

## A short guide to how Homeopathy could work

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For some reason, a lot of people seem to get very worked up about homeopathy. They make comments like 'if it's only water, we can throw it in the sea and make everyone well!' or 'it's just a placebo, you're all being fooled!' or 'it's quackery and should be banned!' or 'burn them! Burn them all and their test tubes and little boxes with ground up plants! Burn them!' Perhaps I'm getting a little exaggerated on that last one but you get the idea.

The thing is, homeopathy does seem to work, at least for some people. Now, it is certainly possible that their improvements may be down the placebo effect; that the psychological effect of them taking a medicine has cured them rather than the medicine itself. The placebo effect does also work. The only problem with this idea is that vets have used homeopathic remedies on livestock with success. It's hard to imagine the cows getting better through the placebo effect.

So if it's not psychological, what is it? A sensible first step is to understand the rules and theory of homeopathy. With that under our belts, we can then start to investigate how that procedure and theory might fit with what we do know about how the body works.

### *Homeopathy*

The principle of homeopathy is as follows: Someone's got hives (for example). To cure them, you find a plant extract that *also* produces hives in people. In other words, you use the *same* thing as the one that's causing the problem as a way to cure it. That's why it's called homeopathy which means 'cure by the same'. You dissolve that extract in some water. You then give it a vigorous shake. You then take a small portion of that water (say, a tenth) and add some more water to it so that's been diluted. You give it another vigorous shake. You keep doing this about ten or twenty times. Once you've done all that, you've got your remedy.

Now, many people would sensibly say 'what a stupid idea! All you've got is water!' which is perfectly true. There's no clear reason why giving someone some water would help cure them (unless they were very thirsty). But giving up and dismissing homeopathy at this point doesn't make sense. There is lots of evidence that something *is* happening. To give up now would be lazy and negative (Obviously, if this article goes on for ten pages and gets nowhere, we can definitely give up at that point. There's only so many hours in the day).

First off, how can treating an illness that was caused by an agent be cured by the *same* agent? You'd have thought it would just make it worse or at least not help. But we're forgetting about the key part of homeopathy - the use of water. Somehow, that small amount of plant extract that's put in the water at the beginning of the homeopathic process must affect the water in some way. The water's become 'activated'. Once that happens, that altered water can then alter more water through contact with it - the reason for the vigorous shaking. When you think about it, the repeated dilutions are

being done to rid the final remedy of as much of that plant extract as possible. We don't *want* any of the extract in the final solution. The extract is the stuff that *causes* the illness. What we want is just the activated water. The activated water has someone become a potential antidote for the illness after being in contact with the extract.

So far, so logical. We now know how homeopathy is supposed to work. After studying that, we can conclude that it can only work if water has some strange ability to be affected by biological agents and retain that change. But how can water be 'activated' in that way? To help us work that out, it's time to find out what Luc Montagnier discovered about the strange abilities of water...

### *Carrying a signal*

Not long ago Luc Montagnier, a Nobel prize winning scientist, discovered a very strange effect. He had taken some cells that were infected with a bacterium, all sloshing about in some water. He then filtered that watery solution of cells and bacterium through a grid of tiny holes. Because of the size of the holes (they were around twenty nanometres in size), the water could get through to the other side but the bacterium and cells couldn't. He therefore knew he'd only get water out the other side. Nothing else could get through.

What was so strange for Montagnier was that if he poured this hole filtered water into another container that had healthy cells and let those cells grow and multiply, they'd *also* become infected. The filtered water it seemed had been altered by the bacterium to the point where it was able to affect the cells in the same way as the bacterium had done. The water had somehow 'remembered' something about the bacterium that enabled it to affect healthy cells too.

