

Homeopathy

Imagine a medical treatment that works in synchrony with your body, allowing it to overcome injury and disease naturally. Imagine a medical treatment that's tailored to you and your specific illness, rather than having to rely on generic drugs that are developed for the average patient. Imagine medical treatments that have no side effects at all, and has never caused a single overdose or adverse reaction. Imagine a treatment that you can make in your own home, from natural, simple and cheap materials. While this might sound like a fantasy, such treatments already exist and have for hundreds of years: homeopathic medicines. Originally developed by the German doctor Samuel Hahnemann in the late 1700s, homeopathic medicine has grown into a thriving practice with hundreds of thousands of doctors worldwide treating millions of patients for a wide spectrum of diseases. Despite furious opposition by the conventional medical establishment, numerous scientific studies performed in the last few decades have shown that homeopathic medicine clearly works. Improvements in our understanding of molecular bonding and cluster dynamics in water have provided a firm theoretical basis for the science of homeopathy, and with low cost, safe and effective treatments for many chronic illnesses the use of homeopathic medicine is certain to continue to grow in the future.

History: Samuel Hahnemann was born in Meissen Germany in 1755. Early in his life he showed tremendous intelligence: his first tutor volunteered his services just to be able to work with such a talented student, and he became fluent in ten languages ranging from English to Arabic. At the age of 20 he moved to Leipzig to study medicine, but after two years the lack of clinical facilities at the school forced him to travel to Vienna to complete his education. Following less than a year of training, he graduated from the University of Erlangen with honors. [Wikipedia]

He returned to Saxony near his original home in 1781, setting up shop as a village doctor, marrying Johanna Kuchler and beginning a family that would eventually number 11 children. In

an era where state of the art medical treatment included purging, bleeding and blistering, he soon grew frustrated with his inability to truly help the patients that he served. He began to prescribe truly astounding ideas for treatment: fresh air, exercise and a healthy diet. He finally quit medicine in 1789 and returned to Leipzig desperately poor to work as a translator for scientific and medical books. [Kaufman, p24]

Hahnemann became interested in what is now called pharmacology: the effects of various substances on the human body. In the late 1700s, there were no standardized drugs or pills and if Hahnemann sent a patient to ten different pharmacists he was certain to get back ten different medications, each prepared in a different way and with different effects. Following his translation of Cullen's *Materia Medica* into German, Hahnemann began to experiment himself with specific preparations to see if he could determine their exact effects. He began with an extract of cinchona (Jesuit's bark) which was often suggested as a remedy for fever due to its strengthening of the stomach. He began with a dosage of four drachms (1/4 of an ounce) twice a day and quickly noted that "His extremities grew cold, his pulse hurried, he began to exhibit the symptoms of fever, the flushed countenance, throbbing head, thirst and so forth" [Kaufman, p25] When he stopped taking the cinchona, he soon returned to full health, and Hahnemann quickly determined that the cinchona had caused the fever. Knowing that it could also be used in lesser doses to treat fever, Hahnemann determined the fundamental rule of homeopathy: *Simila, Similibus, Curantur*, or "Let likes be cured by likes"

Hahnemann quickly moved on to test new substances, or as he referred to them, "drug-provings" For these, he would dose healthy patients with carefully purified substances and record their physiological response so that he could determine the effects of a single substance at a time. Long before modern medical trials existed Hahnemann had developed the basics of scientific testing, and he rapidly expanded the homeopathic arsenal with new treatments for a wide range of conditions. With the science of the day having little understanding of chemistry or biology he also developed a working theory for the effects of homeopathy: by the law of *similia* the body was given an artificial version of the disease that needed treatment. However,

this artificial form was one that the body could successfully challenge, thus priming the vital powers of the body to fight off the actual infection. [Kaufman, p26] This is a concept very similar to vaccination: challenging the body's immune system with a weakened virus primes the immune system to successfully fight off an actual infection.

