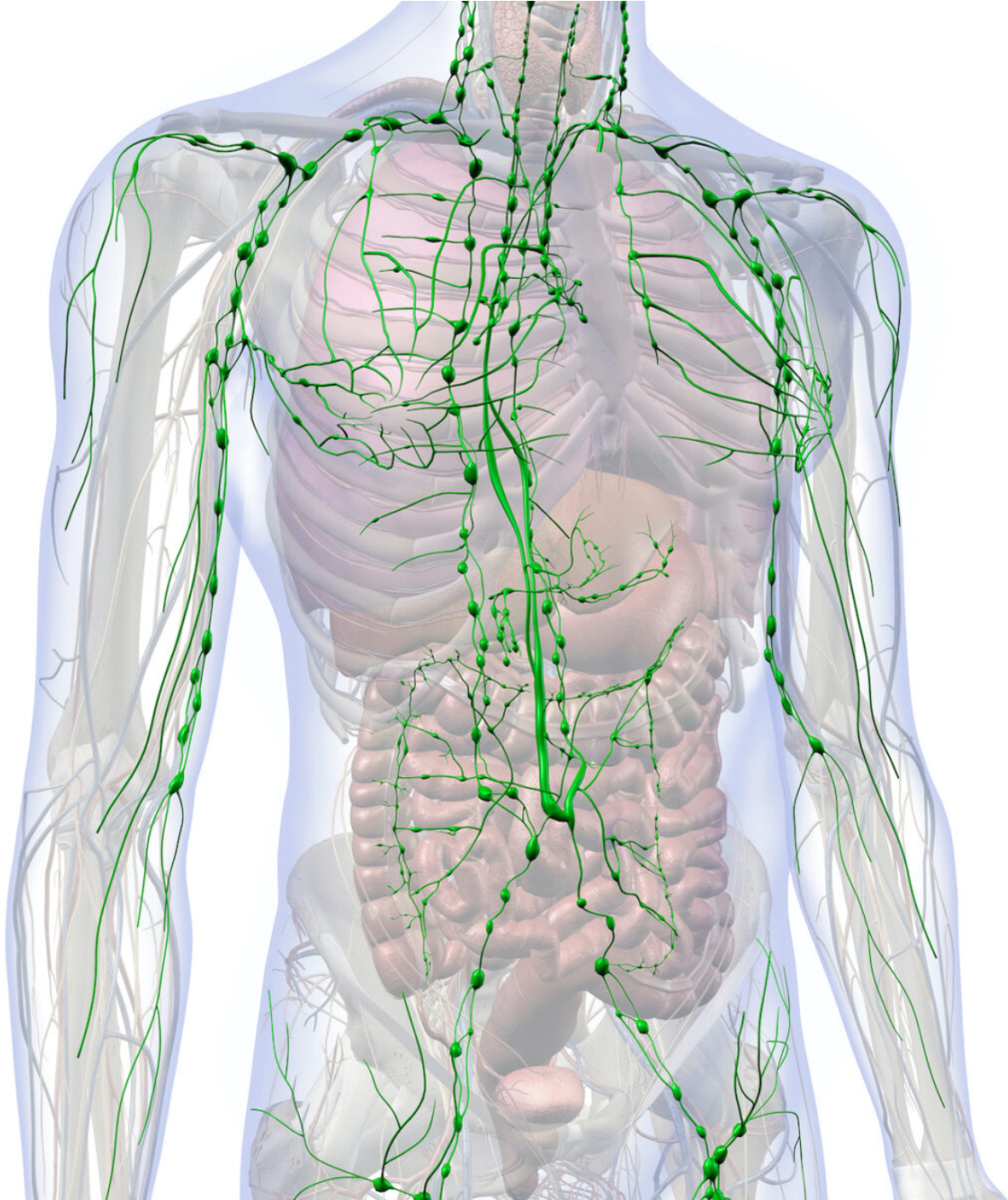


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BRIGHT



Everyone knows how important blood is, but surprisingly few know about the significance of that other essential fluid—lymph. (Hank Grebe/Shutterstock)

WELLNESS

Critically

Critically Important and All but Ignored: Lymphatic Flow

The lymphatic system is profoundly important and barely understood by the vast majority of people

BY [Gerald M. Lemole](#)

TIME [February 23, 2022](#)

Evidence is rapidly growing that chronic inflammation plays a large part in causing chronic diseases such as cancer and cardiac, neurologic, and gastroenterological disorders.

