

Ten Theses on the Tyranny of Unfettered Factoids

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1. A couple of months ago in this column I presented a partial defense of rotational side posture lumbar adjusting.¹ Although I don't get a lot of feedback from readers, this particular article generated a massive outpouring: two letters from chiropractic college presidents and a few e-mailings, all of it supportive. The only opposing opinion I have seen was a letter to the editor published in *Dynamic Chiropractic*,² wherein the author (a proponent of instrument-assisted adjusting) politely recommends that I and other chiropractors consider looking into other methods as an alternative to side posture adjusting. He cites a few basic science studies and an attorney's opinion that he believes put into question the safety of side posture adjusting, and adds that many malpractice cases involve injuries to the low back. My short response is: gee whiz.
2. Also a couple of months ago, the coffee world was rocked by the revelation that heavy drinking of non-filtered coffee beverages such as espresso and French press, which contain more of a compound called cafestol, could raise serum cholesterol by about 5%. For example, five cups per day might raise cholesterol from 200 to 210. Notwithstanding the fact that high serum cholesterol levels are indeed associated with cardiovascular disease -- especially in the presence of cofactors such as hypertension, smoking, and obesity -- a number of recent studies have examined coffee and none have found a meaningful link to heart disease. I don't know why so many people work so hard to find things wrong with coffee drinking, but I think it unlikely that the average coffee drinker will be able to sort out the scientific issues and understand the meaning of the numbers involved. The coffee-cholesterol link, although perhaps good science in its own right, was turned into a negative factoid to smear coffee consumption by those who are against coffee for some other reason. No doubt some people quit or reduced their coffee consumption on the basis of the negative publicity. I wonder how many groggy drivers crashed without their morning caffeine hit, compared with lives saved due to the avoidance of cafestol?
3. It has been equally difficult to demonstrate a link between low back spinal manipulation and serious problems like cauda equina syndrome. The RAND corporation was able to cite only 20 cases,³ in many of which the patients had been manipulated under anesthesia and in non-chiropractic settings. This number, compared to the 100 plus cases of serious complications following cervical manipulation that have been reported, suggests that low back manipulation may be even safer than cervical manipulation, itself estimated to result in serious complications at the extremely low rate of 1 in 1.5 million manipulations. Shekelle et al.⁴ figure that "the rate of occurrence of the cauda equina syndrome as a consequence of lumbar spinal manipulation to be on the order of less than one case per 100 million manipulations." No estimates are provided for lesser injuries, but they also note that there have been no complications reported among the 1,500 subjects used in the clinical trials of manipulation. In short, there is practically no evidence drawn from functioning chiropractic clinics that contradicts the safety of side posture adjusting for the great majority of patients. On the other hand, if someone has a reason to not prefer side posture adjusting, it won't be hard to turn a substantive laboratory finding into a negative factoid. So long as this practice

continues, chiropractors will continue to be dragged into court by litigious patients and avaricious lawyers, armed to the teeth by the writings and testimony of fellow chiropractors.

4. This profession is used to technique wars. Indeed, we take for granted the continuing efforts by partisans of one technique or another to cast doubt on the safety or efficacy of others, despite the absence of clinical data. And so it is that even traditional side posture manipulation, used in so many of the trials cited by the RAND corporation and the AHCPR guidelines in support of manipulation for low back pain, is not immune to the tyranny of negative factoids. (We have seen the same type of process unleash a furious assault against diversified-style cervical adjusting. I wonder how many drivers with stiff necks afflicted by rotation restriction wind up crashing, compared with lives saved due to the avoidance of rotary cervical adjustments?) As always in such cases, we are less concerned with the unwarranted nagging of these partisans, than with understanding the essential character of a profession that allows negative factoids to flourish virtually without response. That is, if the proponents of less validated methodologies insist upon showing their lack of appreciation for traditional chiropractic methods, even though these proponents would find it much more difficult to function in the modern environment without their proven success, that should not matter much. The central question raised is how a profession which once feared its methods would be made illegal, and now worries about them being expropriated, has managed to breed an environment in which public self-flagellation is the norm.
5. A fact is, well, a fact. A factoid, on the other hand, is a fact taken and interpreted out of context, that winds up obfuscating the facts. The intentions of the proponent, which may be perfectly honorable, are mostly irrelevant to the process and its impact upon the public. Those who would blind with science often blind themselves first, in order to maintain their sense of personal sincerity (somewhere out there, but lost from my own library, is a great book called *On Self-Deception* ...). Recent books have appeared on the subject of junk science, detailing how factoids serve the needs of their proponents. Although examples abound in chiropractic, my favorite is the x-ray factoid, which goes like this: "The _____ technique has been validated in many studies. Recently, its methods of x-ray analysis were found to be 99.47% accurate, at the $p=3D.003$ level of significance." This means, of course, that x-ray line markers were able to agree on where to put dots on a film. But not all that agreeing upon the location of these anatomical landmarks has any clinical utility in the case at hand. Although what can be precisely measured on the radiograph may be of no clinical interest, the reader is left with the indelible impression that the technique in a global sense has been scientifically validated. Imagine an article in a medical journal that sagely explained that in a controlled clinical trial, nephrologists had an extremely high level of interexaminer reliability in counting the number of kidneys seen on kidney films. That's gee whiz science for you.
6. It didn't begin with negative factoids. The generally perceived need for more research in chiropractic become important by the time the profession was becoming more nationally accepted in the mid-1970s. In the absence of hard data, this need was at first filled by two groups of allied practitioners: technique innovator/vendor types, and marketing experts. The technique innovator/vendor types promoted chiropractic scientism, mostly in the form of abstract spinal models and abstruse adjusting formulas developed as a full-spine application of the formularized upper cervical work that began in the 1930s. They took advantage of the lack of research in chiropractic to claim a level of precision and of certainty often unattainable in the hard sciences, even with their more extensive financial and human resources. The marketing experts understood that pseudo-science would soon become the dominant means of product differentiation on the chiropractic technique circuit. In their hands, the "proof of chiropractic" takes on the form of what may as well as well be called the plausibility study: "Since this study described a neuroma associated with a glandular