His work led him to the second principle of homeopathy, the law of infinitesimals. Hahnemann found that the cures he prescribed became more effective as he diluted the doses of the original "mother" liquor. The vital force responds better to smaller dosages, and Hahnemann discovered that extremely dilute solutions (diluted 500,000 or a million times) work very well. He experimented with a number of techniques for dilution and discovered that during the dilutions the liquids had to be properly "succussed" by striking it against a pad a number of times in order to enable the vital energy within the substance. In his own words,

"Homoeopathic Dynamizations are processes by which the medicinal properties, which are latent in natural substances while in their crude state, become aroused, and then become enabled to act in an almost spiritual manner on our life; *i.e.*, on our sensible and irritable fibre. This development of the properties of crude natural substances (dynamization) takes place, as I have before taught, in the case of dry substances by means of trituration in a mortar, but in the case of fluid substances, by means of shaking or succussion, which is also a trituration. These preparations cannot be simply designated as dilutions, although every preparation of this kind, in order that it may be raised to a higher potency, *i.e.*, in order that the medicinal properties still latent within it may be yet farther awakened and developed, must first undergo a further attenuation, in order that the trituration or succussion may enter still further into the very essence of the medicinal substance, and may thus also liberate and expose the more subtle part of the medicinal powers that lie hidden more deeply, which could not be effected by any amount of trituration and succussion of the substances in their concentrated form."

[Hahnemann, p17]

Hahnemann continued his work on homeopathic remedies for the rest of his life, gathering together the successful provings that he developed into the original sourcebook for most

homoeopathic remedies, the *Materia MedicaPura*. In the years since his death, a variety of Materia Medicas have been developed covering a wide range of illnesses and treatments.

Current use: Homeopathy is currently used worldwide, although usage varies wildly between different countries depending on the level of support for the practice. For example, Britain has five homeopathic hospitals and hundreds of licensed practitioners and is fully supported by the National Health Service as a co-equal part of medical treatment. Use of homeopathy is expected to rise sharply in the coming years as the NHS faces budget cuts and a mandate to allow people more choice in their treatment: with homeopathy being substantially cheaper and easier than most allopathic remedies consumer demand will drive the increase. [Daily Mail Online, 8/11/2010]

Homeopathic treatment in the US has also grown over the past 20 years, with between one and two thousand doctors practicing it, with 15 training institutions and five different examining and certifying boards. It has achieved tremendous success in India with more than 300,000 practicing homeopaths, of which 100,000 are medical doctors trained through one of the 120 colleges that offer homeopathic instruction. In Germany, the land where Hahnemann began his study, 10% of all doctors specialize in homeopathy and virtually all pharmacies sell premade homeopathic remedies. [Dannheisser, p12-13]

Example of treatment: In order to better understand homeopathy, an example of a typical treatment is helpful. Unlike traditional medicine, homeopathy studies the entire set of symptoms and is individually tailored to the specific person rather than using the “one-size-fits-all” method of conventional drugs. In deciding on a homeopathic remedy, you should focus not only on the specific symptoms (pain, indigestion, etc) but also the rate of onset (fast, slow), the emotional state of the person at the time (excited, lethargic), the modalities of the illness (better in the morning, evening, sitting up, etc) as well as a number of other factors and develop a remedy specific to that set of complaints. [Dannheisser, p20]

For example, say you have a child with a violent and unproductive cough, along with weakness and cold sweat. They are irritable and want to be left alone. Lying down in a warm room seems to make them worse; sitting up and cool air improves the situation. They want to drink only cold water but not very much at any time. Knowing this set of symptoms, you would check a Materia Medica for a substance that would be helpful for all of these at once, and you would probably select Antimonium tartaricum. [Dannheiser, p 34] Checking the Materials Safety Data Sheet for Antimony potassium tartrate (the modern name for the compound) we note that exposure causes coughing, shortness of breath, and irritability, as we would expect from following from the law of *similia*. [MSDS]

