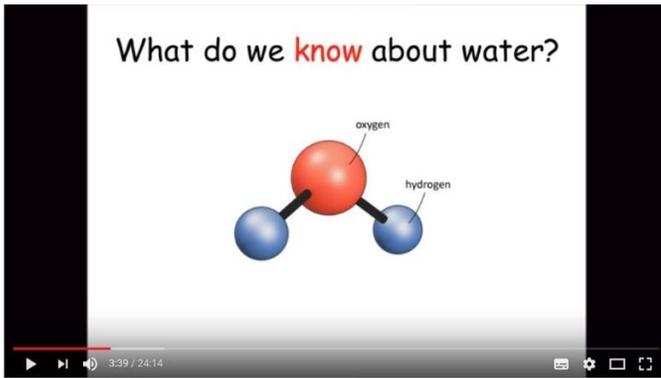


Structured Water & Food Research

Can we prove the existence of ‘structured water’ and can we structure food?

The background to this research is the work of Gerald Pollack and information supported by slides from a Ted Talk he gave in 2013. Dr Pollack has followed up on the work of Gilbert Ling and others, who have been working to define the properties of water.

The science is more fully explained in the book “The Fourth Phase of Water” by Gerald Pollock.



The Fourth Phase of Water: Dr. Gerald Pollack at TEDxGuelphU

We know that our bodies, like the planet are about 70% water by volume; but by molecular count it's more like 99%.

But....

Water isn't always H₂O.....

Water has more than 3 different states: solid, liquid, gas and...?

Even though we think of water as being a ‘typical’ liquid, there are many anomalies that make it different from any other liquid.

A British scientist, Martin Chaplin, has created a website that lists over 70 anomalous properties of water (http://www1.lsbu.ac.uk/water/water_anomalies.html)

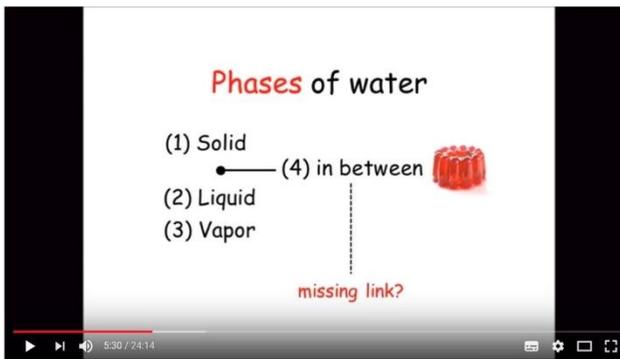
100 years ago, it was suggested by Sir William Hardy there may be a 4th phase between solid and liquid. It was more ordered and has a gel like consistency. The concept was never investigated because as science progressed we focused on molecules rather than how they interacted together.

In an interview on Drug Smarts (#187) Pollack was talking about the work of Ling and his evidence for a fourth phase of water that they called ‘structured’ water. It was called structured because the molecules were organized and ordered like a liquid crystal.

“Interviewer: Pollack’s research — following up and expanding upon the work of others like Gilbert Ling — has been trying to define the properties of water on the molecular borderlands where it rubs up against hydrophilic surfaces.

“At such points of contact with “water friendly” surfaces, water molecules often shed their hydrogen ions and organize into orderly lattices or “sheets” of molecules that can grow dozens, hundreds, and possibly millions of sheets thick. (The exact thickness depends on the substance the water is touching, as well as temperature and pressure.)

“Pollack: The prevailing view is that if you have some sort of surface that water is next to this surface, that the surface has some capacity to order the adjacent water molecules maybe for two or three molecular layers. But, Gilbert Ling was arguing for dozens of molecular layers, and in our experiment of work, we found up to millions of molecular layers.”



