



## 2010 POSNA Scientific Program

**Tuesday, May 4, 2010**

**1:00 – 1:08 PM**      **Opening Remarks by POSNA and APOA Presidential Line, Ellen Raney, MD, Local Host**

**1:09 – 1:13 PM**      **Program Chair Comments**

### **TRAUMA**

**Moderators: John (Jack) Flynn, MD / Saw Aik, MD**

01

1:17 – 1:21 PM

Perfused, Pulseless, and Puzzling: A Systematic Review of Vascular Injuries in Pediatric Supracondylar Humerus Fractures and Results of a POSNA Questionnaire

*Alvin H Crawford, MD, Lydia A White, MD, Charles T Mehlman, DO, MPH, Alvin H Crawford, MD, FACS*

*Cincinnati Children's Hospital, Cincinnati, Ohio*

02

1:22 - 1:26 PM

Hand Perfusion is More Predictive of Arterial Injury and Compartment Syndrome than Pulselessness in Supracondylar Humerus Fractures

**Paul D Choi, MD, David L Skaggs, MD, Rojeh Melikian, B.S.**

*Childrens Hospital of Los Angeles, Los Angeles, California*

1:27 - 1:33 PM      Discussion

03

1:34 - 1:38 PM

Occurrence of Clinically Significant Venous Thromboembolism in Pediatric Patients Suffering a Pelvic or Femoral Fracture.

Lark J Greenwald, BS, Mary Teresa Yost, BSN, Paul D Sponseller, MD, Fizan Abdullah, MD, PhD, Susan Ziegfeld, CRNP, **Michael Ain, MD**

*Johns Hopkins, Baltimore, Maryland*

04

1:39 - 1:43 PM

A Comparison of Locked versus Non-locked Enders Rods for Length Unstable Pediatric Femoral Shaft Fractures

Henry B Ellis, MD, **Christine A Ho, MD**, David A Podeszwa, MD, Philip Wilson, MD

*Children's Medical Center, Dallas, Texas*

05

1:44 - 1:48 PM

Spica Casting in Pediatric Femur Fractures: A Prospective Randomized Controlled Study of One Leg Versus 1.5 Leg Spica Casts

**David Dirk Leu, MD**, Gurkan Erkula, MD, Mary Catherine Sargent, MD, Michael Ain, MD, Arabella I Leet, MD, John E Tis, MD, Paul D Sponseller, MD

*Johns Hopkins University, Baltimore, Maryland*

1:49 - 1:58 PM

Discussion

06

1:59 - 2:03 PM

Metaphyseal Osteosynthesis in Situ for Nonunited Lateral Condyle Fractures of the Humerus in Children

**Hyun-Woo Kim MD**, Ki Seok Lee, MD, Hui-Wan Park, MD

*Severance Children's Hospital, Seoul, Korea*

07

2:04 - 2:08 PM

How Displaced are 'Non-Displaced' Medial Epicondyle Humerus Fractures? Results of a 3D CT Analysis

**Eric W Edmonds, MD**

*Rady Children's Hospital, San Diego, California*

08

2:09 - 2:13 PM

Percutaneous Pinning versus Flexible Intramedullary Nailing for Proximal Humerus Fractures

**Donald S Bae, MD**, Peter H Hutchinson, MD, Peter M Waters, MD

*Children's Hospital Boston, Boston, Massachusetts*

2:14 - 2:23 PM

Discussion

09

2:24 - 2:28 PM

Predicting Radiographic Failure of Non-Operative Treatment for Both-Bone Forearm Fractures in Children

Eric N Bowman, MPH, Charles T Mehlman, DO, MPH, Christopher J Lindsell, PhD,

**Junichi Tamai, MD**

*Cincinnati Children's Hospital, Cincinnati, Ohio*

10

2:29 - 2:33 PM

Mini-C-Arm Fluoroscopy for Emergency Room Reduction of Pediatric Forearm Fractures

**Mark Tsu Chong Lee, MD**, Norman E Stone III, MD, Andrew W Ritting, MD, Jeffrey D Thomson, MD, Jeffrey D Thomson, MD, Eric A Silverstein, MD, Ryan A Naujoks, MD, Janet P Tate, MPH

*Connecticut Children's Medical Center, Hartford, Connecticut*

2:34 - 2:39 PM          Discussion

2:40 - 3:10 PM          Break

**Moderators: Scott Mubarak, MD / Ying Chun Tien, MD**

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3:13 - 3:17 PM

Intramedullary Fixation of Both Bone Forearm Fractures in Children and Adolescents: Healing Correlates with Olecranon Apophyseal Development

Martin J Herman, MD, John (Jack) M Flynn, MD, **Anne Marie Chicorelli, DO**, Matthew Garner

*St Christopher's Hospital for Children, Philadelphia, Pennsylvania*

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3:18 - 3:22 PM

Complications and Outcomes of Pediatric Forearm Fracture Intramedullary Nailing

**Jeffrey E Martus, MD**, Ryan Preston, MS, Steven A Lovejoy, MD, Jonathan G Schoenecker, MD, Neil E Green, MD, Gregory A Mencio, MD

*Vanderbilt University, Nashville, Tennessee*

13

3:23-3:27 PM

Titanium Elastic Nailing in Adolescent Radius and Ulna Fractures: What is the Upper Age Limit?

