How to Improve Zeta Potential and Liquid Crystalline Water Inside the Body

Exploring the Wild West of Water Cures and the legitimate options I have come across.

A MIDWESTERN DOCTOR

MAY 16, 2023 • PAID

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In this series, I have attempted to explain the vital importance of liquid crystalline water and zeta potential throughout the body—something I have greatly emphasized since I recognized that their disruption appears to be a key component of spike protein vaccine injuries. One of the most common questions I, in turn, receive is, “What can be done to fix this?”

I have held off on answering that question for a while because first, I wanted to lay out the necessary context to explain many of the concepts behind the existing approaches so that the user could apply each one in the most rational manner. Additionally, I wanted to gather more data on the treatment effects observed in individuals with spike protein injuries and answer a question that I felt was critical to unraveling this whole puzzle: What are the overlaps and differences between the factors that promote zeta potential and those that promote liquid crystalline water?

In the previous article, I provided my best attempt to answer that question, and I cannot even begin to describe how much research went into my initial attempt (10+ books, more articles than I can count, and so forth).

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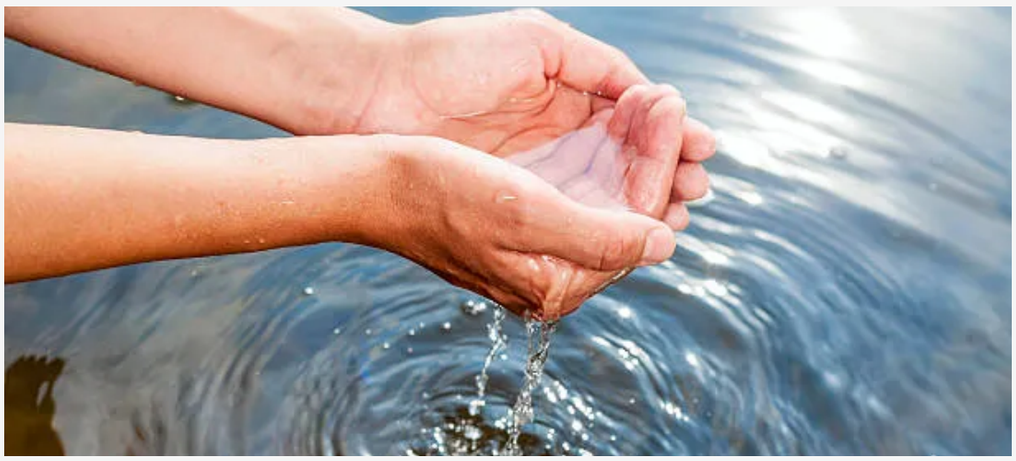
What is the Relationship Between Liquid Crystalline Water and Zeta Potential?

A MIDWESTERN DOCTOR • MAY 15



I believe healthy fluid circulation is one of the most neglected aspects of health and, ultimately, the cause of many of the COVID-19 and vaccine spike protein injuries we have seen. Unfortunately, since the topic is so neglected, very little knowledge exists of what creates these flows.

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Much of what is written in this article will only make sense if that article first. Additionally, some approaches that treat either are covered in the previous article rather than here.

Lastly, some of the approaches I believe improve one of these (zeta potential or liquid crystalline water) may be instead improving the other or improving both.

