### Imagery

Curtis Falls, Nerang, Queensland, Australia

Nerida Grewal

### Biomechanics

#### Kinematics of Progressive Circumferential Ligament Resection (Decompression) in Conjunction With Cervical Disc Arthroplasty in a Spondylotic Spine Model

We examined the kinematic effects of posterior longitudinal ligament (PLL) resection, posterior foraminotomy, and laminectomy in a human cadaveric model containing a disc arthropathy (cervical disc arthropathy). Cervical disc arthropathy with ventral foraminotomy and PLL resection increased motion compared with the intact motion segment. Bilateral posterior foraminotomy and laminectomy doubled intervertebral rotation without producing segmental instability.

Rolando F. Roberto, Thomas McDonald, Shane Curtiss, Corey P. Neu, Kee Kim, and Fritz Pennings

### Basic Science

#### Anti-Nociceptive Effect of Bovine Milk-Derived Lactoferrin in a Rat Lumbar Disc Herniation Model

Rat anti-TNF-α antibody reduced the allodynia induced by epidural application of nucleus pulposus, when the antibody was applied immediately after, or 6 days after the epidural application, but not at 20 days after epidural application. TNF α may play an important role in the production of allodynia only in the early stage.

Nobuhisa Sasaki, Miho Sekiguchi, Shin-ichi Kikuchi, and Shin-ichi Konno

### Cervical Spine

#### Prospective Ten-Year Follow-up Study Comparing Patients With Whiplash-Associated Disorders and Asymptomatic Subjects Using Magnetic Resonance Imaging

A prospective comparative 10-year follow-up study of patients with whiplash-associated disorders and asymptomatic volunteers on patient’s symptoms and on magnetic resonance imaging findings of the cervical spine demonstrates that whiplash injury may not accelerate the structural deterioration of the cervical spine during 10 years after the injury.

Moria Matsumoto, Eijiro Okada, Daisuke Ichihara, Kazuhito Chiba, Yoshiaki Toyama, Hirokazu Fujiiwara, Suketsaka Momoshima, Yuki Nishiwaki, Takeshi Hashimoto, Tomoo Inoue, Masahiko Watanabe, and Takeshi Takahata
Reliability of Lumbar Lordosis Measurement in Patients With Spondylolisthesis: A Case-Control Study Comparing the Cobb, Centroid, and Posterior Tangent Methods

In 50 patients with spondylolisthesis, interobserver and intraobserver reliabilities of 3 types of lumbar lordosis measurement methods were calculated. It showed posterior tangent had better and similar interobserver reliability than Cobb and vertebral centroid method, respectively. Lower standard error mean by posterior tangent proved its higher reliability than centroid method.

Jin-Ho Hwang, Hitesh N. Modi, Seung-Woo Suh, Jae-Young Hong, Young-Hwan Park, Jong-Hoon Park, and Jae-Hyuk Yang

Lack of Association Between the Promoter Polymorphisms of MMP-3 and IL-6 Genes and Adolescent Idiopathic Scoliosis: A Case-Control Study in a Chinese Han Population

This study was a genetic association study of the promoter polymorphism of matrix metalloproteinase (MMP)-3 gene and interleukin (IL)-6 gene with adolescent idiopathic scoliosis (AIS) in a Chinese Han population. The results indicate that the MMP-3 promoter polymorphism is not associated with AIS in the Chinese population. On the other hand, a potential association with other promoter polymorphisms in IL-6 cannot be excluded.

Zhen Liu, Nelson L. S. Tang, Xing-Bin Cao, Wen-Jun Liu, Xu-Sheng Guo, Jack E. Y. Cheng, and Yong Guo

Clearance of the Cervical Spine in Clinically Unevaluate Trauma Patients

We performed a structured review and cost-effectiveness analysis to compare cervical spine management strategies in clinically unevaluate patients. Commonly used clearance tests lack sufficient sensitivity to compete with empiric collar application until responsiveness is regained. Even theoretical tests with perfect sensitivity are unlikely to be more cost-effective than collar application.

Casey H. Halpern, Andrew H. Milby, Wensheng Guo, James M. Schuster, Vicente H. Gracias, and Sherman C. Stein

Correlation Between Immediate In-Brace Correction and Biomechanical Effectiveness of Brace Treatment in Adolescent Idiopathic Scoliosis

The present study found a correlation between in-brace correction of coronal curves and bending moments acting on the apical vertebrae that could be interpreted as a correlation between immediate in-brace correction and long-term treatment outcome.