To properly prepare the treatment, you should grind up the substance (if a plant) with a mortar and pestle and then dissolve them in a 50/50 mixture of water and ethyl alcohol. Other solid substances like the antimonium tartaricum should be mixed with lactose (milk sugar), then ground finely and dissolved into the water/alcohol mix. This is then known as the “mother tincture” or “mother liquor”. Extract one drop of the mother tincture and then dilute it in 99 drops of the water/alcohol mixture, then succuss the mixture several times by striking the vial against a pad. This is the “1C” potency, or one part in 100. To develop a proper homeopathic formula, you then take one drop of the 1C mixture and add it to 99 of the water alcohol mix then succuss to make the 2C potency. Repeat this process until you reach the desired potency- it is suggested you start with some of the less powerful solutions such as 6C or 12C on the patient before trying a more potent 200C solution. [Dannheiser, p21] (Over-the-counter homeopathic remedies often list X instead of C- the X stands for a 10-fold dilution, so a 2X remedy would be equal in strength to a 1C, 4X is 2C, etc)

Once you have reached the desired potency, you should dose based on the severity of the injury- every 5-30 minutes for severe, rapid onset problems like injuries or sudden pain, to every 4-8 hours for something like a cold or flu. Continue treatment with the remedy until you see improvement: if unsuccessful, check the symptoms again and see if you may have missed a more appropriate starting material. Be careful to not overdose however: homeopathic

remedies work best at very low dosages and taking too much of them can hurt the effect.
[Dannheiser, pp 22-23]

Theoretical background: Hahnemann developed his theories of homeopathy in a time when the structure of atoms and molecules was not well understood. His writings focused primarily on the vital force of living things and the interrelationship of the material and spiritual worlds. However, recent research into the properties of water and the nature of quantum mechanics has enabled a much deeper theoretical understanding of the science of homeopathy.

Work has primarily centered around two areas: local effects due to the “memory” of water molecules during the dilution process and non-local effects looking at how quantum entanglement can create long-range stable information states that hold the nature of the diluted substance.

It has been understood for a long time that liquid water actually possesses a great deal of short range structure. Water is a highly atypical liquid in many ways- ice floats, for example because solid water is less dense than the liquid due to the hydrogen bonded network in solid ice. This is highly unusual- virtually all other substances have the solid being more dense than the liquid. Water has an extremely high heat capacity compared to other similar substances, as well as much higher melting and boiling points, again due to the hydrogen bonded network of molecules. Water forms clusters of molecules in various ways, ranging from two-four molecule bicycle-octamers to large icosahedral clusters with hundreds of molecules. These clusters have long lifetimes, even if they shift individual molecules in and out of the cluster. [Chaplin]

Our understanding of how this affects homeopathy was greatly enhanced by a series of papers by the French scientist Jacques Benveniste. In a groundbreaking paper published in the prestigious journal *Nature*, Benveniste and his group showed that homeopathic preparations of an anti-immunoglobulin E (IgE) antiserum caused white blood cells (basophils) that are sensitized to IgE to release histamine, exactly as they would if exposed to high concentrations of the antiserum. This was despite the fact that the anti-IgE serum was diluted anywhere from

