



THE LIQUID CRYSTAL BEHAVIOR OF THE HUMAN BODY

Analogies with
Semiconductor
Technology

by Francis Hochstenbach

About Francis Hochstenbach



Francis Hochstenbach has an engineering background in semiconductor manufacturing technology (Microelectronics, e.g., Microchips-Integrated-Circuits, used in computers, cars, and smartphones), with more than 34 years of experience. He has served at leading companies, such as Philips Semiconductors (NXP), Applied Materials, Bede X-Ray Metrology (Bruker), Cymer Lasers (ASML), and VDL Enabling Technologies Group (currently), where he has held senior positions in engineering, product development and executive management. As COO for NES Health, he played an instrumental role in transferring a prototype of a personal PEMF therapy device, the miHealth™, into production and continuously improving the product into maturity. Additionally, Francis assumed an honorary ambassador role for the Institute for Venture Science's professor Dr. Gerald Pollack, author of the Forth Phase of Water.

*Francis his fascination with the characteristics of the body's self-healing capacity led him to develop an application for using smartphones as an affordable source for PEMF therapy (Pulsed Electro Magnetic Field). This app is called Mannavibes™ Xtal**.*

*** Xtal technology "System and Method for applying a low frequency magnetic field to biological tissue" was rewarded with US patents granted October 2020 and May 2022.*

Introduction

The work of Dr Gerald Pollack author of "The Fourth Phase of Water" and others caused some intriguing insights, what Francis describes as "the Liquid Crystal behavior of the Human Body". This behavior shows a strong analogy with the crystalline nature of the materials used in semiconductor technology and the capability of modern semi-conductors to store, process, and transfer information. These phenomena will be explained in a very digestible (layman terms), yet scientific and technological manner.

The Relevance to Biohacking

Biohacking can be described as changing your chemistry and consequently your physiology, by means of medical, nutritional, and electronic techniques. The most common Biohacks are lifestyle and dietary changes. The influence of physics on biochemistry, and the concept of hacking the information system of the human body is generally not so well understood. Which is interesting, as the term "hacking" did originate from the information technology (IT) where "hackers" were trying to alter (protected) software and hardware of a computer to make it work better and/or faster.

For this article in Biohackers Magazine, I will explain the human body as an information system, with technology features enabling data storage and processing beyond the brain, and data transmission beyond the nerve system. As the title refers to, these features are enabled by the Liquid Crystal behavior of the Human Body which show analogies with semiconductor technology.



What would be needed to perform those functions?

- Information carriers
- Transfer medium
- Storage medium
- Code
- Transducing medium

What can we do to influence such systems for optimum health?

All of this will be explained in this article, while looking into some of the bio energetic systems which

make up such an advanced information system.

- What makes up the human body?
- Electric cells?
- What's happening inside of our cells?

The significant of the abundance of water in the human body

The hypothesis of the liquid crystal behavior of the human body and the associated bio energetic phenomena are supported by the following scientific publications:



What makes up the human body?

The human body is built up from cells. Different cell types have specific functions, collectively performing functions as uniquely required for the various organs: skin, brain, lungs, heart, liver, kidney, blood etc... Cells constituting a human body is about 50 trillion.

In addition, our bodies contain nearly six times as many bacterial cells, 300 trillion. Although bacterial cells are much smaller than human ones, we are obviously largely outnumbered by those "foreign invaders". Most bacteria are beneficial, aiding in digestion and in support of strengthening our immune response system.

Consider your body as a hotel with an extraordinary large number of guests. So, it's vital that we attract the right clientele and take care of them and let them take care of us.

Electric Cells

Prof. Gerald Pollack, in his publication "The Fourth Phase of Water", provides evidence that the potential difference arises, at least as part from the unique characteristics of intercellular water. Later in this article I will further explain the specific characteristics and attributes of what professor Pollack calls the Exclusion Zone (EZ) water, a unique structure of a water matrix established near hydrophilic substances. As most tissue in the human body including collagen, fascia and the cell membranes exhibit such hydrophilic (water loving) behavior, the proposed EZ water structure is significantly present in the intercellular and extracellular level of our human body.

