

# Water and Homeopathy: Latest Discoveries at Science's Cutting Edge

## STORY AT-A-GLANCE

- A major research conference took place at London's Royal Society of Medicine that confirmed the therapeutic effects of extremely small doses (nanodoses) of homeopathic medicines
- Two Nobel Prize-winning scientists and other esteemed researchers from across the world presented compelling evidence that medicinal agents not only persist in water, but they retain therapeutic effects in these nanodoses
- Our bodies' hormones and cell-signaling systems also operate at this super small nanodose level
- Professor Vladimir Voeikov asserted Russian scientists had known for decades that tiny doses of medicines have dramatic effects on biological systems
- Professor Jerry Pollack of the University of Washington is one of the leading experts on water who reported on his research, which confirms water has the capacity to store huge amounts of medicinal information, enabling homeopathic nanodoses to fully impact a person's physiology

**By Dana Ullman, MPH, CCH and Lionel Milgrom, Ph.D., RHom, MARH**

If the common physician, scientist and educated consumer were to believe Wikipedia, they would assume that there is absolutely no research that shows the efficacy of homeopathic medicines in the treatment of any ailment. Furthermore, they would conclude homeopathic medicines are so small in dose, there is literally "nothing" in a homeopathic medicine.

And, if you are this gullible and vulnerable to Big Pharma propaganda, then we've got an island to sell you for \$24! According to The Washington Post, Wikipedia's article on homeopathy and Jesus Christ are the two most controversial on that website in four leading languages (English, French, German and Spanish).

## Research Shows Efficacy of Homeopathic Medicine

The fact of the matter is that research showing the efficacy of [homeopathic medicines](#) has been published in some of the world's most respected medical journals. Here's a roll call of just a few of them:

The Lancet;<sup>1</sup> BMJ<sup>2,3</sup> (British Medical Journal); Chest (the publication of the American College of Chest Physicians);<sup>4</sup> Pediatrics (publication of the American Academy of Pediatrics);<sup>5</sup> Cancer (journal of the American Cancer Society);<sup>6</sup> Journal of Clinical Oncology;<sup>7</sup> Pediatrics Infectious Disease Journal (publication of the European Society of

Pediatric Infectious Diseases);<sup>8</sup> European Journal of Pediatrics (publication of the Swiss Society of Pediatrics and the Belgium Society of Pediatrics).<sup>9</sup>

Would you be shocked to learn that Wikipedia doesn't mention eight of the nine references here? Not only have individual studies found efficacy in homeopathic medicines, but various systematic reviews or meta-analyses have likewise concluded the effects of homeopathic medicines are different to those of a [placebo](#). The newest review of homeopathic research published in Systematic Reviews<sup>10</sup> confirmed a difference between the effects of homeopathic treatment and of placebo.

In reviewing the "highest quality studies," the researchers found that patients given homeopathic treatment were almost twice as likely to experience a therapeutic benefit as those given a placebo.

Further, in reviewing a total of 22 clinical trials, patients given homeopathic remedies experienced greater than 50 percent likelihood to have benefited from the treatment than those given a placebo. Once again, Wikipedia doesn't even mention this new review of clinical research in homeopathy.

This important review of clinical research also acknowledged that four of the five leading previous systematic reviews of homeopathic research found a benefit from homeopathic treatment over that of placebo:

*"Five systematic reviews have examined the RCT research literature on homeopathy as a whole, including the broad spectrum of medical conditions that have been researched and by all forms of homeopathy: four of these 'global' systematic reviews reached the conclusion that, with important caveats, the homeopathic intervention probably differs from placebo."*

And if that wasn't enough, the largest and most comprehensive review of basic science research (fundamental physiochemical research, botanical studies, animal studies and in vitro studies using human cells) and clinical research into homeopathy ever sponsored by a governmental agency was undertaken recently in Switzerland.<sup>11</sup>

This Swiss report affirmed that homeopathic high-potencies seem to induce regulatory effects and specific changes to cells and living organisms. It also reported that 20 of the 22 systematic reviews of clinical research testing homeopathic medicines detected at least a trend in favor of homeopathy. Would it puzzle you that this important review of homeopathic research is not even mentioned or referenced by Wikipedia?