Improving Liquid Crystalline Water

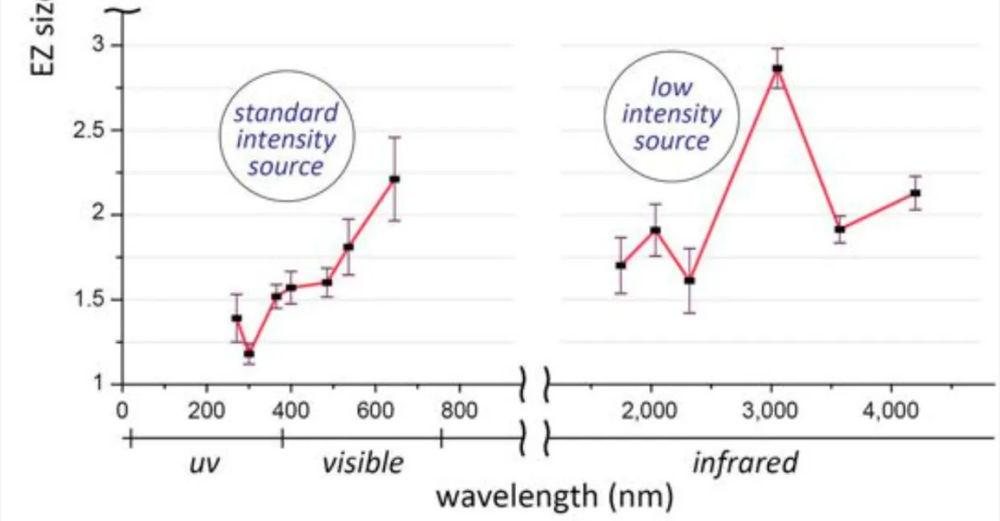
Throughout the decades I have spent in the holistic health field, I have always noticed there are two products that everyone sells—something that "improves" water (e.g., a fancy filter or a packet to put in each drink) and pendants that shield you from EMFs. I will fully admit I've looked at a lot of these; I'm not sure if many of them do anything, and since newer and "better" ones keep on coming out, I've given up evaluating most of them.

Once Gerald Pollack introduced the 4th Phase of the Water concept (liquid crystalline water), many people, not surprisingly, started selling things they claimed would help your body produce liquid crystalline water. At this point, I have no idea if most of them in any way do what is claimed, and Pollack appropriately (despite many requests) has avoided studying or endorsing most of them. So, for this article, I will not mention many of them and must provide the disclaimer that many of the things I believe are the most likely to work are still relatively unproven. Additionally, a few of these items will instead be covered in the zeta potential section (likewise, a few things from the zeta potential section will be covered in this section).

Radiant Energy

Presently, the one thing which has clearly and unambiguously been proven to increase the production of liquid crystalline water is the input of radiant energy. This can either come from light or infrared (which is a type of light) and occasionally from other sources such as sound, ultrasound, and much more ***debatably*** energy workers (e.g., a qigong or reiki practitioner) or bioenergy fields (e.g., orgone energy).

Because every object absorbs different wavelengths of energy differently, different wavelengths (e.g., different colors) have differing effects.



Note: Pollack also found that longer exposures to radiant energy and higher intensities could expand the EZ [liquid crystalline water] even more. The data for the above figure was obtained by Pollack using five-minute exposures. Longer exposures at the same intensity, for example, could quickly produce EZ expansion of five to ten times, while turning off that extra light brought the EZ back to its normal size within tens of minutes. In this study, due to technical limitations, a lower intensity infrared (IR) light source had to be used.

Infrared

The most significant effect has been observed with infrared light, and peaks at 3000 nm, a wavelength that matches water's peak absorbance of IR light. Conversely, the worst effect is noted with blue light, something emitted by most computer or tv screens and newer light bulbs (and street lamps). For example, this study by Pollack found that light between the wavelengths of 450-500 nm shrunk the liquid crystalline water present.

I find blue light's destruction of liquid crystalline water compelling since many, myself included, already viewed it as a key toxin of the modern age due to the severe disruption it causes to our circadian rhythm (along with other issues such as headaches). For these reasons, I try to avoid rooms with unhealthy lighting, and with screens, I always use blue light-blocking software such as f.lux.

A variety of approaches utilizing this principle have been developed to produce infrared light, which increases the production of liquid crystalline water in the body. For example, a particulate material designed to increase the formation of liquid crystalline water (e.g., by emitting infrared light) was shown to create at least a 2-3-fold increase in root length or formation of shoots of seeds exposed to it.

As far as I know, the only approach that has been clearly and unambiguously proven to increase the amount of liquid crystalline water in the human body is to be exposed to infrared light, particularly that with a 3000 nm wavelength (many studies have confirmed this). Oddly, not many infrared saunas or mats on the market provide this wavelength of light, and you usually need to buy bulbs that emit at 3000 nm to make a sauna that does.

I am a big believer in infrared saunas, but I am unsure how much they increase the liquid crystalline water in the body. This is not only because of how far they are from the 3000nm wavelength but also because they heat the body up, potentially destabilizing the existing exclusion zones (even though relatively speaking, they don't heat the body's core temperature very much). That said, I believe they most likely do because they improve circulation throughout the body, cause you to discharge positively charged sweat, and afterwards, typically leave the individual feeling much better.

