

COLON THERAPY SCIENCE OR PSEUDOSCIENCE?

Colon hydrotherapy, also known as colon therapy, is an alternative treatment method that is gaining popularity. Using Popper's demarcation criteria, this paper will explore the theories and claims made by proponents of colon therapy and will attempt to designate colon therapy as science or pseudoscience. Although the term colon hydrotherapy is a more accurate description of the actual procedure, colon therapy or colonic are more commonly used terms and will be used in this paper. [When space is a premium, such as in a short paper like this one, you might want to introduce the expression you will use and leave the qualifications as in the last sentence to a footnote.]

I knew little about colon therapy until a friend became a colon therapist. I still didn't know much about what was involved in colonics, but my assumptions were a colonic was a professionally administered "enema" used to relieve constipation. I found had a very limited view of the benefits; according to my friend, colonics can relieve headaches, fatigue, emotional distress, as well as gastrointestinal ailments. Although I never took her advice, I was interested and admittedly skeptical about the claims she made.

Colon therapy can be traced to ancient times. In the 19th century colonics were used to treat "autointoxication". According to the theory of autointoxication, hardened feces that accumulates in the colon releases toxins that travel throughout the body causing a variety of ills. The theory of autointoxication was not tested scientifically until the early 1900s when it was refuted by two studies (Alvarez, 1919, Donaldson, 1922). Colon therapy is not endorsed by the majority of the mainstream medical community. Colon therapy, like many other alternative therapies has been gaining in popularity since the 1980s (Ernst, 1997).

Proponents of colon therapy have several web sites. Colonhealth.net is the site of the Colon Therapists Network. The home page for colonhealth.net claims many benefits of colon therapy (Ashby, 2006). They maintain that colonics are the easiest way to cleanse your colon and that a clean colon is essential to your health. The site makes the claim that the average American has 10 to 15 pounds of fecal matter in their colon, and overweight people may have a lot more than that. Appealing to the ever growing problem of obesity the site claims that "virtually all weight challenges can be traced to imbalances in the colon/digestive tract as either a primary contributor...or a secondary problem which accentuates slowdowns in other critical body systems, like the endocrine (glandular) system and the circulatory system" (Ashby, 2006). The site goes on to ask the reader if they experience any of the following health problems: constipation, headaches, fatigue, foul body odor, acne, and eleven other common ailments. According to the site these are indications that your colon needs to be cleansed. The following statement included in the site was particularly interesting "Every system and organ of the body is connected to the colon by reflex points. A colon hydrotherapy session stimulates these reflex points, thereby effecting (sp) the corresponding body parts...in a beneficial way similar to reflexology" (colonhealth.net). [Well, I do agree that colon therapy as described here is every bit as beneficial as reflexology]

Little can be found regarding colon therapy in peer reviewed medical journals, Quackwatch.com, warns against colon therapy, citing lack of evidence of autointoxication or the health benefits of colon therapy (Barrett, 2003). I was able to find two journal articles, both against colon therapy due to the lack of evidence of efficacy and potential dangers (Ernst, 1997 & Chen, 1989)

Popper's concern is not whether a theory is true or not, nor when it is acceptable but whether it should be ranked as scientific. Using Popper's criterion, is colon therapy science or pseudoscience? According to Popper, a scientific theory or treatment must be open to refutation by making testable predictions. Could the current claims of colon therapy proponents be falsified? Looking at the theories used for supporting colon therapy individually, as well as the proposed benefits, I will attempt to identify whether they can be falsified.

Autointoxication or the theory that accumulated waste matter in the colon releases toxins is centuries old. I was able to find two articles describing studies from the 19th century, one with humans and one with dogs. Both refuted the theory of autointoxication by finding no difference in blood chemicals in constipated vs. non-constipated subjects (Alvarez, 1919, Donaldson, 1922). This seems to be falsification for the theory of autointoxication, but given current technology the studies are most likely outdated and should be replicated with newer methods. As to the claim that the average American has 10-15 pounds of accumulated feces in their colon, this could easily be falsified using modern imaging or scoping technology.