**J Eric Gordon, MD**, Lindley B Wall, MD, Perry L Schoenecker, MD, Matthew Dobbs, MD, June Christine Smith, Scott J Luhmann, MD

*Washington University, St. Louis, Missouri*

3:28-3:27 PM          Discussion

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3:28-3:42 PM

Etiology of Congenital Vertical Talus

Laura Paszkowski, MD, Christina A Gurnett, MD, Ph.D., **Matthew B Dobbs, MD** (Washington University School of Medicine)

*Washington University School of Medicine, St. Louis, Missouri*

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3:43-3:47 PM

Achievement of Gross Motor Milestones in Infants Undergoing Ponseti Treatment

**Wallace B Lehman, MD**, Alice Chu, MD, Debra A. Sala, MS, PT, Harold JP Van Bosse, MD

*New York University Medical Center, New York, New York*

16

3:48-3:52 PM

Prospective Evaluation Of A Prenatal Sonographic Clubfoot Classification System

**Michael P Glotzbecker, MD**, Susan T Mahan, MD,MPH, Judy A Estroff, MD, Tracy A Curtis, MA, Samantha Anne Spencer, MD, James R Kasser, MD

*Children's Hospital Boston, Boston, Massachusetts*

3:53-4:02 PM

Discussion

17

4:03-4:07 PM

A Comparison of Calcaneal-Cuboid-Cuneiform Osteotomy and Lateral Column Lengthening for the Correction of Pes Planovalgus in Children

**Jung-Ryul Kim, MD, PhD**, Sung-Jin Shin, MD, Hyung-Suk Lee, MD (Chonbuk Chonbuk National University Hospital, Chonbuk, Korea)

18

4:07-4:11 PM

Functional Implications of Involvement of Subtalar Joint in Tarsal Coalitions: A Pedobaragraphic Study

Jae Young Roh, MD, Hui-Wan Park, MD, **Hyun-Woo Kim MD**

*Konyang University Hospital, Daejeon, Korea*

19

4:12-4:16 PM

Long Term evaluation of arthrogryptic feet treated with talectomy.

**Roman L Capdevila, MD**, Nelson Cassis, MD, Francisco Rocha, MD

*Shriners Hospital for Children, Mexico City, Mexico*

4:17-4:24 PM

Discussion

4:25-4:27 PM

Announcements/Adjourn

**Wednesday, May 5, 2010**

**8:00 – 8:03 AM      Welcome/Announcements**

**HIP**

**Moderators: Perry Schoenecker, MD / Makoto Kamegaya, MD**

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8:07-8:11 AM

Delayed Gadolinium Enhanced MRI of Cartilage (dGEMRIC) After SCFE

Christoph Zilkens, MD, Falk Miese, MD, Bernd Bittersohl, MD, Marcus Jdger, MD, Arne Holstein, MD, Young Jo Kim, MD, Charles Mamisch, MD, **Ruediger Krauspe, MD**

*University of Duesseldorf, Germany*

21

8:12-8:16 AM

Long-Term Outcomes of Slipped Capital Femoral Epiphysis Treated with In Situ Pinning

**A Noelle Larson, MD**, Elizabeth M Yu, MD, Robert T Trousdale, MD, Rafael J Sierra, MD, Anthony A Stans, MD

*Texas Scottish Rite Hospital, Dallas, Texas*

22

8:17-8:21 AM

Risk Factors for Developing Osteonecrosis after Unstable SCFE

**Wudbhav N Sankar, MD**, Thomas G McPartland, MD, Michael B Millis, MD, Young Jo Kim, MD

*Childrens Hospital of Philadelphia, Philadelphia, Pennsylvania*

8:22-8:31 AM

Discussion

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8:32-8:36 AM

The Incidence of Femoroacetabular Impingement After a Grade I Slipped Capital Femoral Epiphysis

**Pablo Castaneda, MD**, Cisar Ponce de Lesn, MD

*Shriners Hospital for Children, Mexico City, Mexico*

24

8:37-8:41 AM

Head-neck Offset in Pistol-grip Deformity Determines the Risk of Osteoarthritis of the Hip

Daniel R Cooperman, MD, **Sean Waldron, MD**, Ari D Levine, MD

*Case Western Reserve University, Cleveland, Ohio*

25

8:42-8:46 AM

The Predictive Value of Physical Exam, Radiographs, and MRI for Surgical Pathology of Hip Impingement Surgery in the Adolescent Pre-arthritic Hip

**Ernest L Sink, MD**, Jonathan Bravman, MD

*University of Colorado, Boulder, Colorado*

8:47-8:53 AM          Discussion

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8:54-8:58 AM

Prospective Multicenter Study of Legg-Calve-Perthes Disease: Functional and Radiographic Outcomes of Nonoperative Treatment in the Third Decade

**John Anthony Herring, MD**, Daniel J Sucato, MD, A Noelle Larson, MD, Adriana DeLaRocha, BS, Stephen Adolfsen, MD, Derek M Kelly, MD, Jeffrey E Martus, MD, John F Lovejoy, III, MD

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

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8:59-9:03 AM

How Much Varus Is Optimal for Preserving the Femoral Head in Perthes Disease?

**Harry KW Kim, MD**, Ana Munhoz da Cunha, MD, Richard H Browne, PhD, Hui Taek Kim, MD, John Anthony Herring, MD

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

9:04-9:10          Discussion

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9:11-9:15 AM

Previous Pelvic Surgery does not affect the Radiographic and Functional Outcomes of Adolescent Patients Treated with a Periacetabular Osteotomy for Hip Dysplasia

**Daniel J Sucato, MD**, Kirsten L Tulchin, MS, Adriana DeLaRocha, BS, David A Podeszwa, MD

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

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9:16-9:20 AM

The Down's Syndrome Hip: Is Redirectional Acetabular Osteotomy the Best Option?