Various diets, including vegetarian, low-fat, saturated fat, Paleo, vegan, lectin-free, and others are recommended to reduce inflammation. However, proponents of good health also suggest that in order to minimize the risk of these diseases and optimize one's health, we must include exercise, stress modification, plenty of green vegetables, and smoking cessation in our lifestyle.

Isn't it interesting that the same lifestyle changes are beneficial for all the chronic diseases? I believe that if we understood the how and why of these recommendations we would


these recommendations, we would more readily use them, and these recommendations would become commandments rather than suggestions.

This is why I wrote “[Lymph and Longevity](#)” –to explain how these recommendations help improve lymphatic flow by decreasing inflammation in all systems. I believe that when we understand a process, it’s much more likely to be incorporated into our life. So let’s go with the lymph flow on a short journey to see how it optimizes the health of all of the systems of the body, including the heart and vessels, the immune system, the nervous system, and the gastrointestinal system.

system, in that there’s a fluid–lymph –that’s transported to and from various locations in the body. However, unlike the cardiovascular system, it doesn’t have anything similar to a heart to pump it. Your movement and the contractions of your muscles are the main cause of lymph flow.

Tending to the flow of lymph addresses chronic dysfunctional conditions such as cancer, arthritis, autoimmune disease, diabetes, and

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obesity. Aging could also be included in these chronic inflammatory conditions.

Let the Lymph Flow

What is the flow? Every biologic system has a function that delivers essential nutrition, important cells, and chemical messages, but also takes away waste, cells, and cell signals. During this process, some fluid, cells, protein, and fat stay in the tissue and must be removed by the lymphatic system. Lymph flow is necessary to return excess tissue fluid to the blood, deliver fat and proteins to the liver and kidneys, and transfer immune cells and immune messages to the lymph nodes. The key element here is the flow of lymph—which includes the rate and quality of movement of fluid throughout the system.

Lymphatic flow is a major part of the holistic biologic process, yet few know how it works, why it's important, and how it could hold the secrets to overall health. It really is the secret river of life!

In fact, the function and dysfunction of the lymphatic system explain the biggest threats to our health, including diseases of our blood vessels, brain, and immune tissue. Therefore, the same tactics that work to reduce heart disease can also work

TO REDUCE HEART DISEASE CAN ALSO WORK

to fight cancer, infections, and Alzheimer's dementia.

The best, most respected preventive health strategies just happen to strengthen lymphatic drainage as well—so we can identify a common pathway to health. Understanding lymph is empowering to you.

An Overlooked System

Despite its importance, this area of medicine has been overlooked because doctors don't have diagnostic tools to directly assess its anatomy and function, so we struggle to diagnose "blocked lymph." In medical school, we learn of the "neurovascular bundle" composed of a nerve, artery, and vein. But in that bundle is also a lymph vessel—which is never mentioned.

In all fairness, it's hard to measure such a low-pressure system that's small and colorless, but great strides have been made in the last two decades, identifying the functions and interconnections of the lymph cells. That said, on some level, the medical community does understand the basic role of the lymph: We all need strong lymph flow to move toxins out and make room for the nutrients desired by our body. Failure to maintain good flow manifests as swelling (especially of the ankles) and

eventually the failure of our more important organs, such as the kidneys, heart, or liver.

Health Through Lymph Flow

The lymphatics are where our daily biological battles are won and lost. Lymph has a hand in virtually every major problem that can happen in the body. Because of this, it's been called the "Cinderella of medicine" – unappreciated, but doing all the heavy lifting. The lymphatic system touches every other system in the body.