Note: infrared sauna manufacturers claim that their saunas cause your sweat to be 20% toxins, whereas normal sweating is only 3% of toxins. As far as I know, this claim was never proven, and many more conventional individuals, not surprisingly, insist that there is no proof that saunas, let alone infrared saunas, do anything for detoxification. This study and this study provide limited proof that sauna sweating excretes heavy metals at a greater rate than the normal detoxification pathways (e.g., the kidneys), while this small study shows one infrared sauna model causes significantly higher excretion of heavy metals than a conventional sauna.

Many have also argued that the infrared you receive from cuddling with another human (and possibly an animal) may also facilitate the development of liquid crystalline water inside you. That said, I am honestly not sure how this effect could be quantified.

Lastly, many vaccine-injured patients have benefited from red light therapy (which is used because it improves mitochondrial function). Many have also alleged that red light therapy creates liquid crystalline water in the body, but to the best of my knowledge, no evidence has been produced supporting that contention.

Sunlight

I believe one of the greatest disservices the dermatology profession has done to the world has been to spread an immense fear that the sun causes skin cancer (even though the most dangerous skin cancer, melanoma, is linked to **a lack of** sun exposure). This appears to have come about because the dermatology profession reinvented themselves as cancer fighters (which pays a lot), and part of establishing that cultural belief system revolved around neurotic rituals to avoid all sunlight. I think this is quite sad, because avoiding sunlight significantly increases your risk of death from many different cancers (and overall has a danger of the same magnitude as smoking).

One of the major misunderstandings about sunlight is that its only benefit is vitamin D production. Instead, it has a variety of other ones as well, including:

•Producing cholesterol sulfate.

•Producing nitric oxide.

•Directly creating liquid crystalline water.

Note: I have long wondered if some of the benefits attributed to vitamin D are actually due to it being correlated with the above three occurring.

Since sulfates are used by the body to create liquid crystalline water and maintain the physiologic zeta potential, this function is very important. Since cholesterol sulfate primarily resides in cell membranes (where it is recognized to have a "stabilizing role" for the cell membrane), it provides the critical role of coating the cell with sulfates.

Note: I recently wrote a detailed piece on the harms of statins (which, before the COVID-19 vaccines, were debatably the most overprescribed pharmaceutical that harmed the largest number of people). One of the key toxicities of statins is that they block your production of CoQ10, a vital compound for the mitochondria. Since CoQ10 is also responsible for maintaining cellular integrity, cell membranes breaking apart in certain organs is one significant side effect of the medications. Based on the critical functions of cholesterol sulfate, I have wondered if that side effect is actually due to a lack of sulfate in the cell membranes.

Further supporting the benefits of sunlight exposure, nitric oxide is one of the most important compounds for ensuring cardiovascular health and circulation throughout the body (Viagra, for example, works by increasing nitric oxide production).

When COVID-19 began in December 2019, I sensed it might end up being similar to the 1918 influenza, so I spent a lot of time reviewing all the existing literature. In that process, I discovered that every therapy that actually worked (most did not), with the possible exception of homeopathic Gelsemium (a botanical), did so by improving the body's fluid circulation. Many of those in turn, did something I now know improves the zeta potential. A few months ago, Pierre Kory informed me of one therapy I had missed in this search—being exposed to the sun, which for the reasons detailed above, I believe was another way of addressing the profound fluid stagnation caused by the 1918 influenza.

Note: one of my favorite medical therapies, ultraviolet blood irradiation, can be considered a much more direct form of sunlight exposure (sunlight being used to treat Tuberculosis in fact inspired its original designer). One of the main effects observed with it is a significant increase in blood circulation throughout the body.

Sound:

Many people believe that sound affects water. This largely entered the public's consciousness after Masaru Emoto showed that the shape of ice crystals can be radically different depending on what sounds water was exposed to prior to freezing. In many of his experiments, he showed that music would influence the formation of ice crystals and, curiously enough, dark and incoherent music created deformed crystals. In contrast, beautiful and coherent music created elegant crystals.