**Wudbhav N Sankar, MD**, Michael B Millis, MD, Young Jo Kim, MD

*Childrens Hospital of Philadelphia, Philadelphia, Pennsylvania*

9:21-9:27 AM          Discussion

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9:28-9:32 AM

The Effect of Femoral Shortening in the Treatment of Developmental Dysplasia of the Hip After Walking Age

**Pablo Castaneda, MD**, Alejandro Treviño, MD, Nelson Cassis, MD  
*Shriners Hospital for Children, Mexico City, Mexico*

31

9:33-9:37 AM

Long Term Follow Up of Open Reduction Surgery for DDH

**James W Roach, MD**, Kristen L Carroll, MD, Joel Holman, MD, Kathleen A Murray, MD, Lynne M MacLeod, M.Stat

*Shrine Hospital Salt Lake City, University of Utah*

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9:38-9:42 AM

Femoral Nerve Palsy During Pavlik Harness Treatment for Developmental Dysplasia of the Hip

**M Lucus Murnaghan, MD, MEd, FRCSC**, Daniel J Sucato, MD, Richard H Browne, PhD, John G Birch, MD

*University of Toronto, Toronto, Ontario, Canada*

9:43-9:52 AM          Discussion

9:53-9:55 AM          Introduction of Huene and St Giles Awards

9:56-10:06 AM        Arthur H. Huene Award and St Giles Young Investigator Award

10:07-10:22 AM      Distinguished Achievement Award – Stuart Weinstein, MD

10:23-10:55 AM      Break

## **LOWER EXTREMITY**

**Moderators: Peter Newton, MD / Wang Chow, MD**

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10:58-11:02 AM

Mechanical Axis Variations During Eight Plate Epiphysiodesis for Limb Length Inequality

**Stephen D Santora, MD**, Nathan Holman, MS4, Ryan M. VanderWerff

*Shriners Hospitals for Children, Intermountain, Salt Lake City, Utah*

34

11:03-11:07 AM

Femoral Lengthening with use of an External Fixator over a Lateral Trochanteric Entry Intramedullary Nail

**Thomas Roy Lewis, MD**, Mary Claire Manske, BS, Kathryn A Keeler, MD, J Eric Gordon, MD, Perry L Schoenecker, MD

*St. Louis Shriners' Hospital for Children, St. Louis, Missouri*

35

11:08-11:12 AM

Evaluation of Percutaneous Crossed Transphyseal Screws for the Treatment of Lower Limb Length Discrepancy

Brice Ilharreborde, MD, Philippe Souchet, Frank Fitoussi, MD, Ana Presedo, MD, Georges Francois Pennecot, MD, **Keyvan Mazda, MD**  
*Robert Debre Hospital, Paris 7 University, Paris, France*

11:13-11:22 AM      Discussion

## **SPINE**

**Moderators: Peter Newton, MD / Wang Chow, MD**

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11:25-11:29 AM

The Practical Implications of Radiographic Inter-Reader Variability in a Randomized Controlled Trial

Karim Z Masrouha, MD, Stuart L Weinstein, MD, **Lori A Dolan, RN, PhD**  
*University of Iowa, Iowa City, Iowa*

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11:30-11:34 AM

Abnormal Morphoanatomical Changes in Central Nervous System (CNS) and Vestibular System in Adolescent Idiopathic Scoliosis (AIS) - A pilot study with Advanced Computerized Statistical Morphometry MRI Analysis

Winnie CW Chu, MD, Lin Shi, PhD, Defeng Wang, PhD, Tomas Paus, PhD, Geoffrey R. Burwell, MD, Brian J.C. Freeman, MD, **Jack CY Cheng, MD**  
*The Chinese University of Hong Kong, Hong Kong*

11:35-11:41 AM      Discussion

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11:42-11:46 AM

Intraoperative Transverse Traction for Correction of Severe Scoliosis

**Mark A Barry, MD**

*Desert Orthopaedic Center, Las Vegas, Nevada*

39

11:47-11:51 AM

Does Maximizing Curve Correction in Lenke 1 Curves in AIS Risk Secondary Decompensation?

**Meghan N Imrie, MD**, Burt Yaszay, MD, Peter O Newton, MD, Dennis R Wenger, MD, Tracey P Bastrom, MA, Harms Study Group  
*Rady Children's Hospital, San Diego, California*

11:52-11:58 AM      Discussion

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11:59 AM -12:03 PM

Correction of Moderate (<70 degree) Lenke 1A and 2A Curve Patterns: Comparison of Hook, Hybrid and All-Pedicle Screw Systems at 2-Year Follow-up

**Scott J Luhmann, MD**, Lawrence G Lenke, MD, Mark A Erickson, MD, Keith H Bridwell, MD, B Stephens Richards III, MD

*Washington University, St. Louis, Missouri*

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12:04-12:08 PM

Reducing Cost Without Compromising Outcome in the Spinal Instrumentation of Lenke 1 Adolescent Idiopathic Scoliosis

**Michael Jofe, MD**, Randolph B Cohen, MD

*Joe DiMaggio Children's Hospital, Hollywood, Florida*

12:09-12:15 PM      Discussion

## **NEUROMUSCULAR**

**Moderators: Lori Karol, MD / Toshio Fujii, MD**

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12:18-12:22 PM

Influence of Gait Analysis on Decision-Making for Lower Extremity Surgery

Tishya A.L. Wren, PhD, Anthony Scaduto, MD, Richard E Bowen, MD, Norman Y Otsuka, MD, Reiko Hara, MA, Minya Sheng, MS, Linda S Chan, PhD, **Robert M Kay, MD**

*University of Southern California, Los Angeles, California*

43

12:23-12:27 PM

Development of Calcaneal Gait Without Prior Triceps Surae Lengthening: An Examination of Predictive Factors

Kenneth Huh, MD, Susan Ann Rethlefsen, PT, Tishya A.L. Wren, PhD, **Robert M Kay, MD**

*Childrens Hospital Los Angeles, Los Angeles, California*

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12:28-12:32 PM

Severe Crouch Gait Can Be Prevented in Children with Spastic Displasia

**H Kerr Graham, MD**, Carley B Vuillermin, MB, BS, Jill M Rodda, PhD, Erich Rutz, MD, Richard J Baker, PhD

*Royal Children's Hospital, Melbourne, Australia*

12:33-12:42 PM      Discussion

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12:43-12:47 PM

Varus Derotation Osteotomy for the Treatment of Hip Subluxation and Dislocation in GMFCS Level III to V Patients with Unilateral Hip Involvement. Follow Up at Skeletal Maturity

Michael D Sussman, MD, **Federico Canavese, MD**, Khaled M Emara, MD, Jonathan Sembrano, MD, Viktor Bialik, MD, Michael D. Aiona, MD, Michael Sussman, MD  
*Shriners Hospital, Portland, Oregon*

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12:48-12:52 PM

Proximal Femoral Growth Plate Surgery in Children with Cerebral Palsy: Surgical Technique and Results

**H Kerr Graham, MD**, Paulo R B Selber, MD, Abhay Khot, MD  
*Royal Children's Hospital, Melbourne, Australia*

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12:53-12:57 PM

Subtalar Fusion for Pes Valgus in Children with Cerebral Palsy Undergoing Single Event Multi-Level Surgery: Surgical Technique and Results.