Montagnier was intrigued. How could this happen? He analysed the filtered water and discovered something; if the filtered water was diluted and agitated in a certain way, it gave off electromagnetic radiation. Was this how it mimicked the effect of the bacterium on the cells? Producing electromagnetic radiation is not an unusual thing. EM waves are around us all the time. Light is electromagnetic radiation. So is microwaves and radio waves. We all give off electromagnetic radiation all the time. Any hot body gives off radiation (As a result, Jessica Alba probably gives off several times more radiation than your average female but this hasn't been confirmed yet). But water doesn't usually give off EM radiation when you shake it. What was going on? Was this strange effect a result of the shaking or was it specifically because that water had been exposed to the bacterium?

To try and answer this, Montagnier tested water that had been exposed to sterile cells (ones that weren't infected) and then diluted/shaken. In other words, the whole process was the same as the EM producing water except that this time, the bacterium weren't active. Montagnier found that this water *didn't* give off electromagnetic radiation. It looked like only the water that had been exposed to the bacterium and then diluted/shaken would give off EM radiation.

The plot thickened. Montagnier wondered if the bacterium's ability to produce EM radiation was how it harmed the cells. He and his colleagues tested a whole bunch of biological agents. They found that the ones that caused disease *were* invariably ones

that produced electromagnetic radiation. Bacterium in our gut for example that didn't cause us harm didn't produce this EM radiation.

He carried out some more experiments that involved chopping up the bacterium and the lengths of genetic code that were in them. Through a process of elimination he realised the following process must be happening:

*Sections of DNA or RNA from disease causing bacterium or viruses produce electromagnetic radiation. When these sections of genetic code are mixed with water, the water forms nanoscale structures that will themselves produce detectable electromagnetic radiation if diluted/shaken to a sufficient level.*

Montagnier also discovered that freezing the water or heating it to 70% stopped its effect. In addition, if a flask of the EM radiation producing water was placed alongside another that wasn't producing electromagnetic radiation, the EM effect wore off.

But how on Earth can water form large nanoscale structures, hundreds of atoms in size? It's just water - H<sub>2</sub>O - one atom of oxygen and two atoms of hydrogen. Well, water is really weird stuff. Firstly, since it is just an atom of oxygen connected to two atoms of hydrogen, it should really be a gas unless things are really cold. Somehow, at temperatures where it should by rights be a gas, it stubbornly stays as a liquid. There is a possible reason for this; the hydrogen atoms of each H<sub>2</sub>O molecule form weak bonds with other water molecules. By doing this, the water becomes a sort of larger molecule. In this state, it's too heavy to float off as a gas.

Water's weird behaviour extends to other things too. It's densest at 4°C and then gets steadily less dense as it is chilled to freezing. Uh? Normally, any liquid or gas gets denser as it's cooled, simply because its molecules are wobbling around less and less as they cool down, thereby giving up more space. This anomaly of water intrigued one scientific team. They came up with the answer that water was forming structures at these temperatures. Using simulations of how water molecules could interact, they found that these large structures could form. If these structures formed, the way they worked did explain the strange anomaly of being densest at 4°C. Well, that makes the whole 'water forming big structures' more believable. What about the whole EM business? On to the next section...

### *Communication with light*

We're roughly at the half way mark now so let's have a recap. We started with the question 'how does homeopathy work?' After some logical reasoning, we realised that several things would need to happen:

- 1) The water would have to pick up something from the extract that caused the illness.
- 2) The water would have to somehow retain that 'something'
- 3) That retained 'something' would need to spread through the water.
- 4) Once the water, activated in this way, entered the body, this remembered property it had could somehow returns the cells to health.

Thanks to Mr Montagnier, we found out that the water seemed to 'remember' by forming nanoscale structures around the RNA from the bacterium. It then absorbed the radiation the bad DNA gave off. If these structures of water were diluted and shaken, they would give off EM radiation too. It would make sense then that the water around those structures would pick up the radiation given off. They would then form structures too, just like the first structures of water had done. Pretty soon, the water would be free of the actual original agent, but filled with these nanoscale structures. Nice. This weird idea that water can form large structures, turned up in another piece of research. A different scientific team showed evidence that water forms large scale structures all the time. This is why it's such an odd molecule. So far so good.

