

Section 1: Basic Science

1. *Development of the Spine*
2. *Applied Anatomy of the Spine*
3. *Architectural Design and Function of Human Back Muscles*
4. *Lumbar Musculature: Anatomy and Function*
5. *The Intervertebral Disc-Normal, Aging, Pathologic (Chemical-Anatomic)*
6. *Biomechanics of the Spinal Motion Segment*
7. *Sciatica and Nerve Root Pain in Disc Herniation and Spinal Stenosis: A Basic Science Review and Clinical Perspective*
8. *Basic Concepts in Genetics and Intervertebral Disc Degeneration and Scoliosis*
9. *Twin Studies Relevance to Genetic and Environmental Influences*
10. *Outcomes Research for Spinal Disorders*
11. *Finite Element Modeling: An Overview and Clinical Relevance*

Section 2: Diagnosis

12. *The Patient History and Physical Examination: Cervical, Thoracic and Lumbar*
13. *Spine Imaging*
14. *The Electrodiagnostic Examination*
15. *Intraoperative Neurophysiologic Monitoring of the Spine*
16. *Targeting "Pain Generators"*
17. *Discography*

Section 3: Surgical Anatomy and Approaches

18. *Cervical Spine: Surgical Approaches*
19. *Thoracic Spine: Surgical Approaches*
20. *Posterior-Lateral Approaches*
21. *Lateral Approaches*
22. *Anatomy and Non-Operative Results, Pre-Operative Injections, Rx*
23. *SI Joint Surgery*
24. *Outcomes Perspectives*

Section 4: Pediatrics

25. *Back Pain in Children and Adolescents*
26. *Congenital Scoliosis*
27. *Idiopathic Scoliosis*

- 28. *Neuromuscular Scoliosis*
- 29. *Thoracoscopic Techniques*
- 30. *Pediatric Kyphosis: Scheurmann's Disease and Congenital Deformity*
- 31. *Spondyloysis and Spondylolisthesis*
- 32. *Cervical, Thoracic and Lumbar Spinal Trauma of the Immature Spine*
- 33. *The Immature Spine and Athletic Injuries*
- 34. *Congenital Anomalies of the Cervical Spine*
- 35. *Congenital Anomalies of the Spinal Cord*

Section 5: Cervical Degenerative Disorders

- 36. *Cervical Spinal Disorders Associated with Skeletal Dysplasias and Metabolic Diseases*
- 37. *Pathophysiology, Natural History and Clinical Syndromes of Cervical Disc*
- 38. *Medical Myelopathies*
- 39. *Nonoperative Management of Disc and Degenerative Disorders*
- 40. *Surgical Management of Axial Pain*
- 41. *Cervical Radioculopathy: Surgical Management*
- 42. *Management Cervical Myelopathy: Surgical Management*
- 43. *Ossification of the Posterior Longitudinal Ligament (OPLL)*
- 44. *Cervical Disc Replacement*

Section 6: Thoracic and Lumbar Disc Disease

- 45. *Thoracic Disc Disease: Clinical and Surgical Management*
- 46. *Lumbar Disc Disease: Overview of Clinical Problem*
- 47. *Lumbar Disc Herniations*
- 48. *Annulus Repair*
- 49. *Lumbar Disc Degeneration: Anterior Lumbar Interbody Fusion, Degeneration and Disc/Replacement*
- 50. *Lumbar Disc Degeneration: Posterior Lumbar Interbody Fusion (Anterior)*
- 51. *Posterolateral & Lateral Corpectomies*
- 52. *Dynamic Stabilization: What's Current, What's the Potential*

Section 7: Minimally Invasive Surgery

- 53. *Rationale of MIS Surgery*
- 54. *Minimally Invasive (Posterior) Surgical Approaches to the Spine*

- 55. *MIS Posterior Lumbar Instrumentation*
- 56. *MIS Posterior Lumbar Fusion Techniques*
- 57. *Endoscopic Lumbar Surgery*
- 58. *Interspinous Spacers*
- 59. *MIS Cervical Surgery Techniques*
- 60. *Future Direction in MIS Spinal Surgery*

Section 8: Spinal Stenosis

- 61. *Spinal Stenosis: Pathophysiology, Clinical Diagnosis, Differential Diagnosis*
- 62. *Nonoperative Management Of Lumbar Spinal Stenosis*
- 63. *Surgical Management of Lumbar Spinal Stenosis*
- 64. *Degenerative Spondylolisthesis*

Section 9: Spinal Fusion and Instrumentation

- 65. *Techniques and Complications of Bone Graft Harvesting*
- 66. *Principles of Bone Fusion*
- 67. *Bone Substitutes: Basic Science and Clinical Application*
- 68. *Electrical Stimulation of Spinal Fusion*
- 69. *Cervical Instrumentation: Anterior and Posterior*
- 70. *Thoracic and Lumbar Instrumentation: Anterior and Posterior*

Section 10: Adult Deformity

- 71. *Isthmic Spondylolisthesis*
- 72. *Adult Scoliosis*
- 73. *Fixed Sagittal Imbalance*

Section 11: Spine Trauma

- 74. *Basic Science of Spinal Cord Injury*
- 75. *Injuries of the Upper Cervical Spine*
- 76. *Injuries of the Lower Cervical Spine*
- 77. *Thoracic and Lumbar Spinal Injuries*
- 78. *Sacral Fractures*
- 79. *Acute Treatment of Patients with Spinal Cord Injury*
- 80. *Vertebral Artery Injuries Associated with Cervical Spine Trauma*
- 81. *Spinal Orthoses for Traumatic and Degenerative Disease*
- 82. *Spinal Cord Injury Rehabilitation*

Section 12 Afflictions of the Vertebrae

- 83. *Arthritis Disorders*
- 84. *Surgical Management of Rheumatoid Arthritis*
- 85. *Ankylosing Spondylitis*
- 86. *Tumors of the Spine*
- 87. *Infections of the Spine*
- 88. *Metabolic Bone Disorders of the Spine*
- 89. *Osteoporosis: Surgical Strategies*

Section 13: Spinal Cord

- 90. *Intradural Tumors*
- 91. *Spinal Intradural Infections*
- 92. *Vascular Malformations of the Spinal Cord*
- 93. *Vascular Anatomy of the Spine, Imaging and Endovascular Treatment of Spinal Vascular Diseases*
- 94. *Syringomyelia*

Section 14: Complications of Spinal Surgery

- 95. *Intraoperative-Postoperative Nerve and Spinal Cord Injuries*
- 96. *Spinal Dural Injuries*
- 97. *Vascular Complications in Spinal Surgery*
- 98. *Instrumentation Complications*
- 99. *Postoperative Spinal Infections*
- 100. *Pseudarthrosis*
- 101. *Transitional*
- 102. *Failed Back Surgery Syndrome*

Section 15: Failed Surgery

- 103. *Revision Surgery*
- 104. *Failed Disc Replacement*
- 105. *Postoperative Cervical Deformity of the Spine*
- 106. *Arachnoiditis/Epidural Fibrosis*

Section 16: Chronic Pain/Rehabilitation

- 107. *Chronic Pain: The Basic Science*
- 108. *Psychologic Strategies for Chronic Pain*

109. Pharmacologic Strategies in Back Pain and Radiculopathy

110. Physical Therapy: The Science

111. Functional Restoration

112. Surgical Procedures for the Control of Chronic Pain