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# Correspondence

## Hyperbaric Oxygenation in Neurology

The article by Drs. Neubauer and Golden[1] on the use of hyperbaric oxygenation therapy (HBOT) for treatment of cognitive deficits after anesthesia is excellent.

Cognitive deficits after anesthesia were first reported about 3 years ago from Duke University, with reference to coronary artery bypass. It is unfortunate that this complication of surgery is only now being publicized. Through my work with a foundation that funded the study, I am aware of research done 20 years ago at a major medical center that found this complication, but which was never published.

The more recent report from Duke shows that cognitive defects can occur after less intensive anesthesia for joint surgery. Joint surgery is frequently performed under spinal anesthesia with conscious sedation. Unfortunately, I have not seen a published report on the follow-up of patients after conscious sedation to check for cognitive problems. I have, however, seen a number of patients who reported a significant decrease in cognitive function after conscious sedation, even for screening colonoscopy. If this effect is demonstrated, it would be a reason for preferring virtual colonoscopy when feasible. Studies should be done on the long-term effects of conscious sedation.

To the remarks of Neubauer et al. on the treatment of brain injury with HBOT,[2] I would add that cerebral edema was a recognized indication for HBOT in the 1980s. Experimental work in both humans and animals had shown that HBOT reduced intracerebral pressure while improving oxygenation.[3] HBOT is the only modality with this dual effect. This indication for HBOT, however, was dropped, apparently through efforts of the Undersea and Hyperbaric Medical Association—just at the time that our imaging technology was advancing to the point that we could noninvasively see and measure cerebral edema with CT scans and MRIs. I was told that UHMS members wanted to restrict the use of HBOT by physicians who were trying it for stroke and other neurologic conditions. As far as I know, HBOT is the only field of medicine in which there has been a decrease in the number of indications for a proven technology over the past two decades.

Dr. Ignaz Semmelweis ended up in a psychiatric institution after urging physicians to wash their hands. It took eight years for Pasteur's discovery of microorganisms to be accepted. Nothing much has changed.

It is time for HBOT to emerge from decades of being the best-kept secret in neurology.

**William S. Maxfield, M.D., F.A.C.N.M.**
Odessa, FL

[1] Neubauer RA, Golden C. Can postoperative cognitive dysfunction be prevented? *J Amer Phys Surg* 2005;10:22.
[2] Neubauer RA, Neubauer V, Gerstenbrand F. Late treatment of severe brain injury with hyperbaric oxygenation. *J Amer Phys Surg* 2005;10:58-59.
[3] Sukoff MH, Ragatz RE. Hyperbaric oxygenation for the treatment of acute cerebral edema. *Neurosurgery* 1982;10:29-38.

## "Education" at a Price Much Too Steep

In his editorial, "Down the Slippery Slope,"[1]Dr. Huntoon mentioned the BodyWorlds2 exhibit. I actually attended this exhibit. The real human bodies on display are preserved by "plastination," a method of preserving the dead with plastic resins invented by a German doctor named Gunther von Hagens. Dr. von Hagens has apparently become extremely wealthy from his method.

There were about 20 "plastinates" in this corpse beauty contest, all supposedly voluntary body donors. The dissection of the cadavers was amazing to the point of eeriness. I have seen lots of cadavers, but I had never seen any like these before. They simply looked too young, too healthy, and especially too "fresh" compared to those I have seen. Many appeared Asian.

Most dead bodies look horrible because the ravages of disease, accidents, and old age take their toll. In contrast, these

"exhibit specimens" were posed as gymnasts, skaters, skiers, or fencers in a macabre imitation of art and sport. There was also a healthy young woman several months pregnant who apparently died after some mysterious illness. What illness would kill both mother and baby, yet leave them both looking in the peak of health after dissection?

Some of the bodies were provocatively posed and the genitals that were exhibited seemed overly emphasized. And just how many young, athletic men and women would donate their bodies to "science" and then actually die prematurely? Yes, a few minor exhibits showed cadaver parts with lung cancer, heart disease, and obesity. However, the majority of the bodies were healthy and athletic in appearance. I asked the docents how the people had died. They answered that they weren't told the causes of death nor the ages at death. I found this very mysterious. I walked out of the exhibit so disturbed that I did a Web search. The following site provided some background: www.laogai.org/news/newsdetail.php?id =2127. Some information on this site suggests that von Hagens reportedly has a corpse-processing factory in China and that there have been prior allegations that he has used executed Chinese prisoners for his "plastinates."

