THE FAÇADE OF KNOWLEDGE

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The Strength & Conditioning Journal recently published an article entitled The Body of Knowledge: Use and Professionalism (1) by William J. Kraemer, Ph.D. After stressing the importance of the peer-review process, Dr. Kraemer proceeded to express a litany of opinions and accusations that were not supported with scientific references. The tone of his article and lack of scientific content were highly questionable for publication in a professional journal. Dr. Kraemer’s opinions went unchallenged by the Editor-in-Chief (T. Jeff Chandler, Ed.D.) of Strength & Conditioning Journal. Despite several attempts to contact Dr. Chandler, he would not acknowledge my reply to Dr. Kraemer’s comments. Therefore, a response to Dr. Kraemer’s unsubstantiated assertions is warranted.

Dr. Kraemer stated (1): “The body of knowledge in a particular field, such as strength and conditioning, is made up of many different blocks. These blocks are the scientific studies” (p.33). Dr. Kraemer was the Chairman of the Writing Group for the American College of Sports Medicine (ACSM) 2002 Position Stand: Progression Models in Resistance Training for Healthy Adults (2). However, a Critical Analysis (3) of the Position Stand - the ACSM’s “body of knowledge” for resistance training - revealed that many of the studies cited in the Position Stand were misrepresented or misinterpreted, even though in many instances the principle authors or co-authors of the studies were members of the Position Stand’s Writing Group. In an attempt to support their opinions, Dr. Kraemer and the Writing Group cited unrepresentative or aberrant data and studies that were irrelevant to their claims and recommendations. They omitted evidence that did not support their opinions. At least 56 studies that failed to support the primary claim or recommendation were curiously missing from the Position Stand (3, Table 12, p.51). The biased omission of these studies by the ACSM’s Writing Group is what Martinson and colleagues (4)
described as within “…the range of questionable behaviour that threatens the integrity of science” (p.737). The ACSM’s Position Stand was an insult to (as noted by Dr. Kraemer) “scientists who spend their life energy doing studies” (1, p.34).

Dr. Kraemer stated (1): “The true scientist tries to answer questions. The true scientist is an inquisitive person - a scientific detective, so to speak” (p.33). He claimed: “In today’s world, we see a lack of professionalism in people writing reviews and critiques of research”, and he cautioned readers: “Be on the lookout for the ‘shock approach’, for the ‘snotty and arrogant’ reviews and critiques of the body of knowledge” (p.35). All the challenges to the ACSM’s “body of knowledge” (2) are described in detail in the Critical Analysis (3). Dr. Kraemer referred to critiques of the “body of knowledge” as “snotty and arrogant”, and said that the challenges are written by people “without any significant credentials as scientists” (1, p.34). However, a “true scientist” such as Dr. Kraemer could have attempted to defend these challenges to the so-called “body of knowledge” (2). Apparently, Dr. Kraemer had no credible scientific evidence to support his allegations.

Dr. Kraemer stated (1): “The study’s results are published following a peer review process, which involves critical review by two other practicing scientists in the field” (p.34). When the peer-review process is functioning properly - and ethically - it eliminates those studies with poor methodology, uncontrolled confounding variables, inconsistent data, and unsubstantiated claims. It is also supposed to prevent authors from fabricating data or resurrecting previously quiescent research. However, bias in research and peer review has the potential to infiltrate the so-called “body of knowledge”, further reinforcing the bias. This form of questionable behavior was predicted a few years ago by Robergs (5) who noted that peer review should be a powerful protector against bias, but can also propagate bias when it exists. When there are biased reviewers of a specific topic such as resistance training, their bias influences the manuscripts published. These publications pass that bias to the broader scientific community, which then protects itself from criticism by rejection of manuscripts that differ from their “collective bias” (5, p.vii). The result is a misunderstanding of a specific topic (e.g., resistance training) in the strength and conditioning community. Robergs warned that this would be detrimental to the body of knowledge: “Worse yet, and most devastatingly, the failure to question or challenge conventional thinking and accepted opinions threatens the sustainability of the research process as our primary method of accessing new knowledge” (p.viii).

An example of this bias affecting the strength and conditioning community is that only one of the eight reviewers for the ACSM’s Position Stand (2) challenged the ACSM’s numerous unsupported claims and opinions, and recommended that the Position Stand not be published. That reviewer (Reviewer #5) was surreptitiously removed from the review process. This was a flagrant violation of objective peer review by the ACSM. All the other reviewers failed to challenge - or even question - a single one of the 327 references in the Position Stand (original draft); and none of those reviewers challenged any of the ACSM’s opinions or recommendations during the two rounds of review. The biased, unsupported Position Stand was approved by the ACSM’s Pronouncements Committee, the ACSM’s Board of Trustees, the ACSM’s Administrative Council, the reviewers and Editor-in-Chief (Kent B. Pandolf, Ph.D.) of Medicine and Science in Sports and Exercise, and subsequently published in that journal.