This suggests that sound may affect the formation of liquid crystalline water. Pollack in turn, did one such investigation of this question:

> For example, we found that one such source, ultrasound, could drive EZ [liquid crystalline] growth. We applied 7.5- MHz ultrasound, similar to that used for imaging embryos. In response, the EZ typically narrowed, possibly as a result of the induced mechanical shear of molecules rubbing against one another. When we turned off the ultrasound, however, the exclusion zone immediately enjoyed a stunning regrowth: it could expand to five or six times its initial size before ultimately returning to pre-exposure levels. Evidently, the acoustic energy somehow affected the water, spurring a delayed EZ growth — just as incident light could produce EZ growth.

Note: There are quite a few people who believe that prenatal ultrasounds are damaging to babies, and a surprising amount of evidence exists to support that contention. After reading the above line, I realized there might be a mechanism to explain this; the rapid expansion and contraction of exclusion zones from ultrasound might create enough of a shear force to damage the cells and their components.

Deuterium-Depleted Water:

One of the significant fads that has swept through the holistic field over the last few years has been drinking deuterium-depleted water (DDW), which is the opposite of heavy water. The theory behind DDW is that deuterium (a naturally occuring isotope of hydrogen with a neutron in the nucleus) slows metabolic reactions in the body, reduces the output of the mitochondria, reduces your lifespan, causes cancer, and destroys liquid crystalline water in the body.

Of these claims, the evidence is most robust for deuterium causing cancer (e.g., MRIs looking for deuterium appear to be able to find tumors), and there have been successful treatments of cancer using DDW. Unfortunately, DDW is somewhat expensive, so many other options began to be explored, such as living in high elevation areas (e.g., parts of the Rockies not that far from well-known towns naturally have DDW, and fat is naturally deuterium depleted, so some people follow an extreme ketogenic diet for deuterium reduction).

Given its potential promises, many people started promoting DDW as the cure for everything, and at this point…I am still honestly unsure if it does anything. So, I have been patiently waiting for more evidence to accumulate showing that it does.

One of the most common claims for DDW is that it improves your body's ability to produce liquid crystalline water. It allegedly does this because:

•Deuterium disrupts the formation of liquid crystalline water.

•Deuterium disrupts oxidative respiration (which requires combusting oxygen into water) and the production of ATP in the body. Since oxidative respiration cannot use deuterium, all water it produces is naturally deuterium depleted.

Note: I have often wondered if this is the reason for some of the alleged benefits of dry fasts, as the water in your body can only come from the metabolism of fats during this period.

However, to my knowledge, all the arguments are theoretical, and no one has actually proved DDW creates liquid crystalline water. If anyone has the data that shows this, I would greatly appreciate seeing it.

Note: widely believed theoretical arguments that lack evidence to support them create many issues in medicine. Two of the best recent examples of erroneous claims were that the COVID-19 vaccines will not change your DNA and that the COVID-19 vaccines would prevent transmission.

Presently, the only water I know of that appears to utilize these principles and benefits people is Divinia Water, which is both deuterium depleted and has a high concentration of liquid crystalline water. My evidence in this regard is weak (e.g., I know of a few people who reversed their kidney disease by drinking it), so my endorsement is tepid at best; I am primarily citing them as an example of where these principles may provide a tangible benefit.

There are also a variety of other waters with similar claims based on the premise that the people of the Hunza Valley lived much longer (reportedly, they had an average lifespan of 120 years) due to the water they drank. I am not sure if there is any evidence that this longevity actually occurs. Still, it's interesting that the water there was noted to be DDW with a high zeta potential and a high amount of structured water (which is essentially the same as liquid crystalline water). Many attempts have been made to replicate the Hunza water, and some of them have a devoted group of followers.

Structuring Foods

The general belief that has established itself within the liquid crystalline water

community is that if you drink water with a higher concentration of liquid crystalline water or a lower concentration of deuterium, very good things will happen for your health. As shown in the previous section, I am unsure if this actually true. That said, I will share the approaches in this regard that I believe have the most merit.

Vegetable Juicing:

If vegetable juicing is done correctly (which means using a cold press masticating juicers such as the Norwalk juicer or an Omega juicer—I believe metal ones are better but more expensive—and then immediately consuming the juice after it is made), a variety of benefits emerge for people. For example, one of the original alternative cancer therapies which benefitted many, the Gerson Therapy, was founded on this principle.