## **Homeopathic Conference at the Royal Society of Medicine**

July 14, 2018, we attended a groundbreaking conference in London entitled "New Horizons in Water Science — 'The Evidence for Homeopathy?'" in the hallowed halls of the U.K.'s Royal Society of Medicine.

Held at the behest of (Lord) Aaron Kenneth Ward-Atherton, who organized and chaired the event, Ward-Atherton not only is a practicing homeopath and integrated medical physician, but also has been a formal adviser on integrated medicine to a member of the U.K. government's Department of Health and Social Care, and had ongoing support from various peers in the British House of Lords.

This conference will no doubt have sent shockwaves around the world, as delegates from over 20 countries listened in awe to two Nobel Laureates (Cambridge physicist Professor Emeritus Brian Josephson and AIDS virus discoverer, Dr. Luc Montagnier) and several world-class scientists of equal academic stature from the U.S., U.K., Israel and Russia.

And what they were saying was pure heresy to conventional medicine! As it turns out, research in water science seems to support the notion there is a significant difference between the biological and physical actions of homeopathic medicines and plain ordinary water.

We should point out that this special conference did not try to review the body of clinical research (above) that verifies the efficacy of homeopathic medicines, nor did it seek to describe all the basic science studies that show that homeopathic medicines have biological or physical effects.

Instead, this conference chose to focus on more fundamental questions: Does the process of remedy production in homeopathy (i.e., dilution and succession — vigorous shaking — of a medicinal substance in water/alcohol) have an effect on the water's long-range structure that is different from simple pure water? And, second, are there sound and plausible explanations for how homeopathic medicines persist in water solutions despite multiple dilutions?

Because most physicians and scientists are completely unfamiliar with the fascinating and amazing qualities and abilities of water, their assertions on what is and isn't possible with homeopathic medicines represent an embarrassingly uninformed viewpoint.

Such assertions are at best unscientific; at worst, they simply represent sheer ignorance. The best scientists are humble in their assertions due to the fact that they know their knowledge is always limited. The average physician or scientist, however, may tend to arrogance, particularly on those subjects which they actually know nothing about.

## **Biomolecules Communicate Over Distance**

Brian Josephson Ph.D., of University of Cambridge, U.K., was the first speaker. He echoed remarks he had made in the magazine *New Scientist*, saying:

*"Simple-minded analysis might suggest that water, being a fluid, it cannot have a structure of the kind that such a picture would demand. But cases such as that of liquid crystals, which while flowing like an ordinary fluid can maintain an ordered structure over macroscopic distances, show the limitations of such ways of thinking."*

*There have not, to the best of my knowledge, been any refutations of homeopathy that remain valid after this particular point is taken into account."*

Josephson powerfully critiqued generally accepted theories of how biomolecules react with their substrates. Conventionally, these are thought to "match" like a lock and a key, but only when they are in direct physical contact. Not so, says Josephson.

Like his famous predecessor, Jacques Benveniste (who Josephson hosted at Cambridge's Cavendish Laboratory back in March 1999), he argues that they can "communicate" over some distance long before they come together, and that such interactions are best described by quantum theory and electromagnetic signaling.

Josephson also lambasted those scientists who demand that homeopathic medicines need to get "chemically analyzed." He asserted that applying chemical analysis to homeopathic remedies will tell you no more about their properties than applying chemical analysis to a CD will tell you what music is on it. Chemical analysis is too limited a tool for either.

Further, Josephson went on to show some remarkably beautiful photos and videos that provide powerful evidence of how hypersensitive water is to sound. Using an impressive new technology called cymascope (developed by acoustics engineer John Stuart Reid),<sup>12</sup> Josephson was able to demonstrate the incredible influence sound has on water using this technology, producing stunning dynamic wave patterns in water that follow changes in a sound's pitch.<sup>13</sup>

This video shows dramatically how the dynamic structure of water changes as music is played. And for this to occur, there has to be an ordering of molecules within the water to give it that dynamic structure, what is commonly referred to as a "memory."

