

PREFACE

THE MILLENNIUM OF THE MOTION SEGMENT

We editors are all too aware of the rapid pace of innovation in motion preserving technologies for the spine. In the preparation of this book, no sooner would we pin down a theme, chapter, or line of reasoning when a new implant, theory or contributor would present. Although sometimes frustrating, incomplete, and (rarely, it is hoped) inaccurate, the work of all these contributors is stellar; we hope that this book will whet the reader's appetite to stay with this field. It is the mission of the nearly 40 contributors and three editors to "freeze," even for a moment, *motion preservation* so that it can be considered by the spine community.

In Part I: Fundamentals, the arguments for and against the concept of motion preservation, as a whole, are put forth by Chris Bono, Steve Garfin, and Harry Herkowitz. John Dawson, Markus Fröhlich, and Steve Griffith have put together the best overview of the spinal motion segment anywhere. As readers wrestle with pros and cons and refresh their understanding of biomechanics, they are ready for Part II: Clinical Applications.

In Part II, cervical, thoracic, and lumbar areas are addressed separately. Although no cervical disc device is yet on the market in the United States, the timely chapters by Bill Welch and Paul McAfee (overview) and the Barrows group (the implant) are important grounding for surgeons considering future use of these devices for their patients. Two thoracic restoration techniques are described, not so much for their motion preservation qualities, but for better overall *balance* and *pain reduction without fusion*. Daisuke Togawa and Izzy Lieberman describe vertebral body restoration including epidemiology, biomechanics, and the kyphoplasty solution. Steve Kuslich and I describe a new porous containment system (Optimesh) for a biologic solution. The lumbar total disc replacement is receiving a lot of attention worldwide and does in this Part as well. Hassan Serhan, John Regan, J.P. Lemaire, and Fabien Bitan discuss the approach to the currently available CHARITÉ disc. Rick Delamarter, David Fribourg, Hal Mathews, and Tom Errico give us perspective on some newer lumbar artificial discs in clinical trials and development.

The second section of Part II we have entitled "Lumbar Disc Augmentation Technologies"—that is, how can one help the failing disc short of complete ablation-replacement? Hansen Yuan, John Sherman, and Chip Bao discuss the status of nucleus replacement, and

anular repair is addressed by Joe Cauthen and his group. The dynamic posterior motion preservation constructs are appearing on the market as “soft fusion” or interspinous devices. Dynesys is commercially available (at this writing as a fusion device), as is discussed by the editors.

The book concludes with an over-the-horizon view by Bob Watkins, Steve Green, and Matthew Keary. Facet replacement and other advanced methods are considered. The sky certainly is the limit!

Although not an exhaustive treatment of the subject, this book, as we intended, represents a critical mass for knowledgeable readers who want to ready themselves for a new way of thinking about the spine. Ready or not, the “Dynasty of the Disc” has given way to “The Millennium of the Motion Segment.”

James H. Maxwell
Steven L. Griffith
William C. Welch

All your better deeds shall be in water writ.

—Beaumont and Fletcher, 1609, *Philaster*, Act V, Scene 3