**Benjamin J Shore, MD**, Katherine Smith, BSc, Arash Riazi, MD, Sean Symmons, MBBSH, Kerr Graham  
*Children's Hospital Boston, Boston, Massachusetts*

12:58-1:07 PM          Discussion

## **SPECIAL TOPICS**

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1:08-1:12 PM

Orthopedic Sequelae of Childhood Meningococemia. Management Considerations and Outcome

**J Ivan Krajbich, MD**, Federico Canavese, MD, Joseph I Krajbich, MD, Brett C LaFleur,  
*Shriners Hospitals for Children, Portland, Oregon*

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1:13-1:17 PM

Lower Limb-Length Equalization by Combined Total Periosteal Stripping and Periosteal Division Procedure

**Noppachart Limpaphayom, MD**, Pairatch Prasongchin, MD  
*Chulalongkorn University, Bangkok, Thailand*

50

1:18-1:22 PM

Simple Bone Cysts: Better With Age?

Sandra E Donaldson, BA, Derek Stephens, MSc, **James G Wright, MD, MPH, FRCSC**  
*The Hospital for Sick Children, Toronto, Canada*

1:23-1:32 PM Discussion

1:33 PM Announcements/Adjourn

**Thursday, May 6, 2010**

**8:00-8:03 AM Program Chair Welcome**

**8:04-8:09 AM 2011 Meeting Overview - Francois Fassier, MD, Local Host**

**Montreal**

**8:10-8:14 AM Introduction to Award Session**

**Moderators: James Roach, MD / In Ho Choi, MD**

**BASIC SCIENCE PAPER AWARDS SESSION**

51

8:19-8:24 AM

Muscle Stem Cells are Major Contributors to Open Fracture Repair and Traumatic Bone Formation

Renjing Liu, PhD, Lauren Peacock, Kathy Mikulec, Alyson Morse, BSc(Hon) Aaron Schindeler, PhD, **David G Little, FRACS (Orth), PhD**

*Children's Hospital at Westmead, Sydney, Australia*

52

8:25-8:30 AM

Variable Delivery and Retention of Bisphosphonates Influence Local Healing in Growing Mouse Model of Pediatric Disuse Osteopenia

Kenneth M Kozloff, PhD, Benjamin P Sinder, BS, **Michelle S Caird, MD**

*University of Michigan, Ann Arbor, Michigan*

53

8:31-8:36 AM

Effects of Non-Steroidal Anti-Inflammatory Drugs on the Longitudinal Growth of the Growth Plate

**Ki Seok Lee, MD**, Hui-Wan Park, MD, Hyun-Woo Kim MD

*Severance Children's Hospital, Seoul, Korea*

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8:37-8:42

New Gene Discovered for Distal Arthrogryposis Type 1

Christina A Gurnett, MD, Ph.D, David M Desruisseau, B.S., Kevin McCall, B.S., Todd Druley, MD, Alan Pestronk, MD, Anne M Connolly, MD Michael Talerico, MD,

**Matthew B Dobbs, MD**

*Washington University School of Medicine, St. Louis, Missouri*

8:43- 8:55 AM Discussion

## CLINICAL SCIENCE PAPER AWARDS SESSION

8:56-8:57 AM Introduce Clinical Papers

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8:58-9:03 AM

Unfused Segmental Motion Increases with a More Fusion: A Set Up for Disc Degeneration?

Michelle Marks, PT, **Peter O Newton, MD**, Maty Petcharaporn, BS, Tracey P Bastrom, MA, Suken A Shah, MD, Baron S Lonner, MD, Firoz Miyanji, MD  
*Rady Children's Hospital, San Diego, California*

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9:04-9:09 AM

Brace Treatment Controls Progression in Adolescent Idiopathic Scoliosis

Donald E Katz, CO, **John A Herring, MD**, Richard H Browne, PhD, Derek M Kelly, MD, John G Birch, MD

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

9:10-9:18 AM Discussion

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9:19-9:24 AM

The Surgical Management of Pediatric Elbow Contractures

**Amy McIntosh, MD**, Anthony A Stans, MD, Shawn W O'Driscoll, MD, PhD  
*Mayo Clinic, Rochester, Minnesota*

58

9:25-9:30 AM

Long Term Follow Up of Pulmonary Function and Scoliosis in Patients with Duchennes's Muscular Dystrophy and Spinal Muscular Dystrophy

Kenon Chua, MBBS, **James Hoi Po Hui, FRCSE**, Hee Kit Wong, MBBS, Lester Chan Chan, MBBS, Eng Hin Lee, MD, FRCSC, Daniel Goh, MBBS

*National University Health System Singapore, Singapore*

9:31-9:38 AM Discussion

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9:39-9:44 AM

A Randomized Controlled Trial of Cast Versus Wrist Splint In Children with Acceptably Angulated Wrist Fractures

**Andrew W Howard, MD**, Andrew Willan, PhD, Kathy Boutis, MD  
*Hospital for Sick Children, Toronto, Canada*

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9:45-9:50 AM

Prospective, Single-Blind Randomized Comparison of Pediatric Forearm Fracture Reduction by Emergency Room Physicians and Orthopaedic Surgeons.