We are though left with one huge whopper of a question; 'why would biological systems be interested in tiny bursts of electromagnetic radiation?'

To answer that, let's have a think about what goes on in cells. Each cell is an enormous place if you're the size of a water molecule. A cell is around ten micrometres in size. That's about one hundred thousand times bigger than an atom. At that kind of scale, a cell is like a city. In the centre of this city is a massive library building - the cell nucleus. This contains the DNA or deoxyribonucleic acid, the molecule that stores information on what happens in the cell. DNA is made up of four different molecules - Adenine, Thymine, Guanine, Cytosine - paired together and then strung together in various permutations in a long chain. This chain or ladder is very long. The largest lump of human DNA or chromosome is two hundred and forty seven *million* base pairs long. Describing DNA as a molecule is like describing St Pancras Station as a special sort of brick. The name doesn't really do it justice.

The DNA in every cell nucleus contains many sections called genes. These genes tell agents in the cell to carry out tasks such as making proteins. Proteins are huge molecules, not as big as DNA chromosomes but still pretty big, over several thousand atoms in size. The cell is also a very busy place, just like a city. Around one hundred thousand chemical reactions take place in a cell every second. The big question is, how does all this work? There are around one hundred *trillion* cells in a human body. All those reactions in all those cells have got to be right nearly all the time or things can go badly wrong. A cell not operating properly can die or release toxins or not die and divide uncontrollably, creating a tumor. The current scientific view is that all this activity occurs entirely through chemical reactions. But if this was the case, how on earth does the body keep functioning, or even forming properly in the first place? How would a foetus know where to put its liver cells or muscles cells etc if everything is only done through chemical reactions in cells? Currently, microbiologists don't know. There is though a simple and elegant answer to this problem. If DNA was able to send light signals, all these problems could be solved. Cells could communicate with each other and thereby know what cells should form where. Instead of forming a line of chemical reactions to get something to happen remotely - with all the problems and delays that would cause - they could just fire a signal directly.

If this is how cells manage themselves and each other, then those electromagnetic signals between the DNA would be critically important. If something stopped those signals or scrambled or emitted its own disruptive signals, chaos would ensue. Any agent that carried out such disruption in the body would be cancerous and toxic.

But is that what's going on? Are our bodies really awash with electromagnetic signals as our cells' DNA fire out EM radiation, controlling and guiding the biological functions of our bodies? Is there evidence that alteration of these signals or the introduction of new signals causes havoc? Has someone researched this? Fortunately, someone has.

### *Cities of light*

In 1970, a brilliant graduate student at the University of Marburg - Fritz Albert Popp - was studying benzo[a]pyrene, an organic molecule that was a lethal carcinogen. If you were to let benzo[a]pyrene into your body, you were in for big trouble. What Popp found odd was that a slightly different molecule, benzo[e]pyrene, wasn't harmful to the body at all. If the body's functioning was all about chemical reactions, he wondered, why were these two organic molecules, so similar in their structure, so completely different in their effects?

Popp investigated these two molecules and found something that benzo[a]pyrene, the nasty form, did something that benzo[e]pyrene, the nice form, didn't. If you shone 380 nanometre ultraviolet light at benzo[a]pyrene, it would absorb that light and then re-emit it at a different frequency. This gave him a strange puzzle. Why would a molecule's ability to absorb 380nm EM radiation and send it out again at a different frequency make it so harmful to living cells?

He found an answer. Cells are designed to repair themselves if they're bombarded with ultraviolet light. They can repair themselves from almost complete destruction if they receive a weak signal of light of a particular wavelength. This is called the 'photo-repair' effect. The ideal frequency of light for photo repair is 380 nanometres, the exact same frequency of light that the carcinogen benzo[a]pyrene was so good at scrambling. Putting those two facts together, it seemed that benzo[a]pyrene was carcinogenic because of its special ability to scramble a crucial cell repair signal.