Dr. Kraemer also noted (1) that in the peer-review process, the authors should not know the identity of the reviewers and the reviewers should not know the identity of the authors (p.34). Ironically, at least one of the authors of the Position Stand (2) was actually one of the reviewers (Reviewer #4) - an obvious violation of what Dr. Kraemer described as the “double-blind review process” (p.34). Furthermore, four of the authors and two of the reviewers (Reviewers #1 and #3) were on the ACSM’s Pronouncements Committee for the Position Stand. All these author, reviewer, and
Committee member conflicts of interest were blatant infractions of the ACSM’s own Code of Ethics (6). No one at the ACSM will accept responsibility for the malf easance. These transgressions clearly demonstrate the failure of the ACSM’s peer-review process, which was lauded—and in fact depicted by Dr. Kraemer in his flowchart - as the last critical link before manuscript publication (p.34).

Dr. Kraemer stated (1) that some critiques “...are often meant to distort and discredit studies, and have a hidden agenda, whether it be self-promotion, a training mythology, corporate interests, or too much time on the writer’s hands” (p.35). Curiously, Dr. Kraemer allusively mentioned - but failed to cite—the “reviews and online critiques” written by people whom he believes have “...no experience at all with particular content area” (p.34). Had he cited these reviews and seized the opportunity to describe specifically how the people with no experience in the field distorted and discredited the studies, readers could have decided for themselves on the credibility of the Position Stand (2) and the Critical Analysis (3). Dr. Kraemer is apparently threatened by any “agenda” other than his own. The Editor-in-Chief (T. Jeff Chandler) of the professional journal of the National Strength and Conditioning Association, whose motto is Bridging the Gap between Science and Practice, could have used his editorial discretion to challenge Dr. Kraemer’s vague accusations. That is, Dr. Chandler should have insisted that Dr. Kraemer cite the “online critique”, the studies that he claimed were distorted or discredited, and specifically show how these studies were distorted or discredited. Dr. Chandler failed in his editorial responsibility. Apparently Dr. Kraemer and Dr. Chandler do not trust their readers to make credible decisions.

Dr. Kraemer claimed (1) that with the use of meta-analysis: “Studies are quantitatively examined, removing the aspects of perspective and prejudice from the equation” (p.34). Arguably, it is possible that a meta-analysis could contribute to a legitimate body of knowledge if it followed strict statistical guidelines. However, the conclusions drawn from a meta-analysis are only as credible as the criteria used to select the studies included in the analysis, and the meta-analysis is dependent on the validity of each of those included studies. In addition, the exclusion of specific studies - selecting only the favorable evidence (deliberately or unintentionally) while ignoring the preponderance of evidence that is not favorable to a specific belief - creates an additional bias (“prejudice”) in the outcomes of the meta-analysis and demonstrates “the lack of professionalism” noted by Dr. Kraemer (p.35). Obviously, bias selection of studies can be manipulated to produce any desired outcome. A critical analysis transcends a meta-analysis because a critical analysis challenges myths; whereas, a meta-analysis can be used to support personal biases and perpetuate myths. Several meta-analyses for resistance training (7-9), which have not adhered to statistical guidelines, are illogical, inconsistent and misleading. The fact that these highly flawed meta-analyses survived the scrutiny of the self-proclaimed “practicing scientists” and “scientific detectives” involved in the peer review and editing of these scientific journals is evidence that the peer-review process failed - again. Dr. Kraemer cautioned: “Readers, beware of this type of document” (p.35). Clearly, the document to be cautious of is the ACSM’s Position Stand (2).

Contrary to Dr. Kraemer’s comment about critiques “meant to distort and discredit studies” (1, p.35), more than one year after publication of the Critical Analysis (3) not a single author of any study cited in the Critical Analysis has contacted any of the authors of the Critical Analysis or the Editor-in-Chief of JEPonline (Robert A. Robergs, Ph.D.) to claim that any study was misrepresented or misinterpreted. In an accompanying editorial (10), Dr. Robergs noted that the criticisms in the Critical Analysis were presented in a professional manner and were based on the data presented by the ACSM in the Position Stand (2). In fact, Dr. Robergs invited a response from any authors who believed that their study was misrepresented in the Critical Analysis. None of those authors presented any evidence that their studies were “distorted or discredited” in the Critical Analysis.
The only letter-to-the-editor of *JEPonline* regarding the Critical Analysis was an unsuccessful attempt by McGuigan and McBride (11) to divert focus from the ACSM’s defective review process and highly flawed Position Stand. The focus of McGuigan and McBride’s response was to cite meta-analyses that were published after the Position Stand. They also failed to demonstrate that a single study in the Critical Analysis was distorted or discredited.

