

# Open Minds, Not Empty Minds

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**I**t is gratifying that the series of papers on unconventional dentistry (UD)<sup>1-5</sup> based on unconventional medicine (UM) has generated discussion. The subject is controversial, poorly understood and poorly documented; hence the rationale for presenting an overview of this very broad topic in the form of a referenced review of selected literature. This method is inherently biased, and I attempted to, at the least, avoid stating personal opinions and abstract philosophy.

The series should be useful as a stimulus to further study and a starting point for better understanding of the many issues involved. Correspondence from Nova Scotia to British Columbia and Nunavut, as well as from the United States, reveals broad interest in this facet of dentistry. Dr. Fortinsky's essay<sup>6</sup> is helpful in gaining insight into some issues.

The term "unconventional" ("nonconventional" in French translation) reflects methods that are not based on established scientific knowledge ("unproven") and is used to avoid denunciation of the methods and promotions described.<sup>7</sup> This may, however, falsely imply that dental science is joined to established doctrine and is too rigid.<sup>7</sup> "Complementary," preferred by some practitioners, is defined as: "diagnosis, treatment and/or prevention which complements mainstream [dentistry] by contributing to a common whole, by satisfying a demand not met by orthodoxy or by diversifying the conceptual framework of [dentistry]."<sup>8</sup>

"Complementary" is an admirable concept, if such methods benefit patients;<sup>5</sup> however, by definition, there is no evidence of efficacy for UD, and there are no published data indicating the extent to which practitioners who use this label actually use proven methods or the extent to which they promote unproven, useless, or harmful methods. UD is less likely to complement conventional dentistry than UM is likely to relate to conventional medicine. Extracting a sound tooth in an area of purported "cavitation" and replacing it with a conventional bridge is not "complementary." The practice of selectively promoting UD to some patients and orthodox methods to others is not "complementary." The issue of terminology and labels is highly politicized and, in my opinion, the terms

"unconventional" or "unproven" fairly and best represent the dental practices and promotions being discussed.<sup>1-5</sup>

Insight into a philosophy or reading the historical literature does not supplant the lack of evidence for UD. Promoters of UD often fail to recognize the important scientific and legal requirement of providing evidence rather than philosophy and beliefs. The inability to grasp or accept that science is a way of thinking, imaginative yet disciplined, is an unfortunate characteristic of the "dumbing down," evidenced in the media by credulous promotions of pseudoscience and superstition — a kind of celebration of ignorance.<sup>9</sup> Science may be viewed as "organized common sense"<sup>10</sup> that requires rigorous and logical thinking rather than only philosophical concepts. There are so many arguments and opinions about UD and UM that it is naive to think that science will resolve them.

Dentistry is a scientific health care profession and licensed dentists are scientists regulated within the legal system. Licensure is the dental and legal demonstration of adequate scientific training and practice. Unfortunately, licensure does not demonstrate morality, ethics or continuing scientific practice. Licensure is our society's method of protecting the public by regulating dentists.<sup>2,3</sup>

A criticism of science is that it inhibits freedom of thought. New discoveries must be judged on experimental evidence, not only on theoretical objections. The lack of any plausible physical, chemical, or biological explanation for homeopathy is a fundamental objection to the idea that homeopathy "works." Because homeopathy defies scientific explanation, we must either trust science and reject studies that make no theoretical sense or accept studies that challenge known science. Or must we?

A substance chemically indistinguishable from water is promoted to have mysterious healing power, requiring a new principle of physics to explain how a dilution beyond Avogadro's number is different from pure water. A theoretical explanation proposed for homeopathy is "water memory" — somehow, water is imprinted with information representing molecules that are transformed during the vigorous shaking process of homeopathic dilutions. Experimental evidence for this theory is lacking, and

clinical studies of homeopathy continue to be controversial. A recent high-quality randomized trial published in a prestigious medical journal reported positive results; homeopathic dilutions differ from placebo.<sup>11</sup> An invited commentary<sup>12</sup> and a fascinating and highly recommended series of 55 electronic responses<sup>13</sup> reflect the diversity and differences of views on this subject. We must keep open minds, not empty minds.

The UM/UD controversy relates to beliefs in science or alternative systems. Clinical and epidemiological studies never report 100% results, and science does not have complete explanations or understanding of the world. Perhaps the best that dentists can do is acknowledge our limitations and act responsibly in accordance with known science and in the best interests of our patients. Even if homeopathy is nothing more than an expensive placebo, if it makes people feel better and has no adverse effects, perhaps a role exists for it in our armamentarium.<sup>5</sup> It has been called arrogant to deny patients this opportunity, yet homeopathic efficacy in dentistry is either unproven or disproven.<sup>3</sup> The review paper referenced for evidence-based commentary on homeopathy concludes, "We found insufficient evidence from these studies that homeopathy is clearly efficacious for any single clinical condition. Further research on homeopathy is warranted provided it is rigorous and systematic."<sup>14</sup>

