

# FOREWORD

Every 5 to 10 years, a notable change in philosophy and actions occurs in the management of degenerative spinal disorders. Twenty years ago the spinal community witnessed the explosion of pedicular fixation, which allowed rigid segmental control of the “force nucleus” of the spine and three-column manipulation of the spinal elements. Following this, surgeons realized the importance of the anterior intervertebral disc as a potential pain generator in symptomatic degenerative disc disease. This led to the introduction of stand-alone intervertebral fusion cage devices of all shapes and sizes (cylindrical, rectangular, and trapezoidal). A subset of patients responded very well to this intervention, but it was clear many patients continued to be symptomatic, and further stability (posterior stabilization) was necessary. Subsequently, spinal care providers became aware of the adverse consequences of fusion, such as stiffness, loss of mobility, and junctional degeneration and disease.

A logical evolution of intervention to these morbidities has been the concept of providing controlled or stable motion to a symptomatic degenerative interspace. This can be accomplished in many novel ways, such as through nucleus replacement, total disc replacement, facet replacement, segmental posterior dynamic implants, or nonsegmental interspinous process spacers.

The editors of *Spinal Arthroplasty: A New Era In Spinal Care* have organized a comprehensive overview of the philosophy of motion-sparing technology as well as its origin and evolution over the last decade. Drs. Guyer and Zigler are internationally renowned thought leaders who have been at the forefront of the study of disc arthroplasty in North America. The experience and wisdom they share here give the reader a balanced understanding of the importance of motion preservation and stability in the management of degenerative disease, especially in the younger patient population.

The editors and authors should be congratulated for filling the void in our understanding of this relatively new concept of care for symptomatic spinal degenerative disorders. This textbook will serve as an introduction to the less experienced in this philosophy of care as well as a reference tool for more experienced spinal care providers endeavoring to gain a greater understanding of the science which supports the preservation of motion in spinal reconstruction.

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This is a most exciting time for those involved in the care of patients with back pain—a major paradigm shift is underway in the basic precepts of surgical management of the spine. This book attempts to provide a comprehensive overview of the current aspects of the evolving arena of spinal arthroplasty.

Generally, the goal in treating back pain patients is to reduce pain and increase function. Traditionally in treatment of the spine, as was the case many years ago for other joints, this goal has been pursued by eliminating motion of the symptomatic joint. Great progress was made years ago for hips and knees with the development of dependable total joint replacements that allowed painless motion of what had been a painful and disabling degenerative joint. Only since the mid-1980s has similar progress been made for the spine. At that time, Drs. Kurt Schellnack and Karin Büttner-Janz in Berlin, Germany designed the first clinically viable total disc replacement. The third generation of that design is in use today.

Texas Back Institute's interest in artificial discs began in the early 1990s and led to our hosting a visit by Dr. Büttner-Janz to our institute. We immediately embraced the technology and sent researchers to Europe to review the results at several centers which had been using the device. This experience confirmed our enthusiasm for spinal arthroplasty, and we worked with the Link company to bring the technology to the United States. This relationship led to our having the honor of implanting the first Charité device in the United States in March 2000, and the first ProDisc in the United States in October 2001. Since that time, the surgeons at the Texas Back Institute have been actively involved with the evaluation of three of the four lumbar disc replacement devices undergoing FDA study as well as with the evaluation of cervical total disc replacements.

In the more than 25 years that I have been practicing spine care, there has been no greater excitement than that which is presently occurring. The topics in this textbook address many of the stimulating aspects of spine care, including disc replacements, posterior dynamic stabilization devices, and the future potential of tissue engineering and microelectronic applications in spine. Motion will not totally replace fusion but will have a significant impact in providing better care for the spine patient. This compendium is the first attempt by our institute to document what is occurring in this new world of spine. We welcome you on this journey.

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