*"Such is life," Josephson concluded. "Order arises spontaneously. Creation of order (ordering) is a part of nature. Order includes disorder (fluctuations), so order requires order to be present. With crystals, the order is static; with life it is dynamic. There we have ordering within activity. Up until now, our present understanding of all this is qualitative and limited, but this must be the next step for science."*

Finally, Josephson wryly responded to the chronic ignorance of homeopathy by its skeptics saying, "The idea that water can have a memory can be readily refuted by any one of a number of easily understood, invalid arguments."

## **Physical Properties of Aqueous Systems**

Next to speak was Vladimir Voeikov from the Lomonosov Moscow State University in Russia. A world expert on the chemical and physical properties of aqueous systems and their key role in the vital processes of living systems, Voeikov also took aim at critics who scoff at homeopathy's plausibility.

He then launched into a description of the extensive and highly detailed work on the biological effects of ultrahigh dilutions (or UHDs) that has been ongoing in Russia since the 1980s.

One of the unfortunate side effects of the perennial distrust existing between Russia and the West has been access to research like this, mainly because it has appeared only in Russian (i.e., Cyrillic) journals. Consequently, Voeikov had a lot of ground to make up — which he did in no uncertain terms!

And, much to the audience's surprise, it turns out that Benveniste (who in 1988 was so pilloried by scientists, skeptics and the journal *Nature*, his reputation was trashed and he lost his laboratories and his funding) was by no means the first to suggest that solutions diluted and strongly agitated to the point where there couldn't possibly be any molecules of the original substance left could still exert biological effects.

Delving back into the literature, it had been announced around a century before Benveniste. In 1955, a review had already been published into the action of UHDs.

Drawing on his and his Russian colleagues' work, Voeikov concluded that conventional ideas of how water dissolves substances is actually incorrect. Until now, when something dissolves in water, its particles were thought to be randomly distributed throughout the solvent. As the solution is continually diluted, these particles simply reduce in number until at a certain dilution (known as the Avogadro limit) they disappear completely.

Consequently, if a solution is diluted beyond this limit, as there are apparently no particles left, such UHDs cannot possibly exert any effects, let alone on biological systems. Therefore, homeopathy (which sometimes uses dilutions of substances way beyond the Avogadro limit) must be complete bunkum. So much for conventional thinking.

What Voeikov and his colleagues have shown time and again is that the process of homeopathic dilution and agitation, even down past the Avogadro limit (so that no particles are supposed to still be present), does NOT get rid of all the dissolved substance.

Instead, microscopically tiny "clumps" of the dissolved substance — known as nanoassociates — remain behind and these are biologically active. What's more, various analytical techniques can be used to track these nanoassociates, and they affect water in many ways that make it different from pure water, e.g., electrical conductivity and surface tension. So, a solution diluted and agitated beyond the Avogadro limit is anything but pure water.

## **Nanoassociates Violate Conventional Laws of Behavior**

If that wasn't enough, Voeikov and his colleagues have shown that so-called ordinary solutions — the kind that we make up every day and that have not been sequentially diluted and agitated as homeopaths do — also contain nanoassociates, violating what has

for years been understood as "laws of behavior" prescribed in standard textbooks on aqueous solutions.

So, not only are all those skeptics and naysayers going to have to get used to homeopathic dilutions and their effects being real, they will have to completely reassess their understanding of what happens when ANY substance is dissolved in water. Those whose solemn duty it is to rewrite textbooks are going to have a field day!

Barely able to catch our breath, we were then treated to one of the most inspirational talks of the whole conference, delivered by Jerry Pollack, Ph.D., professor of bioengineering at Seattle's University of Washington. Pollack is probably best known for his 2014 book, "The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor," in which he outlines in highly readable terms some of his and his team's amazing discoveries about water.

## **Exclusion Zone Water May Have Significant Implications for Homeopathy**

Chiefly, these concern what happens to water when it is in contact with a surface, e.g., a membrane. And for any doubting Thomases out there we should point out that Pollack's amazing discoveries about water have been independently verified many times.

It turns out that the water molecules closest to the membrane surface form an almost crystalline alignment that has the effect of excluding any dissolved particles in the water. And these exclusion zones — or EZs, as they are called — have properties that are totally different from the bulk water, and whose consequences will have profound effects not only on our understanding of water, but how we use it.

