

"It's a very dangerous thing to believe in nonsense." -- James Randi

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Homeopathy - The Ultimate Fake

by Stephen Barrett, M.D.

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Basic Misbeliefs

Homeopathy dates back to the late 1700s when Samuel Hahnemann (1755-1843), a German physician, began formulating its basic principles. Hahnemann was justifiably distressed about bloodletting, leeching, purging, and other medical procedures of his day that did far more harm than good. Thinking that these treatments were intended to "balance the body's 'humors' by opposite effects," he developed his "law of similars" -- a notion that symptoms of disease can be cured by extremely small amounts of substances that produce similar symptoms in healthy people when administered in large amounts. The word "homeopathy" is derived from the Greek words homoios (similar) and pathos (suffering or disease).

Hahnemann and his early followers conducted "provings" in which they administered herbs, minerals, and other substances to healthy people, including themselves, and kept detailed records of what they observed. Later these records were compiled into lengthy reference books called materia medica, which are used to match a patient's symptoms with a "corresponding" drug.

Hahnemann declared that diseases represent a disturbance in the body's ability to heal itself and that only a small stimulus is needed to begin the healing process. He also claimed that chronic diseases were manifestations of a suppressed itch (psora), a kind of miasma or evil spirit. At first he used small doses of accepted medications. But later he used enormous dilutions and theorized that the smaller the dose, the more powerful the effect -- a principle he called the "law of infinitesimals." That, of course, is just the opposite of the dose-response relationship that pharmacologists have demonstrated.

The basis for inclusion in the Homeopathic Pharmacopeia is not modern scientific testing, but homeopathic "provings" conducted during the 1800s and early 1900s. The current (ninth) edition describes how more than a thousand substances are prepared for homeopathic use. It does not identify the symptoms or diseases for which homeopathic products should be used; that is decided by the practitioner (or manufacturer). The fact that substances listed in the Homeopathic Pharmacopeia are legally recognized as "drugs" does not mean that either the law or the FDA recognizes them as effective.

Because homeopathic remedies were actually less dangerous than those of 19th-century medical orthodoxy, many



reviving the body's "vital force." This notion is unsubstantiated. Moreover, if it were true, every substance encountered by a molecule of water might imprint an "essence" that could exert powerful (and unpredictable) medicinal effects when ingested by a person.

Stan Polanski, a physician assistant working in public health near Asheville, North Carolina, has provided additional insights:

Imagine how many compounds must be present, in quantities of a molecule or more, in every dose of a homeopathic drug. Even under the most scrupulously clean conditions, airborne dust in the manufacturing facility must carry thousands of different molecules of biological origin derived from local sources (bacteria, viruses, fungi, respiratory droplets, sloughed skin cells, insect feces) as well as distant ones (pollens, soil particles, products of combustion), along with mineral particles of terrestrial and even extraterrestrial origin (meteor dust). Similarly, the "inert" diluents used in the process must have their own library of microcontaminants.

The dilution/potential process in homeopathy involves a stepwise dilution carried to fantastic extremes, with "succussion" between each dilution. Succussion involves shaking or rapping the container a certain way. During the step-by-step dilution process, how is the emerging drug preparation supposed to know which of the countless substances in the container is the One that means business? How is it that thousands (millions?) of chemical compounds know that they are required to lay low, to just stand around while the Potent One is anointed to the status of Healer? That this scenario could lead to distinct products uniquely suited to treat particular illnesses is beyond implausible.

Thus, until homeopathy's apologists can supply a plausible (nonmagical) mechanism for the "potentiation"-through-dilution of precisely one of the many substances in each of their products, it is impossible to accept that they have correctly identified the active ingredients in their products. Any study claiming to demonstrate effectiveness of a homeopathic medication should be rejected out-of-hand unless it includes a list of all the substances present in concentrations equal to or greater than the purported active ingredient at every stage of the dilution process, along with a rationale for rejecting each of them as a suspect.

The process of "proving" through which homeopaths decided which medicine matches which symptom is no more sensible. Proving involved taking various substances recording every twitch, sneeze, ache or itch that occurred afterward -- often for several days. Homeopathy's followers take for granted that every sensation reported was caused by whatever substance was administered and that extremely dilute doses of that substance would then be just the right thing to treat anyone with those specific symptoms.

Dr. Park has noted that to expect to get even one molecule of the "medicinal" substance allegedly present in 30X pills, it would be necessary to take some two billion of them, which would total about a thousand tons of lactose plus whatever impurities the lactose contained.