Already in 1936, research conducted by Harold Saxon Burr reported an Electric Dynamic Theory of Development while a Voltmeter was used to measure the voltage potential of cells.

The interior of the cells commonly has a negative electrical potential of 50 to 100mVolt. To create this potential difference, the ionic contents inside of the cell must differ from the outside of the cell.

Doing the math, as Dr. Bruce Lipton, author of "Biology of Belief" in his full lecture (May 2019), the body's estimated Voltage value is larger than 3.5 trillion Volts.

50 trillion cells with an average cell membrane potential of 70 mVolt (0.07 Volt) equates to 50 trillion x 0.07 Volts = 3.5 trillion Volts. Since the cell nucleus has a membrane potential as well and 300 trillion "guest cells" also, that adds up to a total potential of 49 trillion Volts.

What is happening inside of our cells?

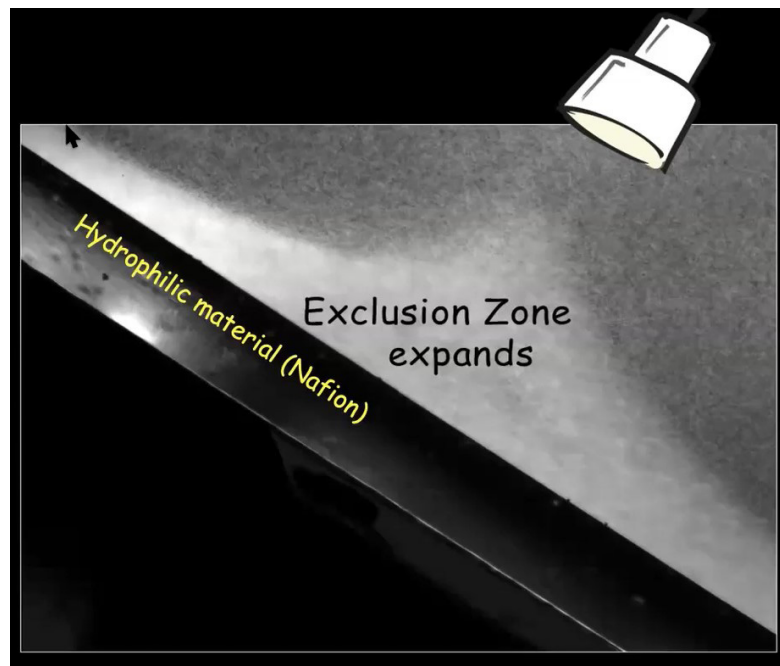
In every cell there are about $10E9$ chemical reactions taking place per second. Multiplying that by our estimated number of cells, 350 trillion x $10E9$ equals 350 sextillions chemical reactions per second. From high school

textbook chemistry, we know that during a chemical reaction an electron changes energy bands and consequently a photon (light particle) is being emitted or absorbed.

What is happening with those photons in our body? Could they fuel at any time an optical communication system, which runs literally at the speed of light? Similar to the fiber optical communication systems we nowadays have in place to allow fast communication around the globe? For such a system inside of the human body we would require waveguides. The microtubules inside of the cells are surrounded by crystalline EZ water as well as the collagen in the fascia, which then would make perfect waveguides i.e., interbody fiber optics systems. This perspective causes us to look a bit deeper into the role and the specific structure inside of the human body.