problem, then subluxation can account for problems x, y, and z."

These largely one-sided reviews of the literature tend to select studies hypothetically in support of certain chiropractic theories, and ignore other evidence. The cited articles are often unrelated to the points being made. The authors and seminar presenters (who often speak quickly so as to blind with science) are shrewdly counting on the fact that very few readers have the resources, not to mention the desire, to check out whether the citations are being legitimately used. (I recently saw a pro chiropractic research presentation where a chiro-neurologist spoke more quickly than an auctioneer, and ran his slides through faster than a strobe light). If the "scientismists" capitalize on the spectacle of technique, then the marketers exploit the technique of spectacle. That is why they often wind up on the same program at association meetings and on the seminar circuit. And so it is that chiropractic junk science has evolved as the art of slinging positive factoids.

7. Unfortunately, a profession cannot bask in the glory of positive factoids for long with impunity. Once the method is learned and the habit is there, factoid addiction leads to the possibility of new applications, the most obvious of which would be the art of slinging negative factoids; this includes, of course, using them in the service of antimedicalism. Having formerly contented themselves with screaming at the top of their lungs that "surgeons kill patients by leaving sponges in them," the antimedicalists now scour the medical journals for evidence against medicine, with the same passion they once scoured it for "the proof of chiropractic," and with the same low level of scholarship and scientific integrity. You can be sure that every time a study is released that argues against the value of antibiotics in the treatment of, let us say, otitis media, the antimedicalists will use it to smear the use of antibiotics for any condition. Many of them, too lazy to even consult the original literature, are perfectly content to disseminate the junk science they read in the newspaper or see on television, mere journalistic interpretations of medical articles. They somehow find the time to scan these articles and post them in cyberspace by the ton.
8. Factoid addiction leads to an even more insidious development than antimedicalism: the use by chiropractors of negative factoids against other chiropractors, or antichiropracticism. The artisan of the negative factoid often presents him or herself as downright humble, adopting a beguiling level of civility in direct proportion to the grandeur of the vapidness. Certainly technique wars are ancient enough, but the use of junk science to chide or lambast perceived opponents amounts to replacing paleolithic technology -- "My technique works better than yours" -- with tactical nuclear weapons: "Research shows the other technique is unsafe." I understand why the opponents of chiropractic would exaggerate the significance of rare clinical events or findings from the laboratory, but why must this profession make it so easy for them?
9. Dr. Keating, who in this profession has consistently opposed the practice of making unsupported claims, especially when given a research veneer (positive factoids, in my sense), explains that "Rationalism involves the belief that methods of clinical practice that are logically derived, or potentially derivable, from knowledge of the basic sciences are therefore 'scientifically valid' (and implicitly effective and safe)."⁵ Antichiropracticism, the opposite side of the same coin to which Dr. Keating draws attention, marks the moment when the chickens have come home to roost. Those chiropractors who thought it just wonderful that references taken out of context could prove chiropractic, will now watch that same methodology rot this profession from the inside out, while the whole world watches. The techniques that chiropractors have suddenly found dangerous, in spite of a century of success, will take root and flourish in other professions. The process is already underway.
10. Dr. Winterstein, president of the National College of Chiropractic, commenting on my partial defense of rotary lumbar manipulations, wrote to me: "I think we have been far too ready to

chastise our colleagues for using rotary manipulations in the lumbar and cervical spine based upon relatively scant evidence that they are inappropriate."⁶ After describing his clinical experience with such techniques and their physiological rationale, he goes on to conclude as follows: "There is a great tendency, first in the medical profession, and now in our own profession, to say that this or that technique is contraindicated in this or that condition, and unfortunately those statements are often times far too sweeping and too broadly applied ... and that is just preposterous." Thank you, Dr. Winterstein.

References

1. Cooperstein R. Would you believe a fifty dollar roll? *Dynamic Chiropractic* 1997;15(13):15, 27-28.
2. Colloca CJ. Letter to the editor re. Would you believe a fifty dollar roll? *Dynamic Chiropractic* 1997;15(15):6,15.
3. Shekelle PG, Adams AH, Chassin MR, Hurwitz EL, Phillips RB, Brook RH. The Appropriateness of Spinal Manipulation for Low Back Pain: Project Overview and Literature Review. Santa Monica, CA; Rand, 1991.
4. Shekelle P, et al. Spinal manipulation for low back pain. *Ann Intern Med* 1992;(117):7.
5. Keating JC. Traditional barriers to standards of knowledge production in chiropractic. *Chiropractic Technique* 1990;2(3):78-85.
6. Personal communication.

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