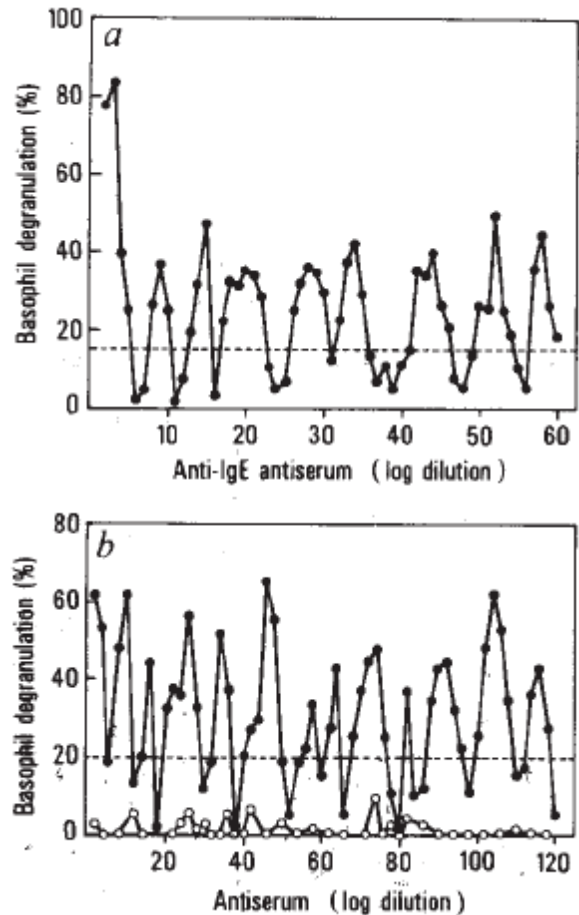
100 to 10^{120} , the latter dilutions having no molecules of the anti-IgE antiserum anywhere in the preparation. Benveniste noted that the preparations had to be succussed properly in order to activate, and quickly surmised that that the water had retained a memory of the anti-IgE substance in its molecular organization. [Davenas et al, 1988]

The graphs to the right show the some of the most striking results from their studies: the x axis shows the dilutions from 1-1 to 10^{60} for the top graph and 1-1 to 10^{120} for the bottom, yet the solution continues to affect the basophils long after all of the anti-IgE was removed. Later work has shown that this memory can be erased by high magnetic fields, but it can also be transmitted by electronic means to

other water samples and activate them to give the same effects as the original substance.

[Thomas, 2000] Interestingly, it appears the total amount of information needed to create a homeopathic remedy is fairly small: the tests ran over ordinary voice lines (capped at 64 kbps) for only 15 minutes and still managed to create an effective solution.

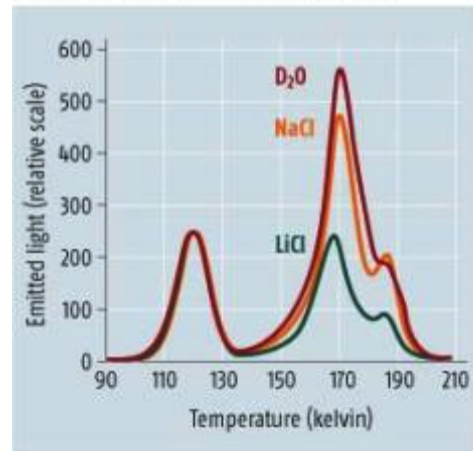
An Italian team has expanded on this work by looking at a wide variety of physical properties of homeopathic substances. Looking at well understood properties such as pH, electrode potential, calorimetry and the like, they noted clear differences in control samples vs. homeopathic remedies. Interestingly, they noted that the effects varied by both sample age and the size of the sample container, which would indicate a much more extensive and ordered long range structure for water than had been previously expected. [Elia, 2007]



Some of the most interesting recent work has come from Louis Rey, a Swiss chemist using thermoluminescence to study the structure of solids. Rey exposed highly chilled samples of water ice to radiation which caused them to absorb some of the energy in the molecular structure of the ice, then slowly warmed them up and looked at the light given off by the stored energy. The light emitted as the sample warmed up around 170K indicates the pattern of hydrogen bonding in the substance. Rey studied homeopathic dilutions of sodium and lithium chloride and noted that even with dilutions as high as 10^{-30} grams/cc (a dilution that would contain no sodium or lithium chloride molecules at all) the light peaks for the solutions were clearly different than the heavy water control. Rey believes that this clearly shows that the hydrogen bonding network in water remembers the presence of the ions. [Rey, 2009]

UNEXPLAINED RESULTS

Heavy water (D_2O) and highly dilute solutions of sodium chloride and lithium chloride behaved differently in thermoluminescence tests