The significance of the abundance of water in the human body

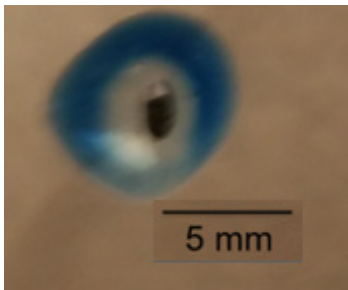
Nearly 2/3 of the human body mass is water. What kind of water



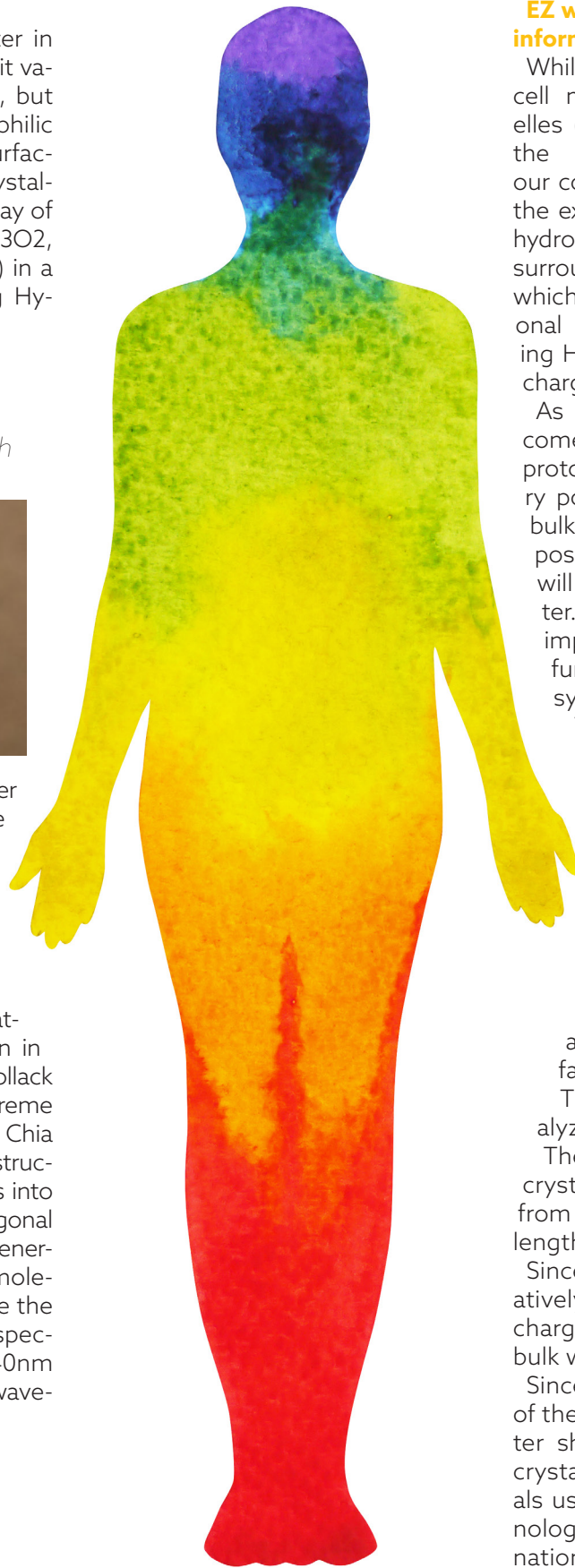
is it and what is its purpose?

To a large extent, the water in our body is not liquid, nor is it vapor nor ice. Its liquid based, but as it is surrounded by hydrophilic substances (water loving surfaces) it takes on a unique crystalline structure, an ordered array of water molecules (forming H_3O_2 , which is negatively charged) in a hexagonal structure sharing Hydrogen bonds.

Chia seed with surrounding EZ water structure emphasized with blue die



To explain hydrophilic (water loving) behavior, let us have a look at Chia seeds. What happens when you put water in a cup with Chia seeds? It becomes a jelly, like a pudding. Now you may think that proteins inside of the seed are diffusing out creating a semi saturated solution in water. But as Prof. Gerald Pollack explained to me, it's the extreme hydrophilic behavior of the Chia seeds, which catalyzes the structuring of the water molecules into the EZ (Exclusion Zone) hexagonal structure, while the kinetic energy, which makes the water molecules move, comes from the the ever surrounding Infra-Red spectrum. In particular the 940nm and 1070nm near Infrared wavelengths.