The Fourth Phase of Water: Dr. Gerald Pollack at TEDxGuelphU

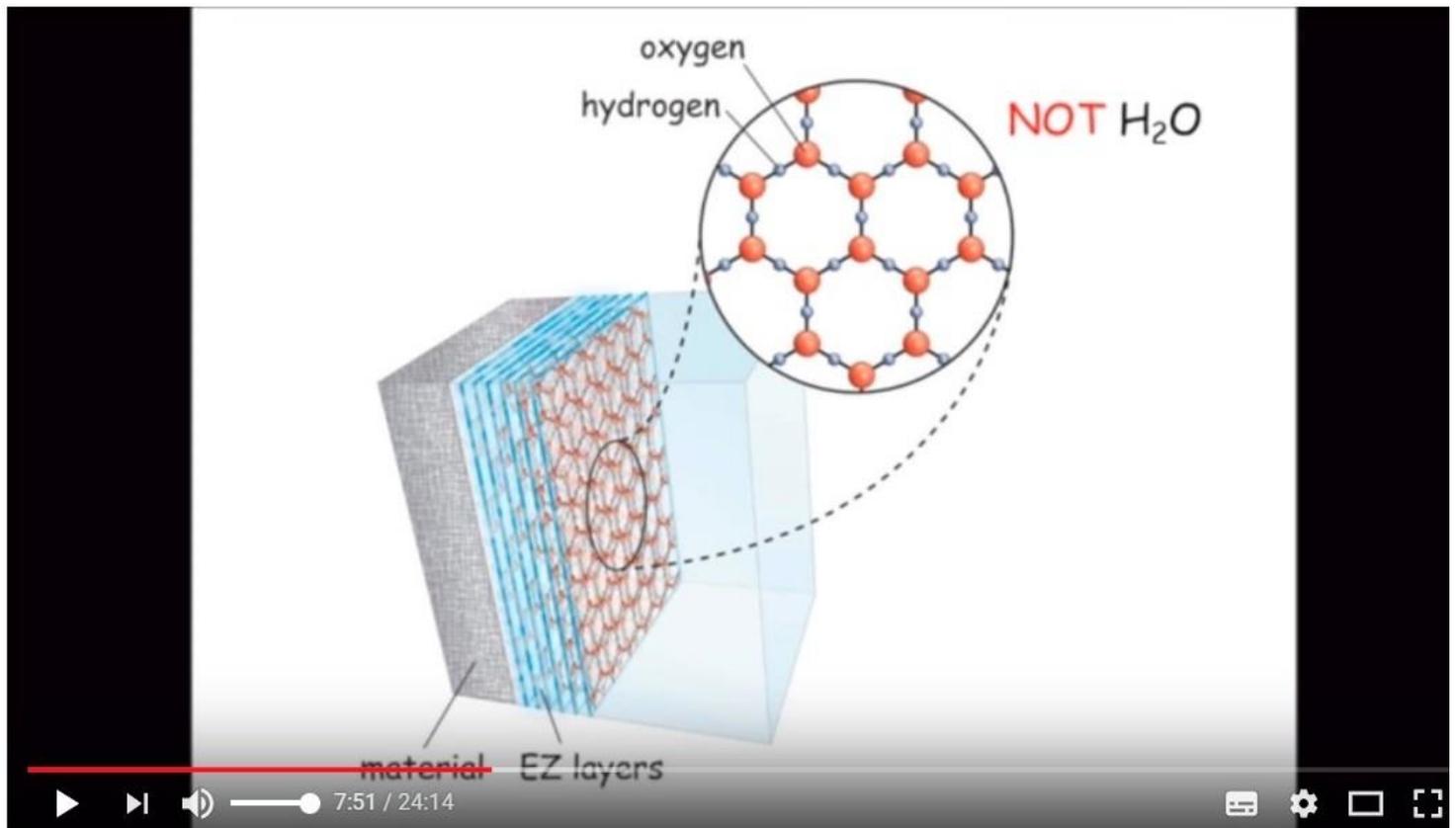
This 4th phase is a substance somewhere between a solid and a liquid. Its consistency is like that of jelly.