Other recent work has focused on larger scale, non-local effects involving quantum entanglement. This is the process where two complementary states in quantum systems are directly linked. The most common example of this is generating a pair of particles where the spins are correlated. Prior to measurement, both particles are in a superposition of both states, spin up and spin down. If we separate them and then measure the spin of one of the particles, in the Copenhagen formulation of quantum mechanics this collapses the wavefunction of the measured particle and the results are exactly 50-50 that we get either the spin up or down particle. However, since the spins are correlated, the other particle must have the opposite spin. Consider the particles separated by a very large distance- in that case, quantum entanglement manages to transmit the information from one particle to the other instantaneously, faster than light. While Einstein derided this “spooky action at a distance” a wide variety of experiments done since then have shown that the effect actually exists. [Wikipedia, Quantum Entanglement]

Lionel Milgrom at the Imperial College in London has expanded some recent work by Atmanspacher on Weak Quantum Theory (WQT) to explore the three way entanglement of the patient, the homeopathic practitioner and the remedy. [Milgrom, 2007] While he notes that entanglement is clearly evident in the interrelationship of the water molecules, he criticizes the focus on the water memory methods of homeopathic action as missing out on the larger effects caused by the linkage of the vital forces of the doctor and patient. While quantum physics typically acts only on atomic sized particles, Atmanspacher's formulation of WQT shows that these processes can have effects on macroscopic objects and the dynamics of healing. The homeopathic vital force can be treated much as a wavefunction in normal quantum theory, and thus can have both non-local and non-deterministic properties- you can have instantaneous action over large distances as well as having the process of observation itself affect the outcome of the healing process. This can help explain why homeopathic remedies can fail during double blind clinical trials since the observer effects cause the healing wavefunctions to lose information and collapse into useless states. [Milgrom, 2006]

Medical results: While anecdotal evidence for homeopathy's effectiveness has been around for hundreds of years, modern medicine typically uses a rigorous scientific method to test modern drugs. The double blind, randomized clinical trial has been the gold standard for measuring effectiveness for more than 50 years. In these, a set of patients with an illness are randomly divided into two or more groups. One of the groups is treated with the trial drug, while the others may be treated with existing medicines or with an inactive placebo. Crucially, neither the doctor nor the patient know which group they are in: this prevents either from modifying the results to get the "expected" one. Drugs that show significant action above the placebo or the existing medicine and don't have side effects that outweigh the benefits can be approved as effective treatments.

In the past few decades homeopathic remedies have been subjected to a large number of these trials, and have clearly shown their

effectiveness beyond that of a placebo. One

of the most useful papers for students of homeopathy is a critical review by Jonas,

Kaptchuk and Linde in 2003 that did a

collection of collections of results. They

reviewed a series of papers that have

collected RCTs of homeopathic medicines,

totaling several hundred in all, sorted by both

method and the illness treated by the

remedies. They found a wide number of

successful RCTs for illnesses ranging from

asthma to headache to trauma and rheumatic

diseases. [Jonas, 2003] Similar work has been done specifically for pain management which

found effective homeopathic treatments for pain arising from causes as varied as arthritis to

ankle sprains. [Weintraub, p359] A third meta-analysis was published in the prestigious medical

journal *Lancet* by Linde and Claius and looked at 189 clinical trials for homeopathic medicine,

again covering a wide range of issues from gastritis to cramps and even strokes, and after

rigorous statistical analysis they found “The results of our meta-analysis are not compatible

with the hypothesis that the clinical effects of homoeopathy are completely due to

placebo.”[Linde] (Table 3 above is extracted from this paper)