Colon therapy proponents claim that every system and organ of the body is connected to the colon by reflex points. There is no reference to studies of any nature supporting or disproving this claim. Could this be falsified? The information I could find gave only a diagram of their location, no characteristics or description of the reflex points. If given more information, the location of each reflex point may be able to be identified by colonoscopy and stimulated in such a way that a response could be seen in a corresponding organ. Popper does state that many scientific theories originate from myths. At this time reflex points in the colon may be better defined as a myth, but that is not to say that it may not achieve the status of science when the theory is better defined and tested. [Also you might note that the idea of "reflex points" is vague in a way that makes testing unfeasible]

What of the claim made by colon therapy proponents that "the combination of environmental toxins, an unhealthy diet and parasites poses a grave danger to humans" (drnatura.com). Included in the claims is a quote from National Geographic that "parasites have killed more humans than all the wars in history" while colonhealth.net claims that "parasites kill more people annually than do cancers". The claim is misleading; parasites do continue to kill many people in the world annually but it is not for lack of colon therapy but lack of clean drinking water! Since these sites use this as reasons for Americans to receive colon therapy, I will make the assumption they are claiming that parasites pose a grave danger to Americans. The parasite claim is certainly risky since it would be easy to falsify, as parasites can be detected using fairly simple laboratory technology.

The proposed benefits of colon therapy may be difficult to falsify. The health claims made are so numerous that nearly everyone will perceive some benefit from colon therapy even if it is merely coincidental.

Studies where participants are blinded to whether they are in the treatment or control group would be impossible, making the placebo effect a legitimate concern. [Good point.] Like the examples given by Popper (Marxism, psychoanalysis, and individual psychology), colon therapy seems to have explanatory power. Colon therapy web sites contain testimonials from very satisfied customers attributing their increased vitality to release of toxins and parasites. According to Popper these confirmations would not count as evidence for the theory because they are not an attempt to falsify the theory.

Using Popper's criteria I would conclude that colon therapy is in part scientific because it is in part falsifiable. To achieve the status of science, theories and claims used by colon therapy practitioners would need to be modified to include only those theories and claims of benefits that were falsifiable. Practitioners would need to be committed to systematic, ongoing, rigorous testing of those theories and benefits.

When using Popper's criteria it is important to judge a theory or treatment as scientific only by its testability or falsifiability, regardless of how little testing has been done. Popper also makes clear that a theory that is scientific may be false just as a theory that is pseudoscience can be true. Theories that are falsified should then be abandoned. Although this is a mark of the rigor of Popper's criteria, it may be too rigorous for some health treatments. Many treatments have not been shown to be effective in every case. If when testing the benefits of colon therapy, the first nine test subjects are found to have relief from headaches but the tenth and eleventh do not, does that falsify the theory? I would not suggest that we abandon Popper's criteria for testing of health treatments; it is important that treatments are critically tested and abandoned when they are truly falsified. Lakatos differentiates between progressive and degenerating research programs, a differentiation that may be helpful (along with Popper's criteria) for testing colon therapy. With one or two falsifying tests the whole treatment need not be abandoned, but with numerous falsifications the research would be identified as degenerating and abandonment may be the logical course.

There are legitimate questions regarding the effectiveness and safety of colon therapy. People deserve accurate information about their health care and in this regard colon therapy proponents have made some misleading and unsubstantiated statements. In 2003 a woman died because of colon perforation during a colonic (Baca, 1997). There is potential for infection with non-hygienic practices and electrolyte imbalance if there is excessive fluid absorption (Baca).

The medical community refutes colon therapy with little evidence to support their claims of the ineffectiveness and dangers (Baca, 1997). The studies they cite falsifying "autointoxication" have not been replicated since 1922, and falsifying autointoxication does not necessarily falsify the potential benefits of colon therapy. The reported untoward outcomes are isolated cases and could be attributed to unsafe care rather than the danger of colon therapy.

Should colon therapist be allowed to continue practicing? As a practicing nurse midwife I am sympathetic to the struggles faced by nontraditional health care practitioners. There were many claims by traditional medicine that midwifery was unsafe. It took a long time to refute these claims with evidence of the safety and benefits of midwifery. Colon therapy may be in the position midwifery was a century

ago. I think colon therapists should be able to continue practice if they maintain safety standards and contribute to research regarding their profession. However, being open to alternative ways of healing does not mean blindly accepting unsubstantiated claims. I would suggest that proponents of colon therapy be more forthright in their advertisements and claims and include potential risks in their information.

A nice, balanced verdict. "No harm in letting it continue, but restrict the potential for harm and regulate the wild claims."

[I suppose we might also want to add additional restrictions to ensure that desperate people were not being taken advantage of. So for example, if colon cancer patients were promised a cure, and huge sums of money were charged, then the practitioners should be shut down. If the practitioners are charging very modest sums of money for "health treatments" with no miracle cures promised, then presumably it is harmless. Certainly the idea of "being clean inside" has a kind of primitive, irrational appeal to many people, and probably there is no harm in indulging it.]

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