Julien Clin, Carl-Éric Aubin, Archana Sangole, Hubert Labelle, and Stefan Parent

Low Back Pain in Primary Care: Costs of Care and Prediction of Future Health Care Utilization

We performed a cost-of-illness study alongside a randomized controlled trial. Mean costs for chronic low back pain are almost twice as high as for acute pain. Disease severity and depression are the most important predictors of high direct and indirect costs during a 1-year follow-up.

Annette Becker, Heiko Held, Marcus Redenli, Konstantin Strauch, Jean F. Chenot, Corina Leonhardt; Stefan Keller, Erika Baum, Michael Pfingsten, Jan Hildebrandt, Heinz-Dieter Basler, Michael M. Kochen, and Norbert Donner-Banzhoff

Delirium After Spinal Surgery in Korean Population

Postoperative delirium is of great concern in older patients. Eighty-one patients over 70 years of age, who underwent spinal fusion for degenerative lumbar disease during 8-year period were selected. Low hemoglobin and hematocrit levels at 1 day after surgery and bad nutritional status were risk factors for delirium.

Jin Kyu Lee and Ye-Soo Park

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Historical Perspective

The Moe Maximal Correction Test to Determine True Curve Flexibility: A Historical Note With Current Application

In dealing with large scoliosis, the surgeon has to make a decision whether the best procedure is a single approach, a combined anterior/posterior approach, a vertebral column resection, or a period of skeletal traction before surgery. It is not only the magnitude of the curve but also the inherent flexibility of the curve that enters into that decision. Of all tests for curve flexibility, the Moe Maximal Correction Test gives the most definitive answer because it combines both maximal traction and maximal lateral forces.

Robert B. Winter and John E. Lonstein

Deformity

How Well Does Radiological Measurements Correlate With Cosmetic Indices in Adolescent Idiopathic Scoliosis With Lenke 5, 6 Curve Types?

An association study between radiologic measurements and cosmetic appearance in adolescent idiopathic scoliosis patients with Lenke 5 and 6 curve types were conducted. None of the correlation coefficient between radiologic and cosmetic indices was more than 0.6. Spine surgeons should put more emphasis in the clinical cosmetic evaluations.

Yong Gius, Xu-sheng Gius, Wei-wei Ma, Bin Wang, Yang Ya, Ze-zhang Zhu, Bang-qing Qian, Feng Zhu, Xu Sun, Bohly K. W. Ng, and Jack C. Y Cheng

Repeatability Test of C7 Plumb Line and Gravity Line on Asymptomatic Volunteers Using Letters to the Editor

This study characterized the measurement reliability of C7 plumb line and gravity line when only one radiograph film is taken. The gravity line (3–4 mm) was more reliable than C7 plumb line (6–7 mm) in the sagittal plane. There was no difference in the coronal plane with both repeatability values at 3 to 4 mm.

Xiujun Zheng, Rahul Chaudhari, Chunhui Wu, Amir A. Mehbod, Ensor E. Transfeldt, and Robert B. Winter

Letters to the Editor

Reproducibility of Rasterstereography for Kyphotic and Lordotic Angles, Trunk Length, and Trunk Inclination: A Reliability Study: Erratum

Biomechanics

Patterns of Height Changes in Anterior and Posterior Cervical Disc Regions Affects the Contact Loading at Posterior Facets During Moderate and Severe Disc Degeneration: A Poroelastic C5–C6 Finite Element Model Study

Posterior facets (PF) loading increased with posterior disc (PD) height loss and anterior disc (AD) height gain. It was more affected by PD height loss than AD height gain in moderate disc degeneration (DD); whereas in severe DD, it was more affected by AD height gain than PD height loss.

Mozammil Hussain, Raghu N. Natarajan, Howard S. An, and Gunnar B. J. Andersson


A computer-assisted navigation system provides safe and secure real-time intraoperative information to surgeons. By using a navigation system, spinal osteotomy for complex pathologies can be performed safely and securely. We present our surgical techniques and clinical results of spinal osteotomy performed under the guidance of a navigation system.

Shunsuke Fujibayashi, Masahito Nio, Mitsuru Takemoto, Masato Ota, Tomitaka Nakayama, Junya Toguchida, and Takashi Nakamura

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Vertebral Hemangioma: An Important Differential in the Evaluation of Locally Aggressive Spinal Lesions

We report a case of aggressive vertebral hemangioma presenting with rapid neurologic compromise and discuss potential difficulties encountered with diagnosis of these lesions. We also review the various management options available. Vertebral hemangioma must be considered in the differential diagnosis of locally aggressive spinal lesions.

Justin Alexander, Adam Meir, Nikitas Vrods, and Yun-Hom Yau

Absent Inferior Vena Cava Resulting in Exercise-Induced Epidural Venous Plexus Congestion and Lower Extremity Numbness: A Case Report and Review of the Literature

Joseph Kamerath and William E. Morgan