It was called the missing link because it could account for the things we couldn't explain about water; such as how it interacts and communicates with other molecules.

Pollack often refers to it as EZ water. He names it this after the concept of an Exclusion Zone. This zone occurs because when you put a gel next to pure water the particles in the gel move away from the water. Anything you put there will move away; it will be excluded - hence EZ.

“These “Exclusion Zones” of orderly OH- molecules can “push” impurities out of their negatively-charged region, into the hydrogen-enriched water further from the surface. Behavior like this might be responsible for many of water’s anomalous properties, including surface tension, capillary action, and the little-known fact that water’s density is greatest just above freezing — when it then turns course and loses density as ice crystals start to form.”

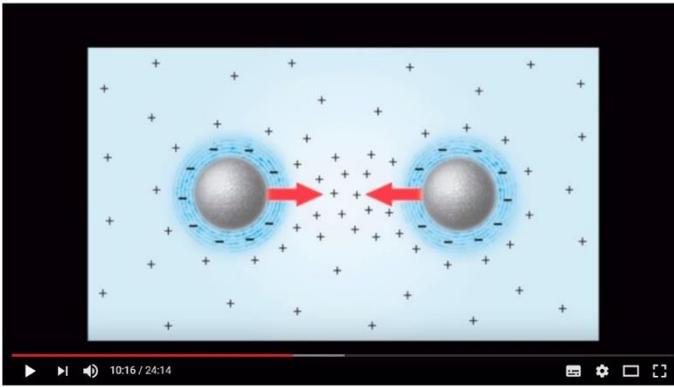
It’s made from water but it’s not water. It’s no longer H₂O, it’s H₃O₂.



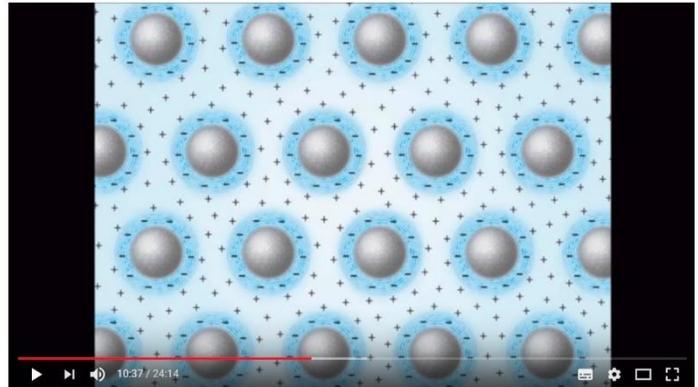
The Fourth Phase of Water: Dr. Gerald Pollack at TEDxGuelphU

So, it is possible that there is water that is not H₂O.

If you put two EZ drops in they join together. A whole bunch of them and it becomes a colloid crystal.



The Fourth Phase of Water: Dr. Gerald Pollack at TEDxGuelphU



The Fourth Phase of Water: Dr. Gerald Pollack at TEDxGuelphU

The EZ phase of water explains clouds, why water droplets stay on the surface before merging with bulk water, how water can stretch to form a bridge and many more of water's anomalies.

Why Is It Important?

Structured/EZ water is also referred to as living water, hexagonal water, activated water or natural action. These terms all describe features of the H_3O_2 water.

This structured water can be thought of as having a greater degree of bonding with other water molecules around it than bulk, or unstructured water.

The cells in our body are full of EZ water because of the exclusion zone around the materials inside the cell such as proteins.

The water holds the integrity of the DNA and the electromagnetic field around it. All proteins in a cell have a sheath of structured water surrounding them.