Popp was fascinated by this. If cells were controlling their activities by sending electromagnetic radiation - effectively light signals - it opened up an entirely new understanding of biology. These city-like cells weren't just functioning by their citizens bumping into each other and performing chemical reactions (which sounds slightly risqué) but were instead operating by beaming a mass of light signals from their DNA library and the RNA fragments carried around the cell. Cells were alive with light.

Popp's only problem was, how was he going to study these signals? They seemed to be produced by the cells themselves and so they couldn't be very bright. It would be a nightmare to try and detect them against a normal mass of background light. Fortunately, with help from a graduate student, Popp was able to set up a detector that could pick up extremely faint light signals. Using this detector, they found some impressive evidence. Based on their research, they were able to establish that DNA did emit particular frequencies of light. These emissions weren't a jumble of vague frequencies but very coherent signals at particular frequencies, almost like a set of lasers, each producing very coherent, very particular beams. Popp also found that if the DNA was unwound using an agent like ethidium bromide, it would produce even more intense bursts of light, indicating that the DNA somehow stored light energy.

Popp realised that if every cell gave out light then the whole human body must be giving off light. To test this, he constructed an extremely dark room, one in which virtually no light could enter. With this, he began his studies of light emission from the human body. He found that people did produce faint amounts of light. These light emissions followed cycles of 7, 14, 32, 80 and 270 days. He also found that the light of a person's right hand would be identical to the left; they were synched. Buoyed on by this, Popp investigated whether the light emitted by people changed when they were ill. It turned out it did. He found that cancer patients didn't have the same clear rhythms as healthy subjects. They had also lost the synchronisation of light emission from corresponding parts of their bodies. In addition, the coherence of the light given off by their bodies was worse than healthy subjects. It was as though their light patterns were falling apart.

By comparison, Popp found that Multiple Sclerosis patients had an excess of light. This excess of light also occurred with stressed subjects. Popp even tested food and found, for example, that battery eggs produced less coherent light than free range eggs. The same was true of other unhealthy foods compared to healthy ones. It seemed that health of any biological organism was synonymous with focussed, coherent light emissions by that organism's DNA.

Looking through what he had found, Popp wondered if you could heal someone with cancer by re-balancing their DNA light signals. If you stimulated the cancerous area to emit light signals similar to those emitted by healthy tissue, would that cure the cancer? He tested this idea on cancerous cells. He first examined the official anti-cancer medicines. Did they re-balance the light emissions? It turns out they didn't. In some cases, they made them even worse. Popp turned to other medicines, including herbal remedies. After much work, he found that mistletoe did trigger cancerous cells to start signalling like healthy cells.

It was time to test the theory on a patient. He asked a woman suffering from breast and vaginal cancer to take part in his study. She willingly agreed. He tested the mistletoe on samples of her cancers and found one mistletoe remedy did stimulate her cancer cells to emit the same signals emitted by her healthy tissues. With the agreement of her doctor, the woman switched from her existing cancer treatment and began taking the mistletoe remedy. After a year, her cancer was gone.

### *Summing up*

Based on this evidence, it looks as if some illnesses are caused when certain agents introduced into the body (rogue cells, viruses, organic molecules etc) disrupt cell communication by emitting the wrong frequencies of light. Cells can go cancerous when they're no longer talking on the right wavelengths to other cells. Organic molecules can be toxic if they absorb important signals and re-emit them at the wrong wavelength. This problem can be solved, and the cells returned to full health, if the signals from those rogue agents are silenced or altered to produce the right signal again.

Here's where homeopathy comes in. Water can form large structures around pieces of DNA and readily does so. These structures can multiply in number through diluting and shaking. Eventually, we can produce a massive reservoir of these water structures,

all tuned to wrap around these toxic agents. If you place this 'activated' water in your body, these water structures will bind to the toxic agents in your body that are producing the harmful signals. As a result, their harmful electromagnetic signals are silenced. The cells of your body, now able to communicate again without disruption, return to normal. You're healthy again.

Simple really.

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