Let's look at how the lymphatic system nourishes and protects the major organs of the body. Its major objective is to eradicate chronic inflammation by removing toxins, balancing fluids, and signaling and transporting messages throughout the body. This is performed in subtly different ways for each system:

Cardiovascular System

Being a cardiac surgeon, this is where I first observed living lymph tissue. I saw scarred lymph channels in arteriosclerotic hearts and widely open channels in patients with no artery blockage. In the laboratory, we were able to create hardening of the arteries by identifying and tying off the lymphatic channels of the heart. In 1981, after a decade of scientific observation and experimentation of

OBSERVATION AND EXPERIMENTATION ON
the lymphatic system, a paper that I wrote was published in the Annals of Thoracic Surgery. This article was the first to posit that oxidized cholesterol taken up by the HDL exits not back to the arterial blood, but travels through the entire arterial wall, and then by way of the lymphatics, to the liver via the veins.

Neurologic System

Until recently, it was taught in medical schools that there's no lymphatic system for the brain and spinal cord. However, research has presented new evidence that, in a special way, the lymphatic system clears substances from the nervous system.

Intracranial fluid is increased to carry toxins such as beta-amyloid (Alzheimer's) and Alpha-synuclein (Parkinson's) out of the skull to protect the neurons. A newly identified double "sleeve" around the brain's arteries allows cerebrospinal fluid to flow into the brain substance while the nerve cells shrink to allow greater space for the new fluid. The increased flow carries the toxins across to the midbrain where similar sleeves surrounding the venous system pick up the unwanted molecules. These are then delivered to the lymphatics of the dura mater (a thick membrane that surrounds the brain and spinal cord) and on to the

Drain and spinal cord) and on to the liver via deep cervical lymph channels.

More than 70 percent of the cleansing is done during sleep, which is why sleep is so essential.

Gastrointestinal System

The gastrointestinal system is intimately involved with the lymphatics. In fact, the gut has more immune cells and lymphatic tissue than the rest of the body. In addition to the lymph system's standard function of fluid balance and immune surveillance, it has a special role in the intestine. It carries all the dietary fat and large proteins from the intestines to the liver. In fact, when unwanted toxic cells, fats, and proteins enter the body through a "leaky gut," the lymph channels and cells carry these potential attackers to the lymph nodes to be destroyed or to have antibodies made to neutralize them.

Disease and the Lymphatic System

Obesity and diabetes are particularly damaging to the lymphatic system in that these dysfunctions increase porous holes in the lymph channel walls where the nourishment, antibodies, and cellular messengers leak out into the free abdominal fat so they can't perform their proper

function. In chronic inflammatory situations such as Crohn's disease, lymphatic obstruction can be demonstrated before obvious changes in the surface of the colon.

The lymphatic system is the home of immunity. Cancer cells travel by way of lymphatic channels and are destroyed by natural killer cells and other powerful weapons in our defense system. Success of the immune system is dependent upon accurate information, rapid responses, and an overall healthy system.

If messages are delayed, misdirected, or corrupted by a failed lymphatic system, then the cancer, infection, or winding down of the body (aging) will progress. If the signals to turn off the pro-inflammatory cells and proteins are delayed or not sent because disturbance of the lymphatic pathways occurs, arthritis or autoimmune disease can develop from chronic inflammation.

How to Improve Lymphatic Function

As previously stated, all chronic degenerative disease is related to chronic inflammation and lymphatic dysfunction. Fortunately, because of epigenetics, our bodies respond positively to wise life choices.

Epigenetics is a relatively new

Epigenetics is a relatively new scientific theory that states that the results of one's DNA output aren't predetermined. DNA is more like an architect's file cabinet with different plans that can be opened or closed depending on the choices one makes.

You're the architect, and your choices select which positive or negative cell messengers are created by your DNA. Harmful genes can be downregulated and good genes can be encouraged or upregulated.