Body donor applications were available at the exhibit, but I wonder whether this was only a smokescreen. Most donors would be too old and decrepit and not suitable for "exhibition" by the time they died a natural death. Those who died young of trauma or sickness would leave bodies too mangled or diseased to use. The corpses would decay too much between time of death in their country of origin and time to entry into the Chinese corpse-processing factory, and would no longer be "fresh." In any case, the cost of shipping a refrigerated cadaver across the globe would be prohibitive if low-cost Chinese corpses were available locally.

Yes, the dissections are somewhat educational, but at what price? Is my "education" worth this? I think not! Our society is clearly in a steep decline when an exhibit as appalling as this one draws huge crowds, is sponsored by all the major hospitals in the area, and even uses gullible medical students as docents.

**Bari J. Bett, M.D.**
West Salem, OH

[1] Huntoon LR. Down the slippery slope. *J Amer Phys Surg* 2005:10;67.

**On Evidence**

Miller and Miller[1] made a distinction without a difference between legal and scientific rules of evidence and reasoning. The taxonomy of legal standards of proof ("presumption," "by preponderance of the evidence," "by clear and convincing proof," "beyond reasonable doubt") and determination of whether the probative value of "similar fact evidence" (rather, similar fact conjecture) or any evidence outweighs its prejudicial effect entail value-judgments, inaccessible to objective verification.

The death of George Smith's last wife by drowning in a bathtub benefited him financially. The evidence of his having derived comparable financial benefit from the deaths of his prior wives by drowning in bathtubs seemed suspicious, but the absence of physical evidence connecting him to any of those deaths rendered the argument by analogy that convicted him mere conjecture, not "evidence." Argument by analogy is among the weakest forms of argumentation, yet it is very common in courts of law, as we see in many a court's argument by analogy with prior case law precedents to "justify" its current decision.

The authors' claim, for science, that "[f]or a hypothesis to be proved, or a theory to become theorem, the evidence supporting it must be irrefutable"[1] is inaccurate on several grounds, among others, that inductive proof, the basis of all scientific reasoning, is deductively invalid.[2]

The authors attributed too much strength to statistical inference by implying that it might determine cause and effect:

> With rare and uncommonly occurring diseases, a nonsignificant finding in a randomized trial does not necessarily mean that there is no causal association between the agent in question and the disease.… Such trials are subject to a false-negative Type II error, which incorrectly supports the null hypothesis that agent *x* does not cause disease *y*.[1]

Statistical inference provides a basis for assessing the *probability* of *association* between phenomena, such as "agent *x*" and "disease *y*," nothing more.

Courts' obeisance to the authority they imagine to reside in "irrefutable scientific evidence" exemplifies the fallacy of appeal to inappropriate authority.[2] Such fallacious legal reasoning injures patients and physicians alike, underlies courts' inability to detect, and their faith in verdicts from, bad-faith peer-review, motivates their reliance on "expert" witnesses in "science," whose opinions some consider malleable and for sale to the highest bidder,[3] even as courts attribute "irrefutability" to the same opinions, and prompts courts' fawning deference to hospitals' administrators and governing bodies in disputes between physicians and hospitals:

> No court should substitute its evaluation of such matters for that of the Hospital Board.… Human lives are at stake, and the governing board must be given discretion.… Courts must not attempt to take on the escutcheon of Caduceus.[4]
>
> ...[T]he traditional substantial evidence rule requires deference to administrative expertise, reduces expense and delay stemming from trial court processing, and permits administrators to exercise more fully the institutional discretion vested in them….[5]

The *Sosa* court and others that followed its "thinking" (rather, its substitution of a striking rhetorical flourish for thinking) [6-8] presumably approved the at least equally inappropriate usurpation of lay trustees and hospital administrators[5] in taking on "the escutcheon of Caduceus."

**Eric N. Grosch, M.D.**
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[1] Miller DW, Miller CG. On evidence, medical and legal. *J Am Phys Surg* 2005 Fall;10(3):70-75.
[2] Joseph HWB. *An Introduction to Logic.* Oxford, England: Oxford University Press; 1925.
[3] Phibbs BP. The malpractice crisis and the "expert" witness: the problem and a proposed solution. *J Am Coll Cardiol* 1999;33(3):899-900.
[4] *Sosa v. Board of Managers of Val Verde Memorial Hospital,* 437 F2d 173 (5th Cir. 1971).
[5] *Anton v. San Antonio Community Hospital*, 140 Cal Rptr 442, 567 P2d 1162, 1168 (CA 1977).
[6] *Duffield v. Memorial Hospital Association,* 361 FSupp, 398, 404 (SD, WV, 1973).
[7] *Klinge v. Lutheran Charities Association of Saint Louis*, 383 FSupp 287 (MO 1974), *aff'd*, 523 F2d 56 (8th Cir 1975).
[8] *Rao v. Auburn General Hospital,* 573 P2d 834 (WA App 1978).

