



Nothing Is Sacred: The Need for Unceasing Questioning in Scientific Research

James V. Nepola, MD

As we look at the trauma articles lined up in this issue of *The American Journal of Orthopedics*, we are reminded of one of the principle missions of our academic journals, the evaluation and dissemination of new knowledge. All 4 trauma articles offer an improvement in treatment or new perspective in the evaluation of musculoskeletal injury. As an Associate Editor of the journal, I often hear comments from reviewers like “nothing new here,” “retrospective study,” or “has been done before.” But I’m continually reminded that we can never get enough quality information in our quest to provide truth and knowledge to our readership.

Things are not always as they seem. Nothing reminds us of this as much as the revelations seen in the recent work showcased on the front page of *The New York Times* on August 27, 2015.¹ A research group at the Center for Open Science in Charlottesville, Virginia, attempted to reproduce 100 studies published in leading psychology journals and discovered that only 35% could be verified.¹ No fraud was inferred, just the “conclusion” that the results were not as definitive as originally felt to be. Interesting, shocking, or stimulating? I would contend it’s the latter. Though many things written in major and respected journals are held as sacred tenets of our craft, all should be challenged. Clinical science particularly needs to be continually refined, as one study is rarely powerful enough to be definitive.

There is nothing so true that it should not be retested. For centuries great academicians accepted and repeatedly published on the “fact” that the earth was the center of our universe. Phlebotomy was an accepted and practiced treatment for febrile illness for centuries. It is alleged to have played a significant role in the death of our country’s first president, George Washington, who succumbed to suppurative pharyngitis.² Needless to say, we no longer hold these truths to be valid.

Dr. Nepola is one of this journal’s Associate Editors for Trauma; and Professor of Orthopaedic Surgery, The University of Iowa Carver College of Medicine, Iowa City, Iowa.

Author’s Disclosure Statement: The author reports no actual or potential conflict of interest in relation to this article.

Am J Orthop. 2015;44(10):444. Copyright Frontline Medical Communications Inc. 2015. All rights reserved.

Even in our own recent literature, clinical solutions held to be advances, such as metal-on-metal arthroplasty, bone morphogenetic proteins (BMPs), and the aggressive arthroscopic treatment of superior labrum, anterior to posterior (SLAP) lesions, have been properly and helpfully challenged, clarifying their role in our armamentarium. Consider this issue of the journal to be a salute to the investigators and authors who honestly report their findings to us in hopes of better understanding.

There is nothing so true that it should not be retested... We encourage investigators to unceasingly question and work to test their hypotheses.

But we should never be dissuaded from taking a second look, or even a third, at a clinical principle or basic science belief. In his comments to *The New York Times*, Brian Nosek, psychology professor at the University of Virginia and director of the Center for Open Science stated, “We see this is a call to action...to the research community to do more replication.”¹ I could not agree more. Continued curiosity and constructive criticism should be encouraged. We should never be cowed into complacency because something “has already been done.” We encourage investigators to unceasingly question and work to test their hypotheses. They help us add to our fund of knowledge. Without their continued diligence we will have nothing to fill these pages. We thank them.

References

1. Carey B. Many psychology findings not as strong as claimed, study says. *New York Times*. August 27, 2015:A1. http://www.nytimes.com/2015/08/28/science/many-social-science-findings-not-as-strong-as-claimed-study-says.html?_r=0. Accessed September 11, 2015.
2. Wallenborn WM. George Washington’s terminal illness: a modern medical analysis of the last illness and death of George Washington. Papers of George Washington website. <http://gwpapers.virginia.edu/history/articles/illness>. Published November 5, 1997. Accessed September 11, 2015.