One argument that has been advanced to explain the benefits of juicing is the presence of liquid crystalline water, DDW, and possibly some type of electrical charge from the plants. Given that I often see signs that juicing is good for you (provided you don't juice things that are too sugary) and it is one of the most economical ways to get this type of water, I support this approach…even though I am not sure if the presence of DDW or liquid crystalline water is actually where the benefits of juicing arise from.

Chia Seeds

When soaked in water, Pollack has stated chia seeds create some of the largest exclusion zones of any food found in nature. That is a big part of why I used pictures of them in Part 1 to illustrate many of the concepts in this series.

Note: This property of chia seeds appears to result from them releasing microfibers that bind pockets of liquid crystalline water around them.

I am personally a fan of chia seeds (provided they were first soaked in water until they formed a gel) because:

•They are very affordable and, to my knowledge, the easiest way to consume large amounts of liquid crystalline water.
Note: cucumbers are also often cited as an example of a food with a high concentration of liquid crystalline water.

•They are often extremely helpful for individuals with chronic constipation.

•I tried out more "superfoods" (which I acknowledge is largely just a marketing term) than I can count, and chia seeds were the only ones I ever had a noticeably positive response to.

The only considerable argument I have seen against chia seeds came from Steven Gundry, who said that when he monitored people's inflammation (which he believes is largely due to lectins that are present in a large number of plants), he found the lectins in chia seeds were sufficient to cause inflammation in some individuals. Although I do not place as heavy an emphasis on lectins as Gundry, every now and then, I have a patient I can tell has a lectin issue and then greatly benefits from the lectin-free diet. Nonetheless, I regularly consume chia seeds.

Other Superfoods

Pollack tested a variety of other superfoods and found that they also increased the size of liquid crystalline water in the things they are tested on. The main issue with this approach is that he had limited time to test things (and has thus had not tested all that many), so there are likely many "normal" foods that do the same thing. In the previous article, I showed how coconut water, turmeric, a probiotic, and tulsi increase the presence of liquid crystalline water.

In addition, Pollack conducted an interesting study showing that another superfood, bee propolis, did the same. Since some of it may end up coating the lining of your respiratory tract, the study's authors argued that some of the benefits attributed to propolis might result from it doing that and creating a liquid crystalline barrier there.

Note: It has also been mentioned that other herbs improve the body's liquid crystalline water. Years ago, Thomas Cowan stated that hibiscus flowers were one of the best ones for increasing liquid crystalline water in the body (hibiscus is also known to help with cardiovascular issues). I was never able to verify if this was true, but since my body liked hibiscus, I have drank hibiscus tea (in moderation) ever since. Although I do not agree with Thomas Cowan's perspective on the non-existence of viruses, I have listened to many ideas he has put forward.

Cobalamin

Cobalamin (in its various forms) is also known as vitamin B-12. Stephanie Seneff has advanced an interesting argument for another reason for its importance in the body—the body requires it for the production of sulfates (which, as discussed in the previous article, are essential for creating liquid crystalline water in the body and maintaining the physiologic zeta potential). Since a variety of widespread environmental factors cause B-12 deficiency, this is another area worth considering.

Healthy Fats

Many (e.g., Dr. Mercola) have concluded that eating unhealthy fats (e.g., rancid seed oils) is a root cause of poor health. Since many of the fats you consume end up in the membranes of your cells, at least in theory, significant changes can occur throughout your body depending on which fats you consume.

to restore the membrane composition of your cells to a healthy balance. For example, the Patricia Kane protocol is often used to restore patients' health with complex illnesses. I have seen some cases where the protocol significantly benefited the patient (although in others, it did very little).

In this series, I have emphasized the importance of water transitioning from a normal state to a gel (and vice versa). As discussed in the previous article, the exact temperature at which this occurs depends on the composition of the gel, and can be influenced by positive or negative ions (both of which the body uses to induce a phase transition when needed).

In cold-blooded animals, because they cannot regulate their body temperature, there is a significant seasonal variability in their body temperatures that must be addressed in another manner.

> In principle, natural metabolites may change the transition temperature in biomembranes. Unfortunately, little is known in this field. Some data are available on the saturated fatty acids: under certain conditions, their interaction with lipid membranes may increase *T*m (Agafonov et al., 2003). It is also well known that the transition temperature depends on the lipid composition (see, e.g., see this textbook, this study*, and this study**). It is not inconceivable that the endogenously produced ethanol may take part in the temperature adaptation reactions in goldfish.
>
> **Thermal adaptation in biological membranes: is homeoviscous adaptation the explanation?*
>
> ***Thermal acclimation of phase behavior in plasma membrane lipids of rainbow trout hepatocytes.*

Lastly, in the same manner that cholesterol sulfate is necessary for producing a cell's zeta potential and liquid crystalline water layer, the same also appears to be true for other healthy fats. This study found large layers of liquid crystalline water (up to 800 µm) on the surfaces of saturated fats such as ghee, coconut oil, and lard. Like many things in the dietary world, the healthiness of saturated fats is a heavily debated subject, but I suspect their capacity to produce liquid crystalline water plays a key role in their health benefits.

Hyperbaric Oxygen:

In one study, Pollack modeled a hyperbaric oxygen chamber and found that it significantly increased the volume of liquid crystalline water, likely because it shifts the equilibrium towards forming liquid crystalline water. I suspect this also improves the zeta potential of the recipients.

One of the most important things about this effect is that it is temporary. I believe this explains why individuals who benefit from hyperbaric oxygen (e.g., Lyme patients, migraine patients, and COVID-19 vaccine-injured patients) often find they need to get a home hyperbaric system so they can receive it on a regular basis. I have also wondered if this explains part of the benefit people experience with approaches like the Wim Hof method which both significantly increases tissue oxygenation and to some extent alkalizes it.

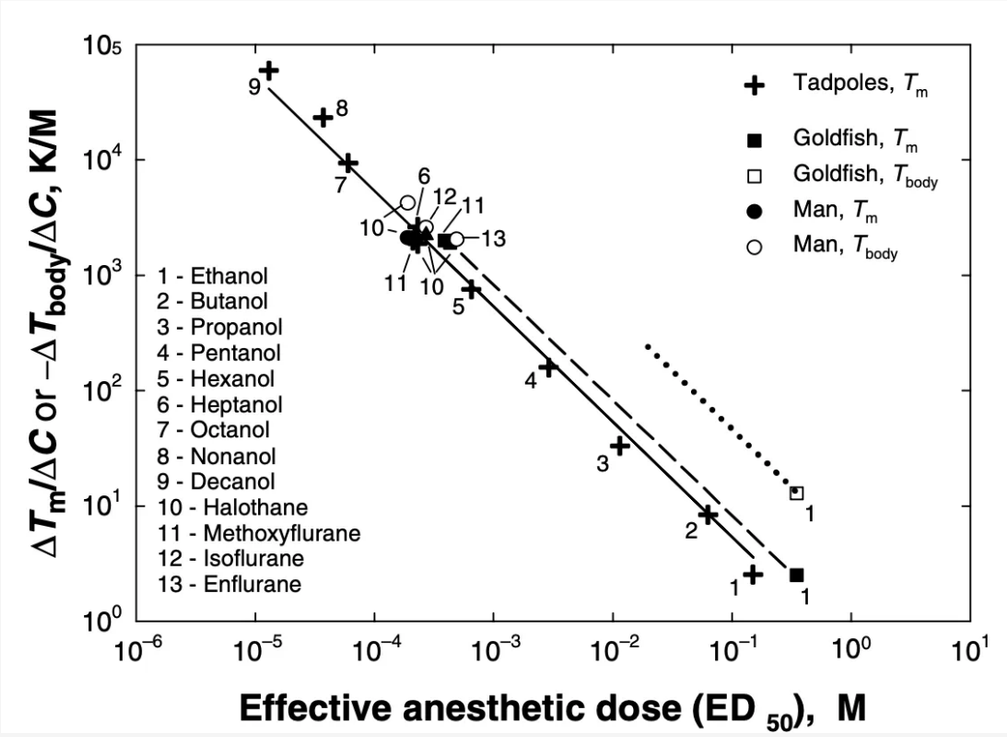
Conversely, many people with complex illnesses I associate with an impaired zeta potential often find they cannot tolerate being above 5000-6500 feet (which is a critical concept to consider when setting up a healing retreat—I have seen a few cases where failing to follow this was a massive problem for the retreat's founders). Similarly, individuals with these types of conditions often are much more vulnerable to blood clots at high altitudes—which I believe accounts for the concerning incidents we have seen on airplanes since the vaccines rolled out (both in pilots and passengers).