**In reply:** Dr. Grosch is a clever logician whose cunningly crafted sham peer review has our admiration and close scrutiny. His main point claims we make a "distinction without a difference" between scientific and legal evidence and reasoning, stating legal standards of proof "entail value-judgments which are inaccessible to objective verification." The main point

fails, however, as our focus is *medical*, not scientific evidence. Nevertheless, we highlight that science's methodological biases and consensus opinions ensure that science is not as objectively verifiable as commonly thought.

We further show that medicine imitates law in balancing probabilities and that medical evidence can never be as "scientific" as evidence-based medicine proponents would have us believe. Indeed, physicians can practice medicine better if they use an appropriate probabilistic standard of proof for a given clinical decision, as our law does to render verdicts in civil and criminal cases. Saying medical evidence is "scientific" is neither necessarily accurate nor valid, but an inappropriate way to assert "reliability." Health officials should substitute "reliable" for this use of "scientific."

Dr. Grosch is correct that *R v. Smith* is argument by analogy and that evidence of prior conduct is inappropriate to prove guilt. *R v. Smith* is a landmark case taught to U.S. and English law students because it is *simultaneously* argument by analogy and argument by cause. *Smith* is a rare exception to the normally strictly applied rules in English courts excluding evidence of prior conduct. Such exclusion is designed to avoid precisely that which this writer complains of, namely conviction by analogy. The deaths of Smith's first two wives in such similar and unique circumstances established that there could be no other plausible explanation for all three deaths, thereby admitting the probative "argument by cause" despite the fact that the normally excluded prejudicial "argument by analogy" is thereby also admitted.

We enjoyed Dr. Grosch's ingenious argument that there was no physical evidence connecting Smith with the deaths. But there was considerable physical evidence establishing Smith's relationship with his drowned brides. Each time he also took a different name. The lack of direct physical evidence to prove the causal mechanism and Smith's part was unnecessary to establish guilt. These three geographically, temporally, and contextually separate crimes were so unique and similar that they marked Smith indelibly as the only plausible perpetrator. Being enigmatically proof of causation absent proof of cause, dechallenge case series and rechallenge case reports are the direct medical counterpart to *R v. Smith*. *Smith* further exemplifies a difference and a distinction; the fallacy of medicine and science looking at the "small picture" when as with law it is the "big picture" that is relevant, the full factual matrix.

Dr. Grosch contends that we attribute too much strength to statistical inference and that our paper exemplifies the fallacy of appeal to inappropriate authority. These inapposite criticisms helped to expose this inspired intellectual hoax.

The *Sosa* and other cases Dr. Grosch cites, important as they are in dealing with bad-faith peer review, are not germane to our paper.

**Clifford G. Miller, Esq.**
London, England
**Donald W. Miller, Jr., M.D.**
Seattle, WA

**On Homosexuality**

In his article on homosexuality,[1] Dr. Lehrman concludes that homosexuality is "a learned, experiential, and often changeable choice." The conclusion is not supported by the evidence presented in his article.

Although Dr. Lehrman lists 37 references at the end of his article, his statement that "homosexuals seeking to change often succeed in doing so" is given without a specific reference. Even if that statement is true, it applies only to the subcategory of homosexuals who desire to become heterosexual. That subcategory may be quite small, particularly for male homosexuals. I question whether male and female homosexuals can simply be lumped together with regard to the issue of the ability to change sexual orientation.

Dr. Lehrman makes the point that homosexuality is associated with increased morbidity and mortality. He tells us that homosexuality has not been proven to be genetic. He informs us that the American Psychiatric Association is influenced by politics. All of this may be true, but this evidence does not substantiate and is completely irrelevant to Dr. Lehrman's opinion that homosexuality is an "often changeable choice," which is the central conclusion of his article. This conclusion is not supported by data and evidence presented in his article, and therefore, the article should not have been accepted for publication.

**Bruce Schlafly, M.D.**
St. Louis, MO

I was very concerned about the recent article[1] on homosexuality giving the impression to readers that the American Psychiatric Association's removal of it from its Diagnostic and Statistical Manual (DSM) was "driven by politics, not science."

While the social turbulence of the 1960s certainly caused activists in the APA to press for change in what they considered unfair treatment as a result of our including homosexuality as a psychiatric disorder, this simply started the process that was to conclude with its removal from the list of disorders. Dr. Robert Spitzer, who was the highly regarded psychiatrist charged with chairing the APA Task Force on Nomenclature and Statistics, was responsible at the time for revision of the entire DSM. After review of available scientific material on the topic with the Committee, he wrote an APA Position Statement on the matter; this paper is an excellent consideration of the matter and still relevant in its ideas.[2] It was approved by APA's Board of Trustees, General Assembly, and Reference Committee. Given the controversial nature of the subject, I doubt very much that these were "rubber stamp" approvals. Dr. Lehrman's point that "the APA membership was then polled on the question" and that "a third of the membership responded to the poll" and supported the change is also misleading and inaccurate. It is misleading because this was no casual poll that was carried out; it was sent out in a mailing that emphasized the importance of the matter and that explained the APA leadership's action on it. The officers did this because they felt that all the members' opinions needed to be heard on the data presented. The recommendation to accept the trustees' decision passed. Lehrman's statement is inaccurate because the decision was "supported by 58 percent of the membership," not a third.[3]

As to Dr. Lehrman's conclusion that "the concept of homosexuality as a permanent 'orientation' is…without scientific validation" trivializes and ignores the work that has been done in this area. These contributions are in a number of fields, including endocrinology and radioimaging. A fine summary of this work was done last summer in a *Boston Globe* article by Neil Swidey.[4] I agree with Swidey's conclusion that "when you put them (the studies) all together and examine them closely, the message is clear: While post birth development may play a supporting role, the roots of homosexuality, at least in men, appear to be in place by the time the child is born."

**Furey A. Lerro, M.D.**
Red Bank, NJ

[1] Lehrman NS. Homosexuality: some neglected considerations. *J Am Phys Surg* 2005;10:80-82.
[2] American Psychiatric Association. Homosexuality and sexual orientation disturbance: proposed change in DSM-II. APA Position Statement; 1973:44.

[3] American Psychiatric Association. Panelists recount events leading to deleting homosexuality as a psychiatric disorder from DSM. *Psychiatric News*, July 17, 1998. Available at: www.psych.org/pnews/98-07-17/dsm.html. Accessed Oct 23, 2005.
[4] Swidey N. What makes people gay? *Boston Globe*, August 14, 2005. Available at: www.boston.com/news/globe/magazine/articles/2005/08/14/what_makes_people_gay?page=full. Accessed Oct 22, 2005.

**In Reply:** The letters from both Dr. Schlafly and Dr. Lerro accept, and are based on, the false belief that "homosexuality"—sexual activity with members of the same sex—is inborn, irreversible, and somehow more powerful than the inborn biological attraction of male and female.

Homosexual activity is as old as humanity itself and was even part of pagan religious ceremonials. The Hebrews and Christians banned it because of its effect of undermining marital stability.

The false notion that some of us are biologically preordained to same-sex relationships, rather than consciously choosing them, is relatively new. My paper pointed out that this concept, and the word "homosexuality" itself, were created in 1869 in Germany by men seeking to justify their illegal sexual activities with the ridiculous claim that their sexual behavior resulted from their having women's souls within their masculine bodies. This idea disregarded the fact that most self-styled homosexuals also have heterosexual intercourse.

Until 1869, same-sex activity had been considered a matter of individual preference, which Foucault called "a temporary aberration." Suddenly its devotees presented themselves as a biologically determined subspecies, not only subject to forbidden impulses but lacking the ability, required of the rest of us, to refrain from acting upon them.

Semantic legerdemain by the American media has caused the earlier and more accurate term, "sexual preference," to be replaced by "sexual orientation." While "preference" clearly implies personal choice and possible reversibility, "orientation" denies both. Was it "orientation" or "preference" when former New Jersey Governor James McGreevey, a twice-married father of two, sought to "explain" his extramarital homosexual activities by proclaimng, "I am a gay American?"

Concerning Dr. Schlafly's complaint: knowledge of homosexuality's history places the burden of proof on those claiming it is inborn rather than on those who deny that.

Dr. Lerro questions my description of the APA's removal of homosexuality from its list of mental disorders, and my conclusion that "homosexual orientation" is a notion without scientific validation. Copious supporting data on both issues are found in my cited sources, especially Satinover[1] and Bayer.[2] While 58 percent of those voting may have supported the APA decision, as Dr. Lerro states, the fact is that only a third of the membership voted. The *Boston Globe* article he praises is a farrago of reports claiming to find biological differences between small groups of gays and non-gays, as though correlation were causation, and dubious science could be made acceptable by endlessly repeating it.

It is appalling for physicians to ignore totally the harm that homosexuality causes by fostering promiscuity, spreading disease, and shortening life.

**Nathaniel S. Lehrman, M.D.**
Roslyn, NY

[1] Satinover J. *Homosexuality and the Politics of Truth*. Grand Rapids, Mich.: Baker Books; 1996:32,34.
[2] Bayer R. *Homosexuality and American Psychiatry: The Politics of Diagnosis* New York, N.Y.: Basic Books; 1981:3-4,102,145.