Continuing in the interview - Pollack: *"The kind of water you drink should make a big difference in your wellbeing. Let me explain why. Your cells, and, outside of your cells too, are filled with EZ water.*

"However, if you don't have a full complement of EZ water surrounding each protein, for example, the proteins, in order to do their work, they fold. They go from unfolded to folded, and normally, each one is surrounded by EZ water. The EZ water is stuck to the protein. The two are one in the same. They're just two phases of one structure.

"But, if you don't have it, if you don't have enough of it, then the proteins are not folding properly because they're not in their normal environment. So, basically, you have pathology. If you have pathology, you want to reverse the pathology, and one way you could do that is by restoring the EZ water.

"The most important thing we've learned on our journey is that changing the molecular structure of water with physics opens up the energy and vitality of water and therefore the potential energy and vitality of ourselves".

The structure of the water is more important than the chemical composition of it. Carbon has the same chemical composition as diamonds, but the two substances look and behave completely differently.

With water, the difference between structured water and bulk water isn't visible so that's why it is sometimes dismissed as fiction.

In structured water the angles between the hydrogen bonds are changed. Some researchers have suggested that this neutralizes toxins in water and pushes them out. Currently, this is impossible to prove.

However, in the 1970's, through the use of UV Spectral Photometry Dr Marcel Vogel proved that structured water raises the level of energy in water surrounding it and stores that energy. (<https://h3o2water.com/research/>). He also used quartz crystal to demonstrate that water can receive, store and transmit information.

Research done on the positive attributes of structured water show more than 40 benefits over unstructured water.

MJ Pangman, Co-author of *Dancing With Water – The New Science of Water*, makes the point in her book that much of the water in our body is a hexagonal/crystalline structure. There are other components in the body that are crystalline such as collagen and cell membranes.

She suggests that the crystalline nature of the water interfaces with the crystalline structures in our body as a kind of instant signal system that gets information to all our cells. This same crystalline structure that is capable of transmitting energy is seen in quartz crystals, used to transmit energy in radios.

Rustum Roy Professor of the State University Pennsylvania, member of the International Academy of Science – speaking about water - “It may be the single most malleable computer....it's like a computer memory, it's the memory of information.”

What Role Does Light Play?

With EZ water being so important to our cellular wellbeing, we look for ways to increase it. The energy to expand the Exclusion Zone comes from direct and indirect light, such as infrared.

Pollack: “So, what it means is that the energy that's required to build this kind of water is always available, and if you add more infrared, you get bigger, bigger zones, and if you could take away the energy, which we finally figured out how to do, then you get less of it.

“There are various kinds of light therapy using different wavelengths. We found that all wavelengths – some in particular – of light, even weak light, build EZ. If EZ is critical for the health of your cells, which I think is clear, these therapies have a distinct physical chemical basis.”

Interviewer: Testing water samples using a UV-visible spectrometer, which measures light absorption at different wavelengths, Dr. Pollack has discovered that in the UV region of 270 nanometers, just shy of the visible range, the EZ actually absorbs light. The more of the 270-nanometer light the water absorbs, the more EZ water the sample contains. EZ water appears to be quite stable. This means it can hold the structure, even if you leave it sitting around for some time. Water samples from the river Ganges and from the Lourdes in France have been measured, showing spikes in the 270-nanometer region, suggesting these “holy waters” contain high amounts of EZ water.

So from that, we know that it is important to absorb as much light as we can within the 270nm wavelength to increase the EZ volume. Dr Mercola suggests this is also true in relation to food.

An Important Tip for Gathering Valuable Light Energy

<https://articles.mercola.com/sites/articles/archive/2010/08/27/the-power-of-biological-light-in-healing.aspx>

“The more light a food is able to store, the more nutritious it is. Naturally grown fresh raw vegetables, for example, and sun-ripened fresh fruits, are rich in light energy. The capacity to store biophotons is therefore a measure of the quality of your food.

“The greater your store of light energy the greater the power of your overall electromagnetic field, and consequently the more energy is available for healing and maintenance of optimal health”.

Why Would We Want to Structure Food?