Shema Kahn, MD, Jay Pershad, MD, **Jeffrey R Sawyer, MD**

*Campbell Clinic-University of Tennessee, Germantown, Tennessee*

9:51-9:58 AM          Discussion

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9:59-10:04 AM

Fractures at Pediatric Implants: A 15-year Review

Amit Jain, BS, Gurkan Erkula, MD, Arabella I Leet, MD, Michael Ain, MD **Paul D.**

**Sponseller, MD**

*Johns Hopkins University, Baltimore, Maryland*

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10:05-10:10 AM

High Reoperation Rate and Failed Expansion in Lower Extremity Expandable Rods in Osteogenesis Imperfecta (OI)

**Steven L Frick, MD**, Timothy Larson, MD, Brian K Brighton, MD,MPH, Paul W Esposito, MD

*Levine Childrens Hospital, Charlotte, North Carolina*

10:11-10:18 AM          Discussion

10:19-10:21 AM          Introduction of Presidential Speaker

10:22-10:52 AM          Presidential Speaker – Scott Mubarak, MD

10:53-11:05 AM          Break

### **CONCURRENT SESSION 1**

**Moderators: Peter Waters, MD / Eng Hin Lee, MD**

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11:09-11:13 AM

Enhanced Bone Regeneration with COMP-Angiopoietin-1 Loaded Functional Nanoparticle-Hydrogel Complex in a Rat Model of Distraction Osteogenesis

**Jung-Ryul Kim, MD,PhD**, Sung-Jin Shin, MD, Hyung-Suk Lee, MD

*Chonbuk National University Hospital. Chonbuk, Korea*

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11:14-11:18 AM

Genome-wide Study Reveals Region of Chromosome 3 Associated with Idiopathic Scoliosis

Swarkar Sharma, PhD, Xiaochong Gao, MS, Douglas Londono, PhD, Matthew Dobbs, MD, Christina Gurnett, MD, PhD John Anthony Herring, MD, Derek Gordon, PhD, **Carol A Wise, PhD**

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

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11:19-11:23 AM

Age Affects Hypoxia and Hypoxia-Inducible Factor-1 (HIF-1) Level in the Articular Cartilage Following Ischemic Injury to the Immature Femoral Head

**Harry KW Kim, MD**, Haikuo Bian, MD, James Aya-ay, MS, Amanda Garces, Chi Zhang, MD, PhD

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

11:24-11:33 AM      Discussion

### **SPECIAL TOPICS**

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11:34-11:38 AM

Adverse Events and Errors in Pediatric Orthopaedics: A Prospective One-Year Survey

**Howard R Epps, MD**

*Baylor College of Medicine, Houston, Texas*

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11:39-11:43 AM

Implementation of a World Health Organization (WHO) Operative Checklist in a Children's Hospital

**Kit M Song, MD, MHA**, Cory Lamblin, MD, George Drugas, MD, Cindy Katz, MPH, MN, Tracy Anderson, Danijela E Korac

*Seattle Children's Hospital, Seattle, Washington*

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11:44-11:48 AM

Differences in Orthopaedic Malpractice Claims Between Pediatric and Adult Patients

**Matthew E Oetgen, MD**, Divya Parikh, MPH

*Children's National Medical Center, Washington, DC*

11:49-11:58 AM      Discussion

### **SPORTS**

**Moderators: Michelle James, MD / Bruce Foster, MD**

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12:01-12:05 PM

Long-term Followup of Repaired Discoid Menisci in Children and Adolescents

**Henry G Chambers, MD**

*Rady Children's Hospital, San Diego, California*

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12:06-12:10 PM

Discoid Meniscus Treatment: Saucerization vs. Stabilization

Jason Hoellwarth, MS2, **Jennifer Weiss, MD**

*Childrens Hospital of Los Angeles, Los Angeles, California*

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12:11-12:15 PM

ACL and Knee Injury Prevention Programs for Young Athletes: Do they Work?

**Kevin G Shea, MD**, Nathan L Grimm, BS, Jake Jacobs, Shawn Simonson, PhD

*Intermountain Orthopaedics, Boise, Idaho*

12:16-12:25 PM      Discussion

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12:26-12:30 PM

Arthroscopic Reduction and Double Suture Fixation for Tibial Spine Fractures in Children

**Michael T Busch, MD**, Craig J Spurdle, MD, Samuel C Willimon, MD

*Children's Healthcare of Atlanta, Atlanta, Georgia*

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12:31-12:35 PM

Medial Patellofemoral Ligament Surgery in the Skeletally Immature Patient. Is Reconstruction better than Repair?

Megan M May, MD, Shital N Parikh, **Eric J Wall, MD**, Gilbert Chan, MD, Jason M Kinkartz, MD, Viral Jain, MD, Charles T Mehlman, DO, MPH, Alvin H Crawford, MD

*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

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12:36-12:40 PM

Reconstruction of the Pediatric Medial Patellofemoral Ligament

Corinna Franklin, MD, Jason Hoellwarth, MS2, **Jennifer Weiss, MD**

*Childrens Hospital of Los Angeles, Los Angeles, California*

12:41-12:50 PM      Discussion

## **UPPER EXTREMITY**

**Moderators: Michelle James, MD / Bruce Foster, MD**

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12:53-12:57 PM

Arthroscopic Sever-L Episcopo Procedure for the Treatment of Internal Rotation Contractures of the Shoulder in Neonatal Brachial Plexus Palsy: Clinical and Radiographic Outcomes

William B DeVoe, BS, **Charles T Mehlman, DO, MPH**, Linda J Michaud, MD, PT,  
William C Lippert, MPH, Allison J Allgier, OTR/L  
*Cincinnati Children's Hospital, Cincinnati, Ohio*

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12:58-1:02 PM

Conservative or Arthroscopic Treatment of First Time Traumatic Anterior-inferior  
Shoulder Dislocation in Adolescents - Prospective Results After 36 months  
**Rico Listringhaus**, Dr.Roderich Heikenfeld, Dr.Georgios Godolias, Prof. Dr  
*Center for Orthopedics and Traumatology, Germany*