For example, depending on the nature of the membrane surface, charge separation occurs between the EZ layer and the bulk water phase. Pollack showed us how this phenomenon could be used, not only to produce an incredibly simple battery powered only by radiant energy, but how it could be the basis of a water desalination system. At the moment, this last application would need to be scaled up before it could be of any practical use, but if it could, there must surely be a Nobel Prize in the offing.

In addition, bearing in mind that blood is mainly water being pumped through tubes of biological membranes, Pollack suggested that the same charge-separating mechanism that powered his radiant energy battery might also assist in pushing our blood through narrow vessels far removed from the pumping action of the heart. If so, such a discovery will have huge ramifications for our understanding of physiology.

It turns out that Pollack's semi-crystalline EZs cannot only be separated, they are able to electromagnetically store information in their molecular structure. And, as the preparation of homeopathic remedies also involves water solutions in contact with surfaces, it is quite feasible his new EZ discoveries will have a huge impact on our understanding of water memory and homeopathy.

In fact, Pollack asserts that water has a HUGE capacity to store information. Further, he notes that homeopathic process of succussion (vigorous shaking of water in glass) creates increased avenues for [EZ water](#) that then creates increased water storage.

## **Classic Homeopathic Methods Optimize Storage of Information in Water**

The founder of homeopathy, Dr. Samuel Hahnemann (1755-1843), was both a physician and the author of a leading textbook for pharmacists of his day. His many experiments attempting to reduce the harmful side effects of medicinal substances, led him to a method of dilution and agitation which homeopaths use till this day.

Intriguingly, what the new science presented at this conference is telling us is that Hahnemann's method seems to optimize storage of medicinal information within the very structure of water itself! Even after more than 200 years, Hahnemann's discovery of homeopathy and his contributions to medicine and pharmacology are still being uncovered.

Nobel Prize winner Luc Montagnier was introduced to homeopathy and homeopathic research by Benveniste. In a remarkable interview published in Science magazine of December 24, 2010,<sup>14</sup> Montagnier expressed support for the often maligned and misunderstood medical specialty of homeopathic medicine.

*"What I can say now is that the high dilutions (used in homeopathy) are right. High dilutions of something are not nothing. They are water structures which mimic the original molecules."*

Montagnier concluded the interview when asked if he is concerned that he is drifting into pseudoscience. He replied adamantly: "No, because it's not pseudoscience. It's not quackery. These are real phenomena which deserve further study."

## **'Teleportation' Effects**

Montagnier's study found that under the right conditions electromagnetic signals can be transmitted from test tubes containing a highly diluted DNA sample to a different test tube containing only water, and that when enzymes which copy DNA molecules are then added to this water, they behave as if DNA molecules are present, producing new DNA molecules.<sup>15</sup>

This "teleportation" effect of the DNA, from one test tube to another was found to occur only when the homeopathic procedure of sequential dilution, with vigorous shaking of the test tube, was utilized. Also, Montagnier cowrote with several highly-respected scientists another article that was published in a leading scientific journal.<sup>16</sup> This article posits quantum effects beyond simple chemistry.

Montagnier's studies found that highly diluted DNA from pathogenic bacterial and viral species is able to emit specific radio waves and that "these radio waves [are] associated with 'nanostructures' in the solution that might be able to recreate the pathogen."

A writer for New Scientist magazine has asserted that, if its conclusions are true, "these would be the most significant experiments performed in the past 90 years, demanding reevaluation of the whole conceptual framework of modern chemistry."<sup>17</sup>

While Montagnier's work shows the influence of [electromagnetic fields](#) having a biological effect, other researchers at the conference found that nanodoses of the original homeopathic medicine persists in water solutions. Jayesh Bellare of the prestigious India Institute of Technology described his seminal research that was published in Langmuir, a highly-respected journal published by the American Chemistry Society.<sup>18</sup>

Bellare and his colleagues found that six different homeopathic medicines, all made from minerals (gold, silver, copper, tin, zinc and platinum), that were diluted 1-to-100, six times, 30 times and 200 times, were each found in nanodoses from one of three different types of spectroscopy.

Bellare and his team explained that homeopathic medicines are usually made in glass bottles, and the vigorous shaking of the water in these bottles releases nanosized fragments of silica from the glass walls, and the substance being made into a medicine is literally pushed into these floating silica "chips."