The small intestine absorbs water and digested nutrients into the bloodstream and they are then carried to parts of the body to be stored or used.

Dr Pollack states that structured water goes through cell walls easier. EZ water is the main component of blood which is why it can move through tiny capillaries with a diameter smaller than the red blood cells. It has no resistance.

All the natural foods we consume include water.

We know from Dr Vogel that structured water has raised levels of energy by its increased ability to absorb light.

Dr Mercola states that the more light a food is able to store, the more nutritious it is.

Structuring our food would increase the movement of nutrients through our cells as well as protecting the integrity of the protein and DNA.

The more light energy we have in our food, the healthier we will be.

Proteins in solution absorb UV light at 280nm and DNA absorbs light at 260nm. We know that light increases the amount of the EZ zone which protects the integrity of the protein in a cell.

With a higher light absorption in those ranges the protein and the DNA will be of a higher quality.

Research Objective

We know from the research by Vogel and Pollack that the more EZ water there is in a cell, the higher the integrity of the protein and DNA; and the more energy there is within that cell. Pollack also maintains that

“The more of the 270-nanometer light the water absorbs, the more EZ water the sample contains”.

The first objective of my experiments was to test if I could prove the existence of structured water by demonstrating higher light absorption in a water sample using a Pyra Light pad to structure water. I tested absorption at 270nm, the same wavelength that Vogel used.

The second objective was to determine if I could demonstrate increased light absorption in food after having been on a Pyra Light pad, by testing light absorption at 260nm and 280nm wavelengths.

The Pyra Light

To structure the water, I used a Pyra Light pad, which is said to be able to structure water through the use of infra-red light and magnetic induction.

The Pyra Light is a wellness device created by Guy Harriman (www.pyralight.com)

“The PyraLight pad creates a healing super-pulsed magnetic field and Infra Red light at Delta 2Hz, Schumann 8Hz, and Gamma 40Hz frequencies. The six 3W 650nm LEDs penetrate about 6cm into the body.

The super-pulsing of light and magnetics make them ten times or more stronger to the body while keeping the infrared heat comfortable. These pulsed fields allow stressed areas of body to start to self heal.



Placing a glass of water on the pad for 5 minutes or longer structures the water and you can feel the greater softness of the structured water compared with the original water.

The Pyra Light pad structures the water deep inside your body. Cells can only absorb structured water through the channel proteins of the cell membrane”.

Water Structuring Tests and Results

A glass of water was placed on a Pyra Light pad for half an hour and then tested for light absorption at 270nm.

The control was tap water that had not been on the Pyra Light pad.

The water that had been on the Pyra Light pad had absorbed twice as much light at 270nm as the control.

This is consistent with the findings of Pollack and Vogel.

Absorption @ 270nm

W3 control	0.011
W4 sample	0.020

CENTRAL ENVIRONMENTAL LABORATORIES

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Analytical Report
COA No: 1804711-1

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Analyst: Anne Elliott
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 RD14
 Ashhurst

Date received: 19/09/2018 Time received: 12:50 Sample date: 19/09/2018

Sample	Sample ID	Test	Result	Units
1804711-01	W3	Absorbance at 270 nm	0.011	AU cm-1
	Control			
1804711-02	W4	Absorbance at 270 nm	0.020	AU cm-1
	Sample			

Notes:

Test Methodology	Test	Methodology	Detection Limit
Absorbance at 270 nm	AP04 33rd Ed. 9/10 B		0.002 AU cm-1

Report released by: Johan Bosch Date: 24 September 2018
 Principal Analyst

Key Technical Person:
 Johan Bosch

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COA No: 1804711-1 1 of 1

The first objective of replicating Vogel’s work was achieved and demonstrated that the Pyra Light pad was able to structure water.

Food Structuring Tests and Results

Two tests were done: a spectro photometry test and a taste test.

