



OUR RIVER SYSTEMS—THE BLOOD AND LYMPH

We'll flow out of the liver in the blood stream to have a better look at the blood. Actually let's have a look at both of Human's circulatory systems—the blood and the lymph. Let's start with the lymph. The lymph system is the longer circulatory system—at least twice as long as the vessels carrying blood. Human is 75% water and most of that water is in the lymph system—about 12 quarts or liters of clear lymph fluid compared to about 4 to 5 quarts of blood. The length of the blood vessels is at least 60,000 miles or 96,600

kilometers. That's more than twice around the earth. The lymph system is more extensive, so if we were to explore all of Human's lymph system it would be a loooong journey.



Of course, the condition of the liver also affects the health of the lymph. The fluidity of the liver is only partly a result of all the blood being processed in here—the liver is also laced with clear lymph vessels. Remember when we talked about Human's liver valves shutting when there were too many toxins arriving in the portal vein? When that happened the liver had to increase lymph production to help handle the excess toxins. The lymph is

Human's sewage system so an unhealthy lifestyle shows up quickly in the lymph. The lymph vessels clog up with sewage sludge. When the liver cells were in dire need of help, the lymph wasn't much help. In response to more toxins from the liver, the clogged lymph vessels could only swell and so did the liver. That's over with now and the lymph flows along well now.

Feel the subtle twisting motion of these lymph vessels. It's moving us rather slowly. The blood gets a boost in flow from the heart but the lymph relies on Human to breathe deeply and get enough exercise to boost the flow. See the valves as we flow along—they keep us

from flowing backward. The lymph system is moving us along to enter the blood stream.

In addition to being the main channel for waste removal, Human's body depends on the lymph to move two key nutrients to the blood ... and eventually to us cells. The lymph brings us protein after the liver has processed it. This lymph is loaded with protein. We're approaching the thoracic duct in Human's chest. This central duct is a meeting place. Lymph from most of Human's body flows in here. I want you to particularly note the lymph arriving from the small intestine. Feel the vitality as we mix with this flow! Lymph from the gut is bringing us another key nutrient. In addition to bringing protein from the liver, the lymph ferries important fats from the small intestine to the blood. About 25% of the lymph is found in the gut so the liver and intestinal tract house most of the body's lymph fluid.

We really need fats. The cells would like me to take a moment now to let you know how crucial good fats are and how damaging bad fats can be. When Human accepted that a low fat diet with unsaturated or vegetable oils and margarine were good and that cholesterol and saturated fats were bad, the lymph got clogged. A lot of attention is given to the problem of grunge buildup or plaque in the heart and arteries while the lymph is ignored. The problem starts in the lymph. If the lymph is flowing well, there's

“The haze of electrons gives identity and character to each atom and molecule; if the number of electrons is altered, a valuable molecular citizen may, in a split second, be turned into a destructive hoodlum.

“These hoodlums wreak havoc on artery walls.”

The Cholesterol Myths,
Uffe Ravnskov, MD

“The wrong fat inhibits breathing, creates tumors and leads to heart failure and joint degeneration.

“The right fat activates breathing, dissolves tumors and builds a healthy heart and joints.”

Flax Oil as a True Aid As A True Aid Against Arthritis, Heart Infarction, Cancer, and Other Diseases,
Johanna Budwig

“... the brain tissue of Americans is different from that of the Japanese. American cell membranes contain much higher levels of the less flexible omega-6 fatty acids; Japanese cell membranes are significantly richer in omega-3.

“Other studies have found that depressed patients and children with ADHD and autism are deficient in omega-3. So some scientists speculate that this change in the fatty acids contained within our brains could be causing the modern rise in psychological disorders.”

“Feed Your Brain,” Jurriaan Kamp,
Ode, September 2007

no need to be concerned about the heart and arteries. When Human stopped eating overly-refined vegetable oils and instead ate whole foods rich in cholesterol with a mix of saturated and unsaturated fats, we started to thrive again.

Why eat food with cholesterol? Human doesn't just rely on food for cholesterol. The liver manufactures 80% of the cholesterol we need. When Human tried not to eat anything with cholesterol, the liver cells had to take up the slack and produce more! Human gets feeling low if cholesterol levels are too low. We've got to have enough cholesterol—for the brain, bile, adrenal glands, sex glands, for the skin to produce vitamin D and to keep nerves—Human's primary communication system—firing. Cholesterol is important to our health.

Yes, there was lots of cholesterol in the grunge that built up in Human's heart and arteries but it was there to save Human's life. Human was consuming a dangerous cocktail—a mix of rancid fats, floods of sugars and negative thoughts combined with chlorinated and fluoridated water.