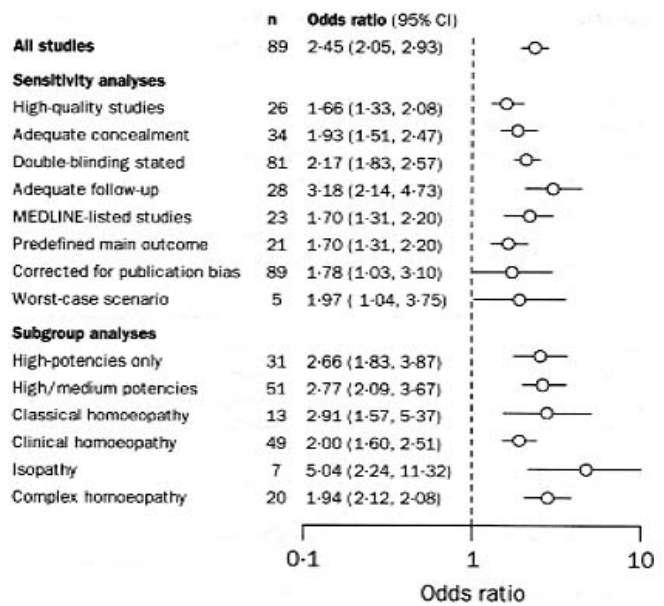


Table 3: Pooled odds ratios and 95% CI (random-effect model)

A specific set of papers by Jennifer Jacobs of the University of Washington and others studying the treatment of childhood diarrhea in Nepal and Nicaragua show some of the clearest evidence for the effectiveness of homeopathic medicine. They performed RCTs on groups of children suffering from the disease: all patients were given standard oral rehydration therapies but then were divided into two groups, one of which was given an individualized homeopathic treatment and the other a placebo. (Remedies were based on a number of possible provings, including arsenic trioxide, chamomile, metallic mercury, may-apple and sulphur.) They found clearly significant results showing that children decreased the duration of the diarrhea and the number of stools that they passed per day.

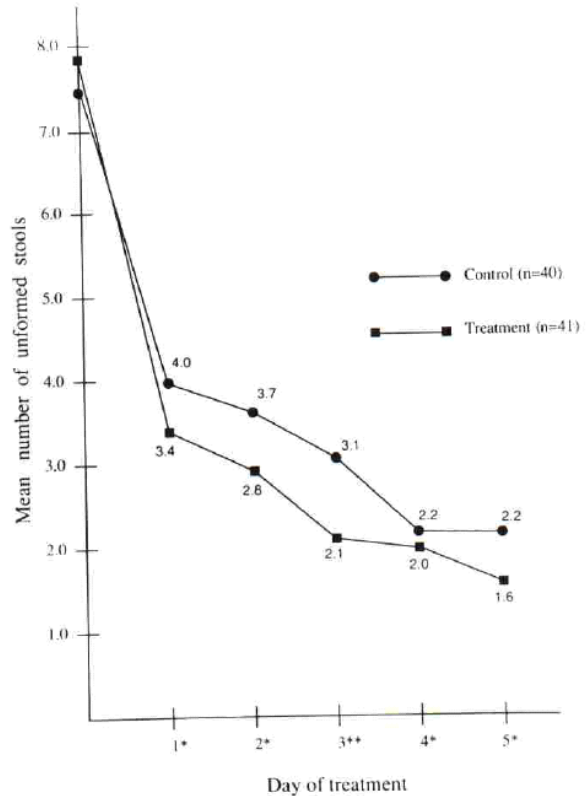


Figure. Comparison of mean number of stools by day of treatment, homeopathic treatment versus control in acute childhood diarrhea. *, NS; **, $P < .05$.

[Jacobs, 1994] [Jacobs, 2000] These papers are especially valuable in that they have a clear rubric to measure the effectiveness: studies involving things like headache or colds are often dependent on self-reported level of suffering and thus are considerably more random than a simple stool count.

Some negative trials were reported in these collections of RCTs, but we should be careful before assigning too much weight to these. Milgrom's work clearly shows that observer effects can negatively affect the outcome of homeopathic treatments and thus failures may not be due to problems with the remedy but the entire RCT process. Further research into methods of studying homeopathy without causing observer effects is clearly a priority.

Conclusion: Homeopathic medicine has a bright future ahead of it. Derived in a time when modern medicine was actively dangerous, its simple and effective treatments continue to be

useful today even as allopathic medicine has made major advances. A great deal of recent work has put the fundamental theory of homeopathy on solid ground, and a host of carefully controlled medical studies have proven that it is effective for a wide range of illnesses.

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