In a recent review, Peterson and colleagues (12) quoted six conclusions from the Critical Analysis (3) that specifically demonstrated how the Writing Group for the ACSM’s Position Stand failed to support their claims and recommendations. Their only retort to the Critical Analysis was to state that there was a preponderance of “familiar biased dialogue that often contaminates narrative and critical reviews” (p.951), and that challenging the principles advocated by the NSCA and the ACSM “should be viewed merely as spiteful” (p.957). Similar to the approach by Kraemer (1), who was unable to challenge the Critical Analysis with any credible evidence, the strategy of Peterson and colleagues was to ignore the specific challenges to their opinions and hope that a personal attack would give their arguments some credibility. They claimed: “Specifically, there are several notorious, self-appointed experts who have made a name by aimlessly denigrating the work of others while supporting an obstinate bias, with critiques that lack scrutiny, justification, and accuracy” (p.956). Peterson and colleagues correctly noted however, that the purpose of the Critical Analysis “was to critically analyze the contents and supportive rationale behind the 2002 ACSM Progression Model”; “rebut each and every one of the defining positions set forth by the ACSM”; and subsequently demonstrate the “copious failure” of the evidence to support the ACSM’s claims and recommendations (p.951).

The only other published comment regarding the Critical Analysis (3) was Dr. Kraemer’s column (1). Because McGuigan and McBride’s letter-to-the-editor (11), the diatribe by Peterson and colleagues (12), and Dr. Kraemer’s column (1) did not respond to - and in fact ignored - the legitimate issues raised in the Critical Analysis, they all failed to bridge the gap “between science and practice”. In fact, their publications, which lack any credible scientific evidence, continue to widen the abyss between science and practice. Their failed attempts to deflect attention from the real issues - the actual flaws and unsubstantiated claims in their so-called body of knowledge - created a façade of knowledge.

The promotion and proliferation of all the absurd “corporate interests”, as noted by Dr. Kraemer (1), certainly question the unprecedented “hidden agenda” and credibility of the ACSM and the NSCA, where debate and criticism are apparently nonexistent. The Critical Analysis (3) revealed that most of the opinions, claims and recommendations for resistance training in the ACSM’s Position Stand (2) remain unsubstantiated, and that effective resistance training is relatively simple rather than extremely complex. The ACSM’s dissemination of their unsubstantiated opinions is a disservice to dedicated coaches and trainees. These revelations certainly raise the question of whether the ACSM and NSCA function more at the mercy of their “corporate interests” than the principles of science.

I have no “corporate interests”. My only obvious explicit “agenda”, which is not hidden in any way, is to challenge the corpulent bureaucracies of the ACSM and NSCA, question their resistance-training pseudoscience and misinformation, and expose the incompetence - or corruption - in their peer-review process. Legitimate criticism and challenges are not only good for science, but also essential. An unbiased editorial peer-review process is imperative to establish legitimacy in a specific scientific discipline such as exercise physiology. Failure to rectify the current defective process will result in further deterioration of credibility in the field of exercise physiology, and more specifically resistance training.
DISCLOSURE

In the interest of full disclosure, I am the primary author of the aforementioned Critical Analysis (3) and I was one of the reviewers (along with Robert M. Otto, Ph.D. and Richard A. Winett, Ph.D. designated as Reviewer #5) for the ACSM’s Position Stand (2). Prior to publication in JEPonline, the Critical Analysis was submitted to three other independent peer-reviewed journals: Sports Medicine, British Journal of Sports Medicine, and Journal of Sports Science and Medicine. Despite receiving mostly favorable reviews and revising the manuscript as requested by the individual reviewers, the editor of each journal (Shanahan, McCrory, and Gur, respectively) rejected the manuscript because: “I cannot believe that the ACSM experts would provide a position stand that misinterprets the evidence so badly” (Shanahan, personal correspondence 07-10-03); “The editorial decision to reject is based on more than the reviewers’ comments alone” (McCrory, personal correspondence 02-18-04); or the manuscript was rejected with no specific explanation (Gur, personal correspondence 03-30-04). Robergs (5) has previously noted: “Surely, one of the purposes of scientific publication is to invite, not block, the publication of concepts and scientific interpretations that challenge contemporary thought” (p.v). He cautioned: “To block such manuscripts is a form of scientific arrogance that curtails the very essence of the scientific process; that of an open inquiry and shared thoughts leading to heightened knowledge and understanding” (p.vi).

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REFERENCES

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