EZ water and the Liquid Crystal information system

While the bodily tissue from cell membranes to cell organelles (like the microtubules) and the collagen, the protein of our connective tissue making up the extracellular matrix, being all hydrophilic, these surfaces are surrounded by water molecules which have taken on the hexagonal crystalline structure forming H_3O_2 , which has a negative charge.

As EZ water grows, and becomes negative, by releasing protons, these complementary positive charges build in the bulk water. Consequently, also positively charged pollutants will accumulate in the bulk water. This phenomenon is an important contributor to the functioning of the lymphatic system

The next few illustrations (courtesy of Prof Gerald Pollack) summarize and explain the process of formation, and some of the characteristics of the EZ water (4th Phase of Water).

EZ water hexagonal (H_3O_2) structure is formed adjacent to hydrophilic surfaces

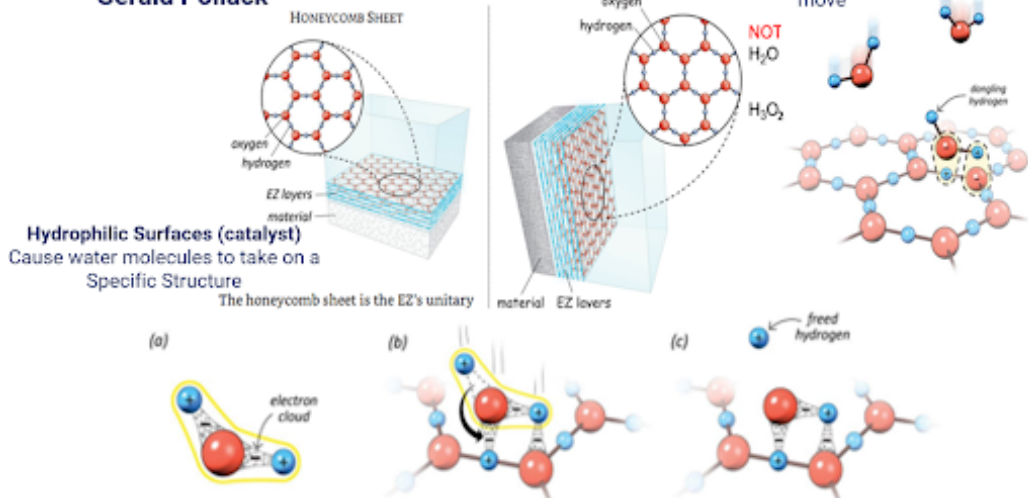
The hydrophilic surfaces catalyze this process.

The energy to create such crystalline structure comes from light with specific wavelength

Since H_3O_2 structure is negatively charged, positively charged pollutants move to the bulk water (detoxification)

Since this crystalline structure of the inter- and extracellular water share characteristics of the crystalline nature of the materials used in semiconductor technology there is a plausible explanation how the human body can

The 4th Phase of Water Gerald Pollack



also store, process and transfer information.

In semiconductor technology, the principle of a field effect transistor is based on the following atomic structure.

In Crystalline Silicon (Si), each individual Silicon atom shares an electrode from the outer energy band with four neighboring Silicon atoms. Placing an electron donor atom like Phosphorous (P) into the crystalline structure of the Silicon, then provides for a free electron in this structure while, an electron acceptor atom like Boron (B) provides for a free

