

#### **EDITOR**

Robert G. Keim, DDS, EdD, PhD

#### **SENIOR EDITOR**

Eugene L. Gottlieb, DDS

#### **ASSOCIATE EDITORS**

Birte Melsen, DDS, DO (Aarhus, Denmark)

Ravindra Nanda, BDS, MDS, PhD  
(Farmington, CT)

John J. Sheridan, DDS, MSD (Jacksonville, FL)

Peter M. Sinclair, DDS, MSD (Los Angeles, CA)

Bjorn U. Zachrisson, DDS, MSD, PhD  
(Oslo, Norway)

#### **TECHNOLOGY EDITOR**

W. Ronald Redmond, DDS, MS (San  
Clemente, CA)

#### **CONTRIBUTING EDITORS**

R.G. Alexander, DDS, MSD (Arlington, TX)

Tiziano Baccetti, DDS, PhD (Florence, Italy)

Jeff Berger, BDS, DO (Windsor, Canada)

S. Jay Bowman, DMD, MSD (Portage, MI)

Robert L. Boyd, DDS, MEd (San Francisco, CA)

Vittorio Cacciafesta, DDS, MSC, PhD (Milan,  
Italy)

José Carrière, DDS, MD, PhD (Barcelona,  
Spain)

Jorge Fastlicht, DDS, MS (Mexico City, Mexico)

John W. Graham, DDS, MD (Litchfield Park, AZ)

Robert S. Haeger, DDS, MS (Kent, WA)

Warren Hamula, DDS, MSD (Monument, CO)

James J. Hilgers, DDS, MS (Mission Viejo, CA)

Masatada Koga, DDS, PhD (Tokyo, Japan)

Björn Ludwig, DMD, MSD (Traben-Trarbach,  
Germany)

James Mah, DDS, MS, DMS (Los Angeles, CA)

Melvin Mayerson, DDS, MSD (Kettering, OH)

Richard P. McLaughlin, DDS (San Diego, CA)

James A. McNamara, DDS, PhD (Ann Arbor, MI)

Elliott M. Moskowitz, DDS, MS (New York, NY)

Jonathan Sandler, BDS, MSC, FDS RCPS,  
MOrth RCS (Chesterfield, United Kingdom)

Georges L.S. Skinazi, DDS, DSO, DCD  
(Paris, France)

Michael L. Swartz, DDS (Encino, CA)

Flavio Uribe, DDS, MDS (Farmington, CT)

#### **EXECUTIVE EDITOR**

David S. Vogels III

#### **MANAGING EDITOR**

Wendy L. Osterman

#### **EDITORIAL ASSISTANT**

Heidi Reese

#### **BUSINESS MANAGER**

Lynn M. Bollinger

#### **CIRCULATION MANAGER**

Carol S. Varsos

#### **GRAPHIC DESIGNER**

Jennifer Johnson

Address all communications to *Journal of Clinical Orthodontics*, 1828 Pearl St., Boulder, CO 80302. Phone: (303) 443-1720; fax: (303) 443-9356; e-mail: info@jco-online.com. See our website at www.jco-online.com.

## **THE EDITOR'S CORNER**

### **The Best Places for Miniscrews**

The use of miniscrews as a source of skeletal anchorage has become routine in day-to-day orthodontic practice. In the 2008 JCO Study of Orthodontic Diagnosis and Treatment Procedures, nearly 60% of the respondents reported having placed miniscrews in at least one case during the previous year, with most practitioners using them in at least three cases (JCO, November 2008). It seems likely that the number of orthodontists using miniscrews has only increased further since the 2008 survey. The appeal of skeletal anchorage to the clinician, whether entirely valid or not, is obvious: practically any anchorage demand can be met without taxing reciprocal, opposing anchorage demands. This enables the practitioner to accomplish dental and skeletal movements that in years past would have required rigorously planned and executed anchorage mechanics or surgical procedures.

Along with the dramatic increase in orthodontic miniscrew usage, a new area for careful scientific study has arisen. Many clinical questions have already been addressed in the literature, and the scope of ongoing research is continuing to expand. Specifically, a substantial number of variables have been examined relative to miniscrew success or failure, including screw size, shape, and material; insertion procedures; timing and magnitude of force application; and more.

It quickly became obvious to the first brave souls who tried these temporary anchorage devices that a critical factor in the success or failure of miniscrew insertion was the site of placement. In a JCO Overview published earlier this year (March 2011), Ludwig and colleagues cited studies showing that interradicular locations could be suitable, but had their drawbacks. Among the potential issues with these sites were the difficulty of determining the availability and quality of bone, the risk of damage to root structures or the periodontium, and the possibility of interoperative screw fracture—all leading to failure rates as high as 25% in some reports. Dr. Ludwig's group used cone-beam computed tomography to determine the most favorable interradicular spaces, based on bone width rela-

tive to the mucogingival border and proximal contact points. They concluded that the best mandibular interdental locations for miniscrew insertion were between the premolars, the second premolars and first molars, and the first and second molars. On the other hand, multiple sites in the maxilla appeared to offer adequate bone width, but when considering the important variable of attached gingiva, only one site—between the upper second premolars and first molars—could be considered ideal.

Considering the scarcity of suitable maxillary placement sites, the authors pointed out that “such problems may be avoided by placing the mini-implant in the anterior palate, which involves comparatively simple insertion with few complications.” Following up in this issue of JCO, Dr. Ludwig’s team presents guidelines for palatal miniscrew insertion. Using measurements from both radiographic and clinical anatomic studies, they plot out favorable insertion sites in the hard palate, both anterior and posterior.

The authors’ extensive review of the literature has led them to conclude that the most important determinant of the success of miniscrew placement, whether in the buccal alveolus or the anterior palate, is the quantity of surrounding bone. The anterior palate appears to be one of the best locations for orthodontic miniscrews or palatal implants because its cortical bone is thicker than that of other potential locations. Sufficient attached gingiva is available, and palatal miniscrews will not contact dental roots or inhibit tooth movements. Various treatment mechanics can be supported in virtually any direction and can usually be changed during treatment without

having to modify the anchorage design. As an alternative (with risk factors including the possibility of thick mucosa and the proximity of blood vessels and nerves), the authors recommend the palatal alveolus between the roots of the second premolars and first molars.

In conjunction with this group’s prior report on interradicular miniscrew placement, the article in our current issue lays out a simple and, more important, usable set of guidelines on where to insert miniscrews for the greatest success. We need more first-hand clinical research and systematic reviews of clinical topics, like this one, to support the orthodontist in daily practice—especially in such a rapidly developing area as skeletal anchorage. My thanks to Dr. Ludwig and his co-authors of both papers for clarifying a number of questions I had regarding optimal miniscrew placement sites. I feel confident that their analyses will be equally beneficial to you.

RGK

---

## **CORRECTION**

Since the publication of an article by Drs. Ian Anderson, A. Bakr M. Rabie, and Ricky W.K. Wong, “Early Treatment of Pseudo-Class III Malocclusion: A 10-Year Follow-Up Study” (JCO, November 2009), the authors have corrected some of the cephalometric measurements used in their study, resulting in modifications to their data tables. Amended tables and diagrams are included in the online version of the article at [www.jco-online.com](http://www.jco-online.com). The authors’ main conclusions remain unchanged by these corrections.