Unimpressive "Research"

Since many homeopathic remedies contain no detectable amount of active ingredient, it is impossible to test whether they contain what their label says. Unlike most potent drugs, they have not been proven effective against disease by double-blind clinical testing. In fact, the vast majority of homeopathic products have never even been tested.

In 1990, an article in *Review of Epidemiology* analyzed 40 randomized trials that had compared homeopathic treatment with standard treatment, a placebo, or no treatment. The authors concluded that all but three of the trials had major flaws in their design and that only one of those three had reported a positive result. The authors concluded that there is no evidence that homeopathic treatment has any more value than a placebo. *Prescrire International* published similar conclusions in 1995.

In 1994 the journal *Pediatrics* published an article claiming that homeopathic treatment had been demonstrated to be effective against mild cases of diarrhea among Nicaraguan children. The claim was based on findings that, on certain days, the "treated" group had fewer loose stools than the placebo group. However, Sampson and London noted: (1) the study used an unreliable and unproved diagnostic and therapeutic scheme, (2) there was no safeguard against product adulteration, (3) treatment selection was arbitrary, (4) the data were oddly grouped and contained errors and

inconsistencies, (5) the results had questionable clinical significance, and (6) there was no public health significance because the only remedy needed for mild childhood diarrhea is adequate fluid intake to prevent or correct dehydration 3.

In 1995, Prescire International published a literature review that concluded:

As homeopathic treatments are generally used in conditions with variable outcome or showing spontaneous recovery (hence their placebo-responsiveness), these treatments are widely considered to have an effect in some patients. However, despite the large number of comparative trials carried out to date there is no evidence that homeopathy is any more effective than placebo therapy given in identical conditions.

In December 1996, a lengthy report was published by the the Homeopathic Medicines Research Group (HMRG), an expert panel convened by the Commission of the European Communities. The HMRG included homeopathic physician-researchers and experts in clinical research, clinical pharmacology, biostatistics, and clinical epidemiology. Its aim was to evaluate published and unpublished reports of controlled trials of homeopathic treatment. After examining 184 reports, the panelists concluded: (1) only 17 were designed and reported well enough to be worth considering; (2) in some of these trials, homeopathic approaches may have exerted a greater effect than a placebo or no treatment; and (3) the number of participants in these 17 trials was too small to draw any conclusions about the effectiveness of homeopathic treatment for any specific condition. Simply put: Most homeopathic research is worthless, and no homeopathic product has been proven effective for any therapeutic purpose.

Proponents trumpet the few "positive" studies as proof that "homeopathy works." Even if their results can be consistently reproduced (which seems unlikely), the most that the study of a single remedy for a single disease could prove is that the remedy is effective against that disease. It would not validate homeopathy's basic theories or prove that homeopathic treatment is useful for other diseases.

Placebo effects can be powerful, of course, but the potential benefit of relieving symptoms with placebos should be weighed against the harm that can result from relying upon -- and wasting money on -- ineffective products. Spontaneous remission is also a factor in homeopathy's popularity. We suspect that most people who credit a homeopathic product for their recovery would have fared equally well without it.

Homeopaths are working hard to have their services covered under national health insurance. They claim to provide care that is safer, gentler, "natural," and less expensive than conventional care — and more concerned with prevention. The fact is, however, that homeopathic treatments prevent nothing and many homeopathic leaders preach against immunization. Equally bad, a report on the the National Center for Homeopathy's 1997 Conference described how a homeopathic physician had suggested using homeopathic products to help prevent and treat coronary artery disease. According to the article, the speaker recommended various 30C and 200C products as alternatives to aspirin or cholesterol-lowering drugs 4.

Greater Regulation Is Needed

If the FDA required homeopathic remedies to be proven effective in order to remain marketable — the standard it applies to other categories of drugs — homeopathy would face extinction in the United States. However, there is no indication that the agency is considering this. FDA officials regard homeopathy as relatively benign (compared, for example, to unsubstantiated products marketed for cancer and AIDS) and believe that other problems should get enforcement priority. If the FDA attacks homeopathy too vigorously, its proponents might even persuade a lobby-susceptible Congress to rescue them. Regardless of this risk, the FDA should not permit worthless products to be marketed with claims that they are effective.

In August 1994, forty-two prominent critics of quackery and pseudoscience asked the agency to curb the sale of homeopathic products. The petition urged the FDA to initiate a rulemaking procedure to require that all over-the-counter (OTC) homeopathic drugs meet the same standards of safety and effectiveness as nonhomeopathic OTC drugs. It also asked for a public warning that although the FDA has permitted homeopathic remedies to be sold, it does not recognize them as effective.

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