This cocktail created nicks and wounds in the blood vessel walls that had to be patched so the blood vessels wouldn't leak. Cholesterol is part of the patching team.

We rejoiced when Human started eating whole, fresh eggs again. Human is careful to avoid eggs from factory farmed chickens. They're kept as immobile prisoners their entire lives. The fats in those eggs aren't balanced as nature intended. In eggs from chickens allowed to range freely to eat greens and insects provided by nature, the fats are balanced to produce health.

The right fats are crucial to the movement of the lymph and the strength of the heart and artery walls.

What type of fat do we need? We need fats with their cloud of electrons intact. We need electron-rich fats. That's why we feel an increase in vitality meeting with this lymph flow. It's got lots of electrons! We don't need any highly processed, unsaturated vegetable oils that

THE BALANCE BETWEEN OMEGA-6 AND OMEGA-3

Omega-6 and Omega-3 are Essential Fatty Acids (EFAs) the body doesn't manufacture so we must get them from foods. Traditional foods eaten by our ancestors gave us these two EFAs in the ratio of 2:1 or 1:1.

With a modern diet of processed foods and factory-raised animals, the ratio has shifted to between 20:1 and 50:1. Commercial vegetable oils and margarine are also high in omega-6. This imbalance of Omega-6 over Omega-3 leads to degeneration of body tissues, aging and disease.

Dark leafy green vegetables are a good source of Omega-3 EFAs. Other sources are sardines, flax oil, and beef and butter from cows fed only grass or hay. If cattle are fed grains to fatten them, the ratio of EFAs changes to an excess of Omega-6.

take the spark out of us. Those fats are electrically dead. When Human used oils in clear bottles off the super market shelf, the lymph languished. Result? Grunge or plaque built up in the heart and blood vessel walls. Those oils are rancid from the high temperatures needed to separate the oil from the seeds, the nuts or the vegetables. Then they're deodorized and bleached to make them palatable. Of course, the baked goods and deep-fried snacks loaded us up with these clogging fats too. Bad news for us!

What type of fats does Human send down the digestive tube for us now? Human eats only a small amount of unsaturated fats—the ones that are sparking with electrons. Unsaturated fats or essential fatty acids have longer chains of molecules so it takes longer to process them. That's no problem as long as Human sends them along with their rich supply of electrons intact. We hum electrically again. We cells rely on a mix of electrically-active foods. That means foods as Nature intended. There are two essential fatty acids that are particularly rich in electrons. They're called Omega-6 and Omega-3. When Human ate a lot of processed foods, including margarine, there were too many crippled Omega-6 fats we had to deal with. In order to get healthy Omega-6 and Omega-3 fatty acids to us cells, Human consumes hemp seeds and chia seeds along with organic oils that have been extracted at low temperatures and bottled in dark containers—small amounts of oils such as sunflower, sesame, walnut and pumpkin seed. Human also uses coconut oil, extra virgin olive oil, and organic butter ... and takes cod liver oil during the winter months. These fats keep our membranes supple. They also help give us the energy to work without tiring.

The real surprise for Human was discovering these precious unsaturated essential fats in beef. Human had been warned to stay away from beef because of saturated fats. Before I tell you the secret about some cows, I want to let you know we're healthier since Human went back to eating some saturated fats. Saturated fats have shorter chains of molecules

TYPES OF FATS

The cell membrane is often described as a fat sandwich. Good fats are crucial to transport O₂ and nutrients into the cell and expel wastes out of the cell.

SATURATED FATS: Solid at room temperature. Resist rancidity.

UNSATURATED FATS: Liquid at room temperature. These fats easily become rancid. Rancid fats create excess and destructive free radicals in the body leading to disease.

Foods as found in nature provide a combination of both saturated and unsaturated fats.

TRANS FATS: As found in some margarines and shortening interfere with the free flow of nutrients and wastes in and out of cells. Trans fats are formed by hydrogenation to solidify unsaturated vegetable oils.

so we can use them quicker. They're an important part of the process of giving Human energy. Our membranes are half saturated fats so don't let anyone tell you we don't need them. They're not as rich in electrons, but they help us assimilate the electron-rich unsaturated essential fatty acids. They're also needed to transport calcium and they help us repel viruses and bad bacteria. Human enjoys a variety of oils or fats because food is tastier. Some of that low-fat stuff wasn't too appealing. And, getting good fats stopped Human's craving for fat, bread and sweets.

Saturated fats have been given a bad name. That's because they're often consumed without enzymes. Processed foods and well-cooked meats lack enzymes as cooking destroys them. Here's another reminder that enzymes must be present for Human's digestive tract to fully breakdown the food. The body does produce enzymes but has to rob them from elsewhere when a lot of dead foods are eaten. Remember we need enzymes for every chemical reaction in Human's body. Human takes enzyme supplements now when cooked foods are eaten. This helps to break down the food so we get the nourishment.

Now the secret about cows. Human discovered beef from cows that grazed on natural grass lands, as nature intended, right up until they give up their lives to feed us, is even richer in the unsaturated essential fatty acids than fish! Human no longer eats beef from cows that are imprisoned in feed lots and fed grain. That meat has an unnatural fat balance that doesn't help us. Human's brain cells suffer the most from the unnatural fat balance. Of course, like any protein-rich food, Human eats small servings only. Butter from cows raised on natural grass has also helped Human get healthier faster. Of course, the butter is not pasteurized. The heat from pasteurizing destroys the enzymes so those foods gum us up. As long as food has the enzymes nature intended, we thrive. Human's oil mix now includes a lot more Omega-3 fats. We love when the lymph arriving

LOW FAT LEADS TO OBESITY

"The introduction of more than 5,000 low-fat and non-fat foods over the past decade has contributed to an epidemic of obesity in America ...

"The trouble comes when people think they can eat unlimited amounts of reduced-fat cookies, frozen yogurt and cakes. While these foods contain less fat than their full-fat versions, they tend to have more sugar and can be even higher in calories.

"Choosing fresh produce and other fiber-rich foods allows a person to eat a large volume for relatively few calories because it promotes a feeling of fullness.

"The advice from health experts comes at a time when rates of obesity are unprecedented in the US and other countries. While Americans have followed the government's advice and reduced fat intake in the past half-century, they continue to pack on the pounds."

<http://articles.mercola.com/sites/articles/archive/2011/05/21/why-you-need-to-avoid-low-fat-milk-and-cheese.aspx>

from the small intestines joins us here in the thoracic duct with those blazing fatty acids. Invigorates us with an awesome supply of electrons.

It's time I drew your attention to the white blood cells in here with us. The lymph is an important vehicle for immunity. Human relies on white blood cells to capture and electrocute viruses and other infectious agents. These electrons also keep the white blood cells armed so they can do their clean up work. When Human was getting so many rancid fats from packaged foods, the white blood cells just couldn't keep up. As I said our destination is the bloodstream. If the lymph is sluggish and polluted that means the blood will be also. Dirty blood means sludge starts to build up in the heart—especially the upper right heart chamber where we enter. The sludge gradually spreads to paralyze the muscles of the heart and blood vessels. We're glad that threat is over! It's so important for Human to keep the lymph moving and electrified.

We're about to pour into the bloodstream in the main vein coming from the liver. We enter this vein shortly before we reach the heart. Be prepared. Even though blood in the veins doesn't move as fast as in the arteries, we'll be flowing a lot faster than in the lymph stream.

Here we go. As your tour guide, I'm going to slow us down so we can observe what we're swimming with. If those red blood cells, let's call them RBCs weren't so tiny, we could climb on them like a raft and ride along this river. The raft shape gives them more surface to collect oxygen to delight, I mean deliver to, us cells. The RBCs, don't look so red in here. That's why veins look like blue rivers under Human's skin. The RBCs have already given up their load of oxygen, hydrogen ions and nutrients to cells throughout the body. Our destination now is the lungs so they can unload the carbon dioxide they've picked up from us cells. RBCs are different from the rest of us cells but we don't hold any prejudices. Our lives depend on them! These cells don't have a nucleus so they can't replace themselves like we cells usually do. Instead, new red blood cells are made elsewhere. Human's bones are a hive of activity as they manufacture RBCs at a rapid rate. The bones must supply about 7 million new RBCs every second. This replaces Human's RBCs completely about every 4 months.

You'll notice there aren't very many white blood cells compared to the RBCs. There's no threat right now so the lymph didn't bring many along—there's about one on patrol for every 700 RBCs. When Human's blood was particularly heavy with toxins it was like a sewer in here. The bones and lymph nodes worked overtime to produce white blood cells in an effort to handle the harmful pathogens that kept multiplying because of the pollution. Thankfully, it's much calmer and we flow more efficiently since Human cleaned up in here.

You'll also see cell fragments floating along. They spring into action if there's a leak. Human could bleed to death if not for them as they're a key part of forming blood clots when the skin and a blood vessel have been cut. And this watery fluid that keeps us moving along is called plasma.

Hear that thump, thump, thump? We're getting closer to the heart. Now that the liver doesn't have to shut down valves to slow the flow of blood we've arrived with a good flow of blood back to the heart.

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