Note: not moving for prolonged periods can also cause blood clots, but I do not believe that is the primary issue with flying. An airplane's cabin pressure typically matches what is experienced at 6-8,000 feet, and I have met many individuals with these types of disorders (especially COVID vaccine injuries) who are fine with road trips but cannot tolerate flying.

Anesthetics:

Rather than create liquid crystalline water, anesthetics destroy it. This is because anesthetics (agents that temporarily disable nerves either locally or systemically) share the property of creating clathrates (pockets of water) around them, thereby preventing that water from instead existing in a liquid crystalline phase. Furthermore, to support the link between liquid crystalline water and zeta potential, one of the most commonly used anesthetics, lidocaine, has been found to make the surface charge of biological membranes more positive.

Another related property shared by all anesthetics is their ability to change the cell membrane's transition temperature (to and from the gel state). Additionally, the degree to which an anesthetic can shift the transition temperature of a cell membrane directly correlates to the anesthetics potency, further validating the link between liquid crystalline water, phase transitions, and the function of anesthetics.



One treatment I frequently utilize, neural therapy, employs local anesthetics such as lidocaine and bupivacaine to temporarily anesthetize an overly sensitive neuron (or group of neurons) under the theory that when the anesthetic wears off, the neuron will return to its normal baseline rather than remaining hypersensitive. This therapy is often remarkably effective for a wide range of issues.

Every now and then, I have noticed that the anesthetic injection immediately creates a significant fluid movement in the recipient. Initially, I thought this resulted from systemic tension no longer being active and compressing a fluid vessel. Researching this subject has made me suspect that in certain cases, neural therapy is actually breaking up pathologic fluid agglomerations and thereby restoring a vital circulation.

I will also note that some of these events have correlated with significant psycho-emotional changes in the patients and that many have proposed liquid crystalline water is associated with storing or transmitting information. This observation has made me wonder if trauma, to some extent, can be stored either within clumps of fluid in the body or specific liquid crystalline water structures.

Similarly, many bodyworkers believe that trauma (both physical and emotional) is stored in the fascia due to the fact that their clients often re-live past traumas when the fascia is worked on and experience a resolution of their trauma following the treatment. Given that the fascia is coated with a significant amount of liquid crystalline water, this somewhat supports my hypothesis.

Note: the anesthetics again illustrate how difficult it is to make any generalizations about the relationship between zeta potential and liquid crystalline water, as in many cases, an expected pattern is followed, but in a minority of cases, the opposite of what one would expect occurs. Similarly, while I believe that liquid crystalline water is essential for the body, and the deficiency of it is a widespread problem, in certain cases it may instead be present in excess.

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Restoring Zeta Potential

As the previous section has shown, the restoration of liquid crystalline water is still a bit of a Wild West, and it will likely be a decade before we have a clearer idea of how to approach this issue. Fortunately, with zeta potential, individuals have been working on this issue since the 1960s, so we have a clearer idea of what works and what does not.

Before we go any further, I emphasize that to fully appreciate the context behind many of the approaches I will detail after this point, you will need to be familiar with the rest of this series and, in particular, the previous article. Similarly, some of the options listed in this section likely improve liquid crystalline water as well. Putting the guide to the restoration of zeta potential took quite a bit out of me (this article is a bit over 17,000 words), so I will need to take a brief pause on new articles to get back to other aspects of my life I neglected to finish this series.

Additionally, I was explicitly requested not to broadly disclose some of the information below, so I will be utilizing the paid subscriber option for the final section. Since I do this Substack page as a public service, I don't charge for the immense amount of work I do for it. However, there are a lot of topics I want to share that I have not touched upon due to specific exposure issues, and that is the primary way I intend to use this feature.

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