

## Editorial

# Quality of Evidence-Based Research

The quality of "evidence-based research" is dependent upon the quality of the articles selected. Although study design is a critical factor for inclusion of an article in an evidence-based survey, an article must also demonstrate consistency and reliability in project execution. Oftentimes, these latter features go unseen. Nonetheless, any project inconsistency not only calls into question the meaning of the results but also tempers the recommendations the article puts forth.

Such inconsistency in the reporting of research results is exemplified by work recently published by the International Association of Dental Research in abstract form and subsequently in manuscript form in *The International Journal of Periodontics & Restorative Dentistry*. In the article entitled "Histologic Evaluation of an Nd:YAG Laser-Assisted New Attachment Procedure in Humans" by Yukna et al (issue 6, 2007), I noted an unexpected inconsistency between their reported data and the data presented in their 2004 IADR abstract (no. 2411).

They first reported that 4 out of 6 test teeth achieved new connective tissue attachment. However, in their subsequent manuscript, they reported that all test specimens (6 out of 6 teeth) achieved new connective tissue attachment. The observed inconsistency did not just extend to this data, however, which would have been within the realm of clerical error. It occurred with more than 40% (10 out of 24) of their reported numbers found in both clinical and histologic tables.

How can it be that one study yielded two reports with such far-ranging results? In assessing the material and methods, I can only assume the two reports are one in the same. In the manuscript there was no mention of a reevaluation of their original material. As well, there was no mention of noted differences between their abstract data and the manuscript data. Either would have been a worthy notion.

An inconsistency in reported data, as exemplified above, is unfortunate. However, the magnitude of the inconsistency in this example dramatically tempers the reliability of the reported data but more importantly, the meaningfulness of the conclusions put forward. However unfortunate this may be, we must adhere to a consistency in the execution and documentation of research results. With the public demand for reliable treatment and treatment outcomes, it falls on the shoulders of our profession to insist on quality of reporting.

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## Response

It is no surprise that differences were found between an AADR/IADR abstract (often based on pilot or preliminary data) and a full peer-reviewed manuscript. In all actuality, the vast majority of AADR/IADR abstracts do not progress to become published manuscripts, and abstracts are often "rushed" so that graduate students can present the data at a meeting. This is one of the reasons that such abstracts are usually not acceptable as references.

Regarding the specific point made about the difference in the histologic tables of our 2004 abstract and 2007 manuscript (four out of six teeth achieving new connective tissue attachment in the IADR abstract versus six out of six teeth in the manuscript), this is actually a typographical error in Table 2 of the manuscript, where the categories "New Bone" and "New CTA" are reversed. Correcting this makes the tables of the abstract and manuscript similar. The differences in the clinical findings in the abstract and Table 1 in the manuscript reflect a more careful evaluation of the clinical data in the latter.

The main finding of the research was that there was a distinct and dramatic difference in the histologic results following the laser therapy, compared to those following scaling and root planing. This finding alone, in addition to the data, suggests that the conclusions are not "meaningless."

I trust that the above author has scrutinized every abstract-manuscript combination to this same degree. If not, then others and I have to wonder why he specifically selected this laser report for criticism. I agree that we want and need the best science possible. Throughout my career in performing mostly clinical research (instead of focusing on evaluating extracted teeth), I have always striven to report results, both positive and negative, responsibly, ethically, and honestly. There was no attempt to deceive, and the data in the full manuscript (with the correction of Table 2) are what should be focused on.

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