Then, when 99 percent of the water is poured out, the silica chips cling to the glass walls. The scientists found each of the six minerals persisting in the water no matter how many times they diluted the medicine. When one considers that many of the most important hormones and cell-signaling agents of the body operate at nanodose levels, the nanodoses found in homeopathic medicines may explain how these medicines work.

Still further, the fact that nanodoses are much more able to cross the blood-brain-barrier as well as most cell membranes provides additional insight into how and why homeopathic nanodoses can elicit significant and powerful immune responses from the body.

## **Afterword: Stop Press!**

The day after Ullman's interview with Dr. Joseph Mercola, a very important study on homeopathy was published on the website of one of the world's leading scientific journals, Nature.

Nature.com just published a collection of studies that tested different homeopathic potencies of Rhus toxicodendron (also known as Rhus tox and Toxicodendron pubescens, commonly known as poison ivy), including 2X, 4X, 6X, 8X, 12X, 24X and 30X in the treatment of neuropathy in rats.<sup>19</sup>

Previous research had found that Rhus toxicodendron has significant anti-inflammatory, anti-arthritic and immunomodulatory activities. This new research evaluated antinociceptive (pain-reducing) efficacy of Rhus tox in the neuropathic pain and delineated its underlying mechanism. More specifically, this research found that this homeopathic medicine showed significant antioxidative and anti-inflammatory properties.

This study found that homeopathic doses of Rhus tox 24X and 30X had dramatic effects that equaled the results from a known conventional drug, Gabapentin, and did so in much safer doses. Conventional scientists have consistently asserted that these extremely small doses of homeopathic medicines could not have ANY effects, but this study, like an increasing number of other such studies, has proven conventional scientists are wrong.

The above described study didn't investigate the influence of water in its study, but it did confirm that homeopathic nanodoses can have powerful biological and clinical effects.

## Dedication

This article is dedicated to Dr. Peter Fisher, the now-late physician to Her Majesty Queen Elizabeth II. A graduate of University of Cambridge and a fellow of the Royal College of Physicians and the Faculty of Homeopathy, he was a widely published expert in rheumatology and forms of complementary and alternative medicine.

Fisher chaired the World Health Organization's working group on homeopathy and was a member of WHO's Expert Advisory Panel on Traditional and Complementary Medicine. He served as clinical director for 18 years and director of research at the Royal London Hospital for Integrated Medicine (formerly the Royal London Homoeopathic Hospital) for 22 years.

He was also president of the Faculty of Homeopathy and editor-in-chief of the journal Homeopathy (the leading research journal in the field). Fisher was awarded the Polish Academy of Medicine's Albert Schweitzer Gold Medal in 2007. Fisher also served as moderator for the second half of the homeopathic research conference discussed in this article.

Besides all of his academic achievements, Fisher had a wicked, dry, even very dry, British sense of humor. He was known to provide scathing critiques of the many uninformed and ill-informed skeptics of homeopathy whose criticisms of homeopathy simply proved their sheer ignorance of the subject. Sadly, August 15, 2018, Fisher was riding his bicycle in London on "drive your bike to work day," and was hit by a truck and killed.

**Dana Ullman, MPH, CCH**, is a certified homeopath who has written 10 books on homeopathy and four chapters in medical textbooks, and who has published 40 books on homeopathy by his colleagues (co-published with North Atlantic Books). He directs Homeopathic Educational Services, a leading homeopathic resource center to help people access homeopathic books, medicines, software and e-courses ([www.homeopathic.com](http://www.homeopathic.com)).

He has also created a special e-course on "Learning to Use a Homeopathic Medicine Kit" (details at <https://homeopathicfamilymedicine.com/>). He also maintains a homeopathic practice where he "sees" most of his patients via Skype, various video apps, or the simple telephone.

**Lionel R Milgrom, Ph.D. FRSC FRSA MARH RHom** is a registered homeopath who has been a research chemist for 40 years (cofounder of a university anticancer biotech spin-out company) with many publications and a text book to his credit. He has been a practicing homeopath for 20 years.

His main research interest these days is in the understanding of homeopathy within both scientific and philosophical contexts, and has published extensively in these areas. He has also published the first volume of an e-book trilogy, "Homeopathy and Science: A Guide for the Perplexed."

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