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1:03-1:06 PM

Vascularized Bone Grafts for the Treatment of Kienbock's Disease in Adolescents  
**Bettina M Gyr, MD**, Steven L Moran, MD, Karim Bakri, MD  
*Shriners Hospitals for Children, Minneapolis, Minnesota*

1:07-1:16 PM

Discussion

1:17-1:18 PM

Announcement/Adjourn

## **CONCURRENT SESSION 2– COMPLEX SPINE**

**Moderators: Robert Campbell, MD / Bobby KW Ng, MD**

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11:09-11:13 AM

Growing Rods for Spinal Deformity: Characterizing Consensus and Variation in Current  
Use

**Paul D Sponseller, MD**, Justin S Yang, MD, Mark J McElroy, MS, Behrooz A  
Akbarnia, MD, George H Thompson, MD, John B Emans, MD, David L Skaggs, MD  
*Johns Hopkins Medical Institutes, Baltimore, Maryland*

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11:14-11:18 AM

Is Early Treatment of Scoliosis with a Growing Rod Technique in Children with Spinal  
Muscular Atrophy (SMA) Types I and II Safe and Effective?

Sheila Chandran, **James J McCarthy, MD**, Kenneth J Noonan, MD, Blaise Nemeth, MD  
*University of Wisconsin, Madison, Wisconsin*

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11:19-11:23 AM

Nutritional Improvement Following Growing Rod Surgery in Children with Early Onset Scoliosis

**Karen Sookyung Myung, MD**, David L Skaggs, MD, George H Thompson, MD, Paul D Sponseller, MD, Lawrence I Karlin, MD, Charles E Johnston II, MD, Behrooz A Akbarnia, MD, Growing Spine Study Group  
*Children's Hospital Los Angeles, Los Angeles, California*

11:24-11:33 AM      Discussion

81

11:34-11:38 AM

In vivo Distraction Force and Length Measurements of Growing Rods: Which Factors Influence the Ability to Lengthen?

**Suken A Shah, MD**, Enrique Garrido, FRCS, Najma Farooq, FRCS, Stewart Tucker, FRCS, Hilali Noordeen, FRCS  
*Alfred I. duPont Hospital for Children, Wilmington, Delaware*

82

11:39-11:43 AM

The Effect of Rib Based Spinal Instrumentation in the Treatment of Thoracic Insufficiency Syndrome on Sagittal Plane Alignment

**Peter F Sturm, MD**, Sahar Hassani, Kristin Zaharski, BS, Mary Riordan, BA  
*Shriners Hospitals for Children, Chicago, IL*

83

11:44-11:48 AM

Effect of Expansion Thoracoplasty on Pulmonary Microstructure

John C Olson, MS, Hemal P Mehta, MS, Kyle C Kurek, MD, Matthew L Warman, MD,  
**Brian D Snyder, MD PhD**  
*Children's Hospital, Boston, Massachusetts*

11:49-11:58 AM      Discussion

**Moderators: David Skaggs, MD / James Hui, MD**

84

12:02-12:06 PM

Kyphectomy and Segmental Spinal Fusion in Children with Myelomeningocele Kyphosis  
Haluk Altiok, MD, Craig Finlayson, MD, **Peter Sturm, MD**, Kim Hammerberg, MD,  
Sahar Hassani

*Shriners Hospitals for Children, Chicago, Illinois*

85

12:07-12:11 PM

Vertebral Column Resection for Severe Pediatric Deformity: Deformity Correction, Trunk Height and Pulmonary Function Results

**Daniel J Sucato, MD**, Anna McClung, RN  
*Texas Scottish Rite Hospital for Children, Dallas, Texas*

86

12:12-12:16 PM

Intraoperative Bone Scan Assisted Excision of Vertebral Osteoid Osteomas

**Daniel Hedequist, MD**, Mark Proctor, MD, Fred Grant, MD, John B Emans, MD, Donald Blaskiewicz, MD, Durga Sure, MD  
*Childrens Hospital/Harvard Medical School, Boston, Massachusetts*

12:17-12:26 PM      Discussion

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12:27-12:31 PM

Surgical Treatment of Scoliosis in Osteogenesis Imperfecta Patients with cement Augmented Pedicle Screw Instrumentation.

**Guney Yilmaz, MD**, Kenneth J Rogers, PhD, ATC, Suken A Shah, MD  
*Alfred I duPont Hospital for Children, Wilmington, Delaware*

88

12:32-12:36 PM

Syringomyelia and Vertebral Osteochondromas in Patients with Multiple Hereditary Exostosis (MHE)

Joshua B Owens, MD, Henry J Iwinski, MD, Vishwas R Talwalkar, MD, Janet Walker, MD, **Todd Milbrandt, MD**  
*University of Kentucky, Lexington, Kentucky*

89

12:37-12:41 PM

The Rib Vertebral Angle Difference Is it a Reliable Measure?

Jacqueline Corona, James O Sanders, MD, Scott J Luhmann, MD, David P Roye, Jr, MD, Michel Diab, Hiroko Matsumoto, MA, **Michael G. Vitale, MD, MPH**  
*Columbia Univeristy, New York, New York*

12:42-12:51 PM      Discussion

90

12:52-12:56 PM

Is It Rational To Ration Scoliosis Surgery In Total Body Cerebral Palsy (TBCP) Patients?