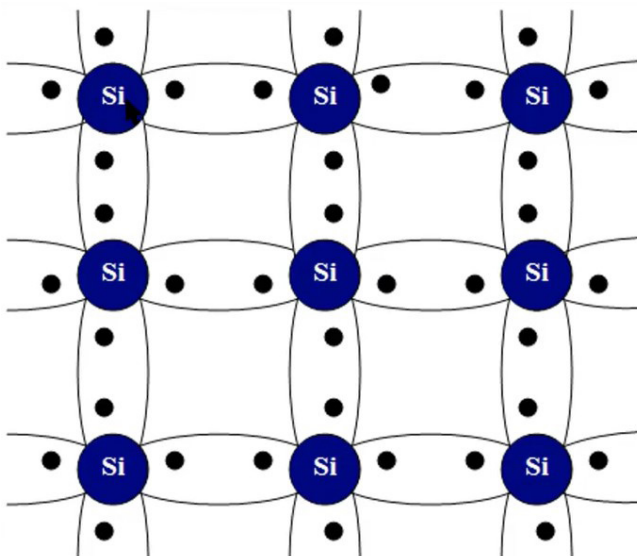
electron space, called a hole in such structure. Such a structure then provides for enabling electric current to flow and an electric field, to control such current in specific areas.

How would such principles play out in the case of the liquid crystal water arrangement in the human body? Let's first consider the state of Oxygen in this liquid crystal structure, which can have 5 different states: -2, -1, neutral, +1 and +2. While in the classic Silicon semiconductor a switch would either be on or off represented by a 0 or a 1, in the liquid crystal ma-

trix where the Oxygen atom can be present in the structure with 5 states instead of just two, offers a substantial larger amount of data storage capability.

Furthermore, the freed up hydrogen, basically a proton H^+ , which in such structure of nano-confined water would allow for superconductivity.

In addition, the photons involved in the enormous number of chemical reactions (350 sextillion per second) taking place throughout the cells in our body, have access to a vast network of a waveguide system, created by the crystalline ordered water around the collagen of our connective tissue as well as along the microtubules inside of our cells. In Traditional Chinese Medicine (TCM) such "waveguides" have been empirically discovered and are called meridians. Experimental studies have been published placing a laser on a specific meridian (pericardium) point and a detector (photon counter) at another point of the same meridian, giving matching results. Also, IR heat imaging studies have been conducted (Dr. Fritz Albert Popp et al.), showing energy activity along the assumed areas of the bladder meridian, along both





SUMMARY

sides of the spine. This activity, in TCM generally described as Qi movement, could also be a manifestation of the aforementioned proton super conductivity model.

This may be a bit of stretch to consider, but could a schematic of H₃O₂-molecule arrangement in a locally clustered crystalline structure with certain protein arrangements and the presence of ferromagnetic trace metal, operating like a crystal radio sender/receiver, explain the existence of Chakras as described in Ayurvedic medicine? Dr. Esther del Rio, mentions increased concentration of ferromagnetic traces in those specific chakra areas.

Summary

At the introduction of this article, I made a statement of the human body being an information system, with technology features enabling data storage and processing beyond the brain and data transmission beyond the nerve system. We had a close look at some of the bio energetic systems like the cells and the unique characteristics of the water structure.

Now let's do a quick check if the model described meets the requirements of, enabling storage, transfer, and processing of information at a greater speed and capacity than just the brain and nerve system. Does the system described provide for the elements needed to perform those functions?

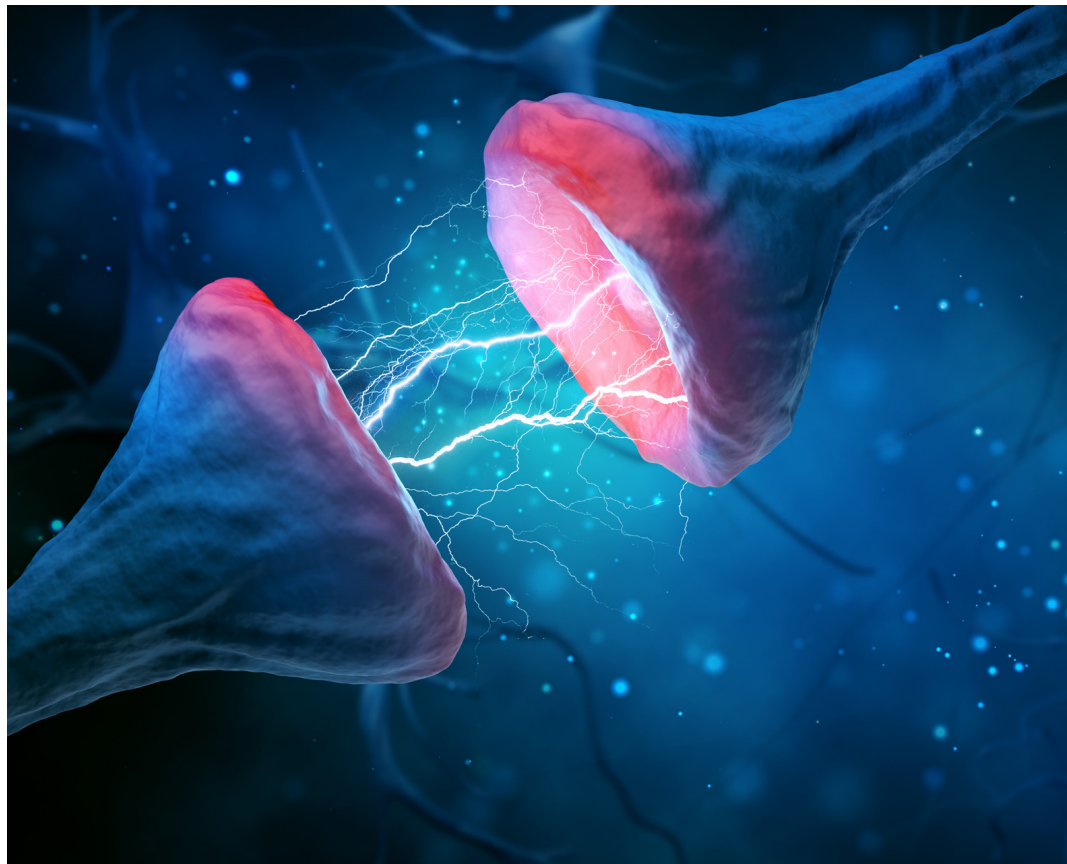
<u>Requirement</u>	<u>Provision</u>
Information carriers	Yes -> Electrons, Photons & Protons
Transfer medium	Yes -> EZ water making up wave guides (for photons)
Storage medium	Yes -> EZ waters hexagonal crystalline structure
Code	Yes -> Oxygen state in EZ-water (-2, -1, 0, +1, +2)
Transducing medium	Yes -> Heart and Chakra

Conclusion

It has become evident that the vast amount of water in our body, with its special structure, 4th phase behavior around the hydrophilic nature of bodily tissue, makes up a matrixed system throughout our human body, exhibiting "Liquid Crystal behavior".

This makes the fascia a storage place (memory – beyond the brain) of our life experiences, events and in particular emotions and trauma. It also provides for communication channels to exist besides the nervous system, like waveguides for optical communication (meridians) as well as wireless communication (Chakras). These communication systems are much faster than the nervous system, and instantaneous. Such speed of communication is essential to control and steer the enormous amount of biochemical processes taking place throughout our body.

In other words, "physics controls chemistry". The physical phenomena mentioned are predominantly of an electromagnetic nature. Therefore, we should also mention the significance of the heart, as the organ with the strongest rhythmic electromagnetic field. The heart's



electrical field is about 100 times greater in strength than the field generated by the brain and can be detected up to 3 feet away from the body.

Now imagine how thoughts, originating from our brain activity, can be imprinted / programmed, into the storage medium of the EZ water matrix in the fascia. This can be thoughts, emotions, and trauma. A traumatic experience can have been a "fight or flight" response, which now is imprinted as a piece of memory in the fascia and gets triggered or re-activated like the cookies and caches function in the background of computer's data browsing. That explains why many chronic dis-ease often manifests somewhere in the fascia and adjacent organs, because of repetitive triggering of old (no longer relevant) information. This explains why in TCM and Ayurvedic science many emotional states are related

to specific organs.

Biohacking the systems

Taking control of the electromagnetic processes

Positive thoughts and meditation with calming breathing techniques is extremely powerful, as they synchronize calmness in the brainwaves with the heart coherence (a technique described and promoted by the Heartmath institute), and as such support re-imprinting the matrix.

Re-calibrating with electromagnetic systems

PEMF devices can help to recalibrate the electromagnetic communication inside of the bodily matrix, erasing old, unneeded information, as well as help remove blockages for self-healing in the information transfer systems. When choosing a device for this purpose make sure you choose a

device which works on the principles of proton resonance.

Essentially our body is made up of organs, tissue, cells, molecules, and atoms. At the level of atoms, we come to small oscillators or subatomic particles, such as protons, neutrons, and electrons. The proton is the sub-atomic particle with the longest lifetime, next to the neutron having a high mass and greatest stability. The proton (and neutron seen as an excited proton) contribute for more than 99.99% of the mass of the body and at a level of all scales, of the whole universe. The natural oscillation of a resting, non-stressed proton is the leading force of the creation of harmonic structures. In nature everything is structured according to the principle of proton resonance and therefore in harmony, where it's interconnection and communication, and cooperation, provides for operating at the least effort and at the highest energy efficiency.

Maintaining the EZ water structure

Healthy food and nutrients help maintain a healthy state of the EZ

water liquid crystal matrix. Extensively processed food destroys the hydrophilic nature of the cell membranes and tissue of that same food, and consequently breaks up the EZ water liquid crystalline structure. Microwaved food destroys the cell membranes and excites the water molecules causing deformation of the natural structure of the water being part of the plants.

Consuming alcoholic beverages excessively consequently dissolves water, breaking up the structured water liquid crystal matrix and creating discontinuations (gaps / leaks) into this information and communication matrix.

Red light therapy

Because hydrophilic surfaces act as a catalyst for the formation and maintaining the structure of our EZ water liquid crystal system, the energy fueling the movement of the water molecules is the omnipresent Infra-Red energy. Exposing ourselves to sunlight in a responsible way, like early morning greeting the sun, and also occasionally using devices for light therapy supports

the maintenance of a healthy liquid crystal EZ water matrix.

Other methods

Spending time in nature; massage therapy, stretching, sound healing, yoga,

Acknowledgement and references

"Number of cells in the human body" by Eva Bianconi, Allison Piovesan, Federica Facchin, et al.

"Cells, Gels and the Engines of Life. A New, Unifying Approach to Cell Function" by Gerald H. Pollack

"The Fourth Phase of Water, Beyond Solid, Liquid, and Vapor" by Prof. Gerald H. Pollack

"Biology of Believe" by Bruce Lipton about the crucial behavior of the cell membrane sensing the environment, the basics for epigenetics

"Transduction of DNA information through water and electromagnetic waves" by Luc Montagnier et al.

"The "weak Gel Behavior" of Water and its Role in Proton Transfer" by Nada Verdel, Igor Jerman, and Peter Bukovec

"Illuminating Water and Life" by Mae-Wan Ho

"Die Welt mit neuen Augen sehen" Dr Rainer Viehweger

"Biophotons" by Jiin Ju Chang, Joachim Fish and Fritz-Albert Popp

"Biophotonen Das Licht in unseren Zellen" Marco Bischof

"Deine Lizenz für Selbstheilung" and "Mit Absicht Gesund" Dr Folker Meissner

"High-Capacity Optical Channels for Bioinformation Transfer: Acupuncture Meridians" by Jiri Pokorny, Tomas Martan, Alberto Foletti

"Studies on the nature of water, the assertion of the existence of liquid crystal molecules in the inner water of the body and the relationship thereof with a magnetic network covering the whole organism explain the rapidity of biological responses on cellular level" by Dr. Esther del Rio



Thank You!

Francis Hochstenbach
francis@mannavibes.com
 IG @Mannavibes
www.mannavibes.com