Proponents of unproven methods often state they see no need for rigorous research, essentially denying any need for science,<sup>6</sup> for example, to prove the alleged existence of cranial bone movement. Clinical observation in basic anatomy and physiology has demonstrated that the heart pumps blood through blood vessels and can be detected as a heartbeat and pulse, and the bones of the skull are fused and there is no detectable bone movement or cerebrospinal fluid (CSF) rhythm. Skeptics may require further proof. Research studies failed to measure a craniosacral motion or rhythm, and such a claim could not be reliably related to the heart or respiratory rates of subjects or examiners.<sup>15,16</sup> Appropriate interpretation of the current scientific evidence offers the likelihood that a craniosacral rhythm does not exist,<sup>17</sup> while proponents offer no valid evidence for cranial bone movement or CSF rhythm or claims of healing from craniosacral therapy. Rigorously designed research in UM and UD is possible.<sup>18</sup>

Beliefs in UD and UM promotions that are unscientific, illogical or weird<sup>2</sup> are examined in the referenced book on the subject,<sup>19</sup> authored by an expert in the history of science, technology and evolutionary thought. These studies and observations are neither insulting nor inflammatory, especially as beliefs seem to best characterize the practitioners and patients of UD and UM.<sup>2</sup> Explaining incredible or nonsensical claims and the human reasons for the appeal of these is related to more dangerous and problematic

disturbances in thinking ranging from wishful thinking to holocaust denial. Unconventional treatments in dentistry seem aimed to fit patient beliefs rather than their oral health needs. The patient may benefit from UD that can be proven effective (such is the challenge); however, the charlatan and the quack always benefit at the expense of the patient. Licensed practitioners should know the difference. ♦

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## References

1. Goldstein BH. Unconventional dentistry: Part I. Introduction. *J Can Dent Assoc* 2000; 66(6):323-6.
2. Goldstein BH. Unconventional dentistry: Part II. Practitioners and patients. *J Can Dent Assoc* 2000; 66(7):381-3.
3. Goldstein BH. Unconventional dentistry: Part III. Legal and regulatory issues. *J Can Dent Assoc* 2000; 66(9):503-6.
4. Goldstein BH, Epstein JB. Unconventional dentistry: Part IV. Unconventional dental practices and products. *J Can Dent Assoc* 2000; 66(10):564-8.
5. Goldstein BH. Unconventional dentistry: Part V. Professional issues: concerns and uses. *J Can Dent Assoc* 2000; 66(11):608-10.
6. Fortinsky G. Complementary dentistry. *J Can Dent Assoc* 2001; 67(5):254-5
7. Barrett S, Jarvis WT. Quackery, fraud and "alternative" methods: important definitions. Quackwatch web site. Available from: URL: <http://www.quackwatch.com/01QuackeryRelatedTopics/quackdef2.html>. Accessed January 11, 2001.
8. Ernst E, Resch KL, Mills S, Hill R, Mitchell A, Willoughby M, and other. Complementary medicine — a definition. *Br J Gen Pract* 1995; 45:506.
9. Sagan C. The demon-haunted world. Science as a candle in the dark. New York: Random House; 1995. p. 26.
10. Brunette DM. Critical thinking. Understanding and evaluating dental research. Chicago: Quintessence Publishing Co, Inc.; 1996.
11. Taylor MA, Reilly D, Llewellyn-Jones RH, McSharry C, Aitchison TC. Randomised controlled trial of homoeopathy versus placebo in perennial allergic rhinitis with overview of four trial series. *BMJ* 2000; 321(7259):471-6.
12. Lancaster T, Vickers A. Commentary: larger trials are needed. *BMJ* 2000; 321(7259):476.
13. Electronic responses to: Ref. #11. Available from: URL: <http://www.bmjjournals.org/cgi/eletters/321/7259/471>. Accessed February 3, 2001.
14. Linde K, Clausius N, Ramirez G, Melchart D, Eitel F, Hedges V, and other. Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet* 1997; 350(9021):834-43.
15. Wirth-Patullo V, Hayes KW. Interrator reliability of craniosacral rate measurements and their relationship with subjects' and examiners' heart and respiratory rate measurements. *Phys Ther* 1994; 74(10):908-16.
16. Hanten WP, Dawson DD, Iwata M, Seiden M, Whitten FG, Zink T. Craniosacral rhythm: reliability and relationships with cardiac and respiratory rates. *J Orthop Sports Phys Ther* 1998; 27(3):213-8.
17. Wirth-Patullo V, Hayes KW. Response. Letters to the editor. *Phys Ther* 1995; 75(4):329-30.
18. Nahin RL, Straus SE. Research into complementary and alternative medicine: problems and potential. *BMJ* 2000; 322(7279):161-4.
19. Shermer M. Why people believe weird things. Pseudoscience, superstition, and other confusions of our time. New York: W.H. Freeman & Co.; 1997.