**Avinash Jadhav, MD, FRCS (Ortho)**, Mathew Stepanovich , MC, USN, Dale E Rowe  
*Michigan State University, East Lansing, Michigan*

91

12:57-1:01 PM

C1 Lateral Mass screw Fixation in Children: Indications, Outcomes, and Technique in 11 Consecutive Patients

**Firoz Miyanji, MD, FRCSC**, Kishore Mulpuri, MD, Peter O Newton, MD, Christopher W Reilly, MD, FRCSC

*BC Children's Hospital, Vancouver, Canada*

92

1:02-1:06 PM

Aortic Abutment Following Direct Vertebral Rotation: Plowing of Pedicle Screws

**Jose A Herrera-Soto, MD**, Matthew Wagner, MD, Jesus Burgos-Flores, MD, Ignacio Sanpera-Trigueros

*Orlando Health, Orlando, Florida*

1:07-1:16 PM

Discussion

1:17-1:18 PM

Announcements/Adjourn

1:19 – 1:30 PM

Box Lunch / To Symposia

1:30 – 5:00 PM

SYMPOSIUM Breakout Sessions

1:30 – 3:00 PM

Spine Symposium

Sports Symposium

Lower Extremity/Guided Growth Symposium

COUR Symposium

3:00 – 3:30 PM

Break

3:30 – 5:00 PM

Trauma Symposium

Hip – Osteonecrosis Symposium

Research – Evidence Based Medicine Symposium

NP/PA Symposium

Communications Symposium

**Friday, May 7, 2010**

**8:00-8:05 AM** Welcome/Announcements  
**8:05-9:10 AM** Special Topics Session- DDH in Walking AGE  
**8:06-8:11 AM** Introduction - Colin Moseley, Moderator  
**8:12-8:22 AM** APOA Overview, Ken Kuo  
**8:23-8:33 AM** POSNA Overview, Dennis Wenger  
**8:34-8:44 AM** Cases/Panel Discussion, Colin Moseley  
**8:45-8:51 AM** Audience Questions  
**8:52-9:02 AM** Cases/Panel Discussion, Colin Moseley  
**9:03-9:09 AM** Audience Questions

9:10-9:30 AM Presidential Transfer

9:31-10:00 AM Break

### **CONGENITAL**

**Moderators: John Herzenberg, MD, FRCSC / Benjamin Joseph, MD**

93

10:04-10:08 AM

Fassier-Duval Tibial Rodding in Patients with Osteogenesis Imperfecta

**Francois Fassier, MD, FRCS**, James Patrick Halloran, MD, Norine Alam, MSc  
*McGill University, Shriners Hospital for Children, Canada*

94

10:09-10:13 AM

Quality Of Life In Patients With Fibular Hemimelia: Lengthening Versus Amputation

**Alberto Harfush MD**, Nelson Cassis, MD, Alberto Lopez, MD, Alex Beteck, MD,  
Armando Torres-Gomez, MD

*Shriners Hospital for Children, Mexico City, Mexico*

95

10:14-10:18 AM

Prophylactic Intramedullary Rodding after Femoral Lengthening in Congenital  
Deficiency of the Femur

**Amr Atef Abdelgawad, MD**, John E Herzenberg, MD, Shawn C Standard, MD, Dror  
Paley, MD

*Texas Tech University Health Sciences Center, El Paso, Texas*

10:19-10:28 AM Discussion

### **LOWER EXTREMITY**

96

10:29-10:33 AM

Supramalleolar Osteotomy: A Comparison of Fixation Methods

**Peter M Stevens, MD**, Carolien P De Roode, MD, Peter Stevens, MD, Marcella Woiczik, MD  
*University of Utah, Salt Lake City, Utah*

97

10:34-10:38 AM

Energy Expenditure During Overground Walking in Pediatric Amputees

**Lori A Karol, MD**, Kelly A Jeans, MS

*Texas Scottish Rite Hospital for Children, Dallas, Texas*

98

10:39-10:43 AM

4-in-1 Osteosynthesis' in Congenital Pseudarthrosis of the Tibia(CPT)

**In Ho Choi, MD**, Soong Joon Lee, MD, Tae-Joon Cho, MD, Won Joon Yoo, MD, Chin Youb Chung, MD, Moon Seok Park

*Seoul National University Children's Hospital, Seoul*

10:44-10:53 AM      Discussion

## **SPECIAL TOPICS**

99

10:54-10:58 AM

Complications Associated with the Use of Bone Morphogenetic Protein (BMP) in Pediatric Patients

**Matthew E Oetgen, MD**, B Stephens Richards III, MD

*Children's National Medical Center, Washington, DC*

100

10:59-11:03 AM

Direct Beam Radiation Exposure Of Surgeons During Pinning Of Supracondylar Humerus Fractures. Does C-Arm Position And Attending Surgeon Matter?

**Eric J Wall, MD**, Elizabeth C Appel, Megan A Little, Alvin H Crawford, MD, Charles T Mehlman, DO, MPH, Viral Jain, MD, Junichi Tamai, MD

*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

101

11:04-11:08 AM

Vitamin D Sufficiency Screening in Preoperative Pediatric Orthopedic Patients

Joshua Parry, BS, Elroy Sullivan, PhD, **Allison C Scott, MD**

*Shriners Hospital For Children, Houston, Texas*

11:09-11:18 AM      Discussion

## **SPINE**

**Moderators: Frances Farley, MD / PQ Chen, MD**

102

11:22-11:26 AM

Pedicle Screws are Safer than Hooks in Children < 10 Years Old with Growing Rods

**David L Skaggs, MD**, Karen Sookyung Myung, MD, Charles E Johnston II, MD,

Behrooz A Akbarnia, MD, Growing Spine Study Group

*Children's Hospital Los Angeles, Los Angeles, California*

103

11:27-11:31 AM

The Safety of Spinal Pedicle Screws in Children Ages 1-12

Tery Mueller, DO, Laurel Hastings, BS, Elise Benefield, BSN, Nancy Hadley Miller,

MD, **Mark A Erickson, MD**

*University of Colorado, Boulder, Colorado*

104

11:32-11:36 AM

Usefulness of EMG compared to CT scans in pedicle screw placement

Jose A Herrera-Soto, MD, D Raymond Knapp, MD, **Jonathan H Phillips, MD**, Michael

F Duffy, MD

*Orlando Health, Orlando, Florida*

11:37-11:46 AM      Discussion

105

11:47-11:51 AM

Use of the Vacuum Assisted Closure in Instrumented Spinal Deformities in Thirty-Three Consecutive Patients with Post-Operative Deep Infections

Federico Canavese, MD, **Joseph I Krajchich, MD**

*Shriners Hospitals for Children, Portland, Oregon*

106

11:52-11:56 AM

Simple Steps to Minimize Spine Infections in Adolescent Idiopathic Scoliosis

**Karen Sookyung Myung, MD**, David Glassman, BS, Vernon T Tolo, MD, David

Skaggs, MD

*Children's Hospital of Los Angeles, Los Angeles, California*

107

11:57 AM-12:01 PM

A Multidisciplinary Approach Improves Infection Rates in Pediatric Spine Surgery.