The spectro photometry analysis tested liquid whey. The whey was chosen because of the high protein content in a liquid form that was suitable for spectro photometry testing. The control was liquid whey only.

Proteins absorb UV light at 280nm and DNA absorbs light at 260nm. The higher the amount of light absorption, the better the quality of DNA and protein.

The taste test used water and 10 food types. Time on the Pyra Light pad for all samples in both tests was at least 60 mins.

Spectro Photometer Test

Analysis at 260nm

Lab certificate No. Result

M1 Control	18/04402-01	3.9258
M2 Sample	18/04402-02	3.9713

Analysis at 280nm

Lab certificate No. Result

M1 Control	18/04402-01	3.8174
M2 Sample	18/04402-02	3.8362

After having been on the Pyra Light pad more light was absorbed at both 260nm and 280nm wavelengths.

The whey contained low fat milk and live cultures only, so it was unlikely there was any other compound absorbing the wavelengths tested.

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ANALYTICAL REPORT
COA No: 18/04402-1

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Date received: 03/09/2018 Time received: 11:20 Sample date: 03/09/2018

Sample	Sample ID	Test	Result	Units
18/04402-01	M1 Control	Absorbance at 260 nm * Absorbance at 280 nm *	3.925 3.817	AU cm-1 AU cm-1
18/04402-02	M2 Sample	Absorbance at 260 nm * Absorbance at 280 nm *	3.971 3.836	AU cm-1 AU cm-1

Notes: * Test is not accredited.

Test Methodology:

Test	Methodology	Detection Limit
Absorbance at 260 nm	APHA 23rd Ed. 5510 B	0.002 AU cm-1
Absorbance at 280 nm	APHA 23rd Ed. 5510 B	0.002 AU cm-1

Report released by: Johan Bosch, Principal Analyst Date: 07 September 2018

Key Technical Person:

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The second objective was achieved. The Pyra Light pad facilitated increased light absorption at the 260nm and 280nm wavelengths where DNA and protein absorb light.

Note: The liquid whey wasn't a totally clear solution so the results are useful as a comparison only, as to whether the sample increased against a control; as opposed to being an exact measurement of light absorption at the ranges tested.

Further testing needs to be done with a sample with consistent levels of dissolved solids.

Taste Test

My case study tested whether the food that had been on the Pyra Light tasted different to a control sample from the same food that had not been on the Pyra Light pad.

Water and 10 foods were separated into two groups with one group having been on the Pyra Pad for 1 hour and the other group not on at all. The groups were randomly mixed so that not all Pyra foods were from the same group.

Participants were asked to taste each food type from Group A and B and rate which one tasted/felt different or note if there was no difference; and which one tasted better.

Foods were: water, mandarin, apple, cucumber, rockmelon, watermelon, banana, kiwifruit, chocolate, tomatoes (whole small tomatoes) and strawberries.

There were 10 participants and 11 'food' groups giving 110 possibilities. Of those 110, 10 foods were not eaten because of allergies or dislike of the food.

The participants noticed differences in 89 out of the 100 foods.

Of those foods where a difference was detected there was no clear preference of structured over non-structured. I believe this was due to personal taste as some of the comments indicated this.

For example, one comment on the structured rockmelon was that it was sweeter and another was that it was too sweet. So, while they both noticed the difference, personal preference dictated which one they preferred.

Results

	<u>Number who Noticed a Difference</u>	<u>Sample Size</u>
Water	10	10
Watermelon (peeled)	10	10
Mandarin (peeled)	9	9
Apple (cut, not peeled)	9	9
Strawberries (cut)	9	9
Cucumber (cut, not peeled)	7	8
Tomatoes (small, whole)	8	9
Rockmelon (cut, not peeled)	8	10
Caramello Chocolate	6	8
Kiwifruit (cut, peeled)	6	8
Banana (whole, skins on)	<u>7</u>	<u>10</u>
TOTAL	89	100