Cardiovascular, neurologic, gastrointestinal, immune, and autoimmune disease, cancer, infection, arthritis, and aging are all profoundly influenced by lifestyle choices such as exercise, food, and stress modification. Let's review some of these modalities as they apply in general to all these biologic systems.

Exercise

Since lymphatic flow is low-pressure, it requires outside force from the muscle activity and arterial pulsations to move the fluid forward. Concomitantly, there are one-way valves in the lymphatics that prevent the fluid from refluxing.

In effect, more muscle contractions create greater lymph flow. This is especially true for the diaphragm. By deep breathing, the progress of the

lymph accelerates through the largest lymph vessel, the thoracic duct, which carries 80 percent of fluid to the venous system.

Exercise can increase flow by four- to seven-fold, which not only increases the volume, but also the amount of cellular and protein messages that are sent back and forth to instruct the tissue to either promote inflammation or facilitate repair and regression.

Many forms of exercise can be utilized. One should choose according to those that are most enjoyed, because they won't last if they're not enjoyable. Walking one to two miles at three miles per hour three to five days per week is highly recommended. One can try a program of 10 to 15 deep breaths three times per day (discontinue or limit to your tolerance level if dizziness develops). According to NASA, one of the best ways to burn calories and get lymph flow is to use a trampoline. Start with a few minutes per day, then gradually increase.

Since lymphatic channels are next to your arteries, increasing your pulse rate and intensity will help improve lymph flow. Also, according to one study from Italy, jumping decreases pain severity by 88 percent by

flushing pain triggering inflammatory compounds through the lymphatic system. We would recommend 10 to 20 minutes, but even five minutes or 50 to 100 jumps can be powerful.

Additionally, although not exercise, massage and yoga are powerful ways to promote lymph production and flow. External pressure on the skin is transmitted to the muscles, which then allows the lymph to flow. Yoga is termed an internal organ massage and can increase lymphatic flow. Enjoying the sauna can act like exercise by dilating the vessels, increasing the heart rate, and removing bodily toxins from lymph through the sweat glands in the skin.

Stress Modification

This category covers more than our response to negative circumstances. It also includes spirituality or the sense of a connection to God, a higher power, deeper consciousness, to community, the Earth, a righteous spirit, or having a meaningful place in the universe.

Meditation is the process of training the mind to become quiet and more peaceful. Even a few minutes of meditation in the morning and evening can allow for better lymph flow and has been documented to lower stress levels.

Meditation, with acceptance and gratitude, can calm the anxious mind and decrease the adrenaline and cortisone that abound in stressful circumstances. Overproduction of these “flight or fight” hormones causes lymph vessel spasm and eventual obliteration.

Yoga and massage can also be a benefit in the presence of stress. The gentle stretching of yoga and tai chi systematically move our blood and lymph fluids through our circulation pathways. This has been shown to directly lower blood pressure and stress hormones so that your lymph vessels will dilate and perform their functions more efficiently.

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Stories to elevate your day

PREVIEW

Food

Most healthful diets include many fruits and vegetables. That’s because they’re the primary source of polyphenols and flavonoids, which are nature’s best stimulators of good lymphatic flow.

Plant-based foods, including dark leafy vegetables such as arugula, kale,

spinach, and Swiss chard, provide an array of vitamins and minerals, including magnesium, potassium, calcium, vitamin K and others needed for blood and lymph vessel repair. Fruits are high in vitamin C and flavonoids such as hesperidin. Blueberries contain the most powerful polyphenolic antioxidant, pterostilbene.

Certain spices and herbs have a medicinal effect on lymph flow because they contain compounds that relax lymph vessels to accentuate flow. These include garlic, onions, cloves, cayenne, cinnamon, oregano, curry, and turmeric, which all contain compounds that assist in tissue maintenance and repair.

By contrast, vegetable oil, fried foods, sugar, a high animal fat diet, chemically sprayed food, and industrial toxins should be avoided because they all cause lymphatic vessel spasm and sluggish lymph flow.

Be mindful that the consistency of the lymph, whether it's easy-flowing or sluggish, depends on a healthy supply of clean pure water.



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