Ryan M Ballard, PA-C, Nancy Hadley Miller, MD, Chris Nyquist, MD, Elise Benefield,

BSN, **Mark A Erickson, MD**

*University of Colorado, Boulder, Colorado*

12:02-12:11 PM      Discussion

12:12-12:17 PM	Award Paper Announcements
12:18-12:25 PM	Closing Remarks- POSNA and APOA Presidential Lines
12:26 PM	Adjourn

## E-POSTER Program

### Eposter 1

The Levels of Evidence in Pediatric Orthopaedic Journals: Where Are We Now?

Cashin S Megan, MD, FRCSC, Simon P Kelley, Jeffrey R Douziech, MD, Ranjit Abraham Varghese, **Kishore Mulpuri, MBBS, MS, MHSc**

*BC Children's Hospital Vancouver, Canada*

### Eposter 2

Levels of Evidence of Studies Presented at POSNA Annual Meetings

Simon P Kelley, Megan S Cashin, MD, FRCSC, Jeffrey R Douziech, MD, Ranjit Abraham Varghese, **Kishore UK Mulpuri, MBBS, MS, MHSc**

*University of British Columbia/BCCH Vancouver, Canada*

### Eposter 3

Lengthening of Dual Growing Rods and the Law of Diminishing Returns

**David L Skaggs, MD**, Wudbhav N Sankar, MD, Muharrem Yazici, MD, Charles E Johnston II, MD, Suken A Shah, MD, Pooya Javidan, BS, Rishi BS Kadakia, BS, Thomas F Day, MD, Behrooz A Akbarnia, MD

*Children's Hospital Los Angeles, Los Angeles, California*

### Eposter 4

Evaluation of High Risk Patients Undergoing Spinal Surgery: A Matched Case Series

**Nancy Hadley Miller, MD**, Elise Benefield, RN, Laurel Hastings, BA, Patrick M Carry, BA, Zhaoxing Pan, PhD, Mark A Erickson, MD

*The Children's Hospital, Aurora, Colorado*

### Eposter 5

The Tamponade Effect of Unstable Slipped Capital Femoral Epiphysis.

**Jose A Herrera-Soto, MD**, Kelly Vanderhave, MD, Mark A Birnbaum, MD, Jay C Albright, MD

*Orlando Health, Orlando, Florida*

### Eposter 6

Effects of T1-T12 Dorsal Arthrodesis on Thoracic Cage and Chest Organs. Anatomical, Histological and Radiological Study on Pre-Pubertal New Zealand White Rabbits

**Federico Canavese, MD**, Alberto Prandi, VMD, Bartolomeo Canavese, VMD, Alain Dimeglio, MD

*CHU Lapeyronie, Montpellier, France*

### Eposter 7

Risk Factors for Failure after Open Reduction for DDH: a Matched Cohort Analysis

**Wudbhav N Sankar, MD**, Charles R Young, MD, Abraham Lin, MD, Scott A Crow, MD, Keith D Baldwin, MD, MSPT, MPH, Colin F Moseley, MD

*Children's Hospital of Philadelphia, Philadelphia, Philadelphia*

Eposter 8

Treatment of Graf Type III and IV Hips with the Pavlik Harness

**Pablo Castaneda, MD**, Anabel Flores, MD

*Shriners Hospital for Children, Mexico City, Mexico*

Eposter 9

Pelvic Fractures in Children: A Modification of a Pre-Existing Classification

**Benjamin J Shore, MD**, Catherine Bevin, MD Cameron Palmer, Michael B Johnson, MD, Ian P Torode, MD

*Children's Hospital Boston, Boston, Massachusetts*

Eposter 10

Intra-Capsular Pressures in Young Porcine Hip: Does Position and Volume Matter?

**Harish S Hosalkar, MD**, Diana Glaser, PhD, Eric Varley, DO, Christine Farnsworth, MS, Thomas Nunn, BS, James Bomar, BBS, Dennis R Wenger, MD

*Children's Hospital Boston, Boston, Massachusetts*

Eposter 11

Early Gross Motor Development in Babies with Treated Idiopathic Clubfoot

Nancy L Garcia, PT, **Glen O Baird, MD**, Mark McMulkin, PhD, Bryan Tompkins, MD, Paul M Caskey, MD, Shelley Mader, PT

*Shriners Hospitals for Children, Spokane, Washington*

Eposter 12

Off Road Vehicle Related Injuries in Children

**John A Schlechter, DO**, Michael Priola, DO

*Children's Hospital of Orange County, Orange, California*

Eposter 13

Botox as an Adjunct to the Non-Operative Treatment of Muscle Imbalance in Neonatal Brachial Plexus Palsy: A Report of 40 Patients

Linda J Michaud, MD, PT, **Charles T Mehlman, DO, MPH**, Susan L Foad, MPH, Allison J Allgier, OTR/L, William C Lippert, MPH

*Cincinnati Children's Hospital, Cincinnati, Ohio*

Eposter 14

Complications of Cross-Pinning for Supracondylar Humerus Fractures: Is Dorgan's Lateral-Entry Technