

## Preface

# Motion Preservation



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*Guest Editor*

For many years, surgical fusion has been considered the gold standard treatment for patients who have cervical disc herniation and patients who have low back pain that have failed conservative management. Anterior cervical discectomy and fusion, while being generally regarded as a satisfactory procedure by surgeons and patients alike, has been reported to result in a 25% rate of symptomatic next segment degeneration over a 10-year period. The results of surgical fusion for low back pain have often been reported as suboptimal due to low return to work rates, persistent pain, and lack of correlation of radiographic to clinical outcomes.

With the FDA approval of the SB Charite III lumbar disc replacement in October 2004, the age of disc arthroplasty has begun in the United States. Other lumbar and cervical devices with various modifications will soon also be available outside of IDE trials. As with any new technology, we must first understand the basic scientific and biomechanical data supporting its use before even considering integrating it into the care of our patients. Perhaps most importantly, we must understand the limitations of the current data and the possible complications that may be encountered as we proceed. Finally, we must be thoroughly familiar with the specific devices themselves and master the subtleties and

technical nuances of each *before* we use them in patients.

This issue of the *Neurosurgery Clinics of North America* was organized with the aforementioned philosophy in mind. We proceed from the basic scientific justifications for the devices to the biomechanical descriptions. Basic introductions to the history and current status of arthroplasty in the cervical and lumbar spines are then provided. Next, the individual devices are described in detail as well as the technical aspects of their insertion. Finally, we provide a brief glimpse of the future of motion preservation surgery and biological disc regeneration.

I am indebted to all of the contributors for sharing their significant experience and expertise. I hope this issue will serve as a very basic introduction to the theories and techniques as we begin this most exciting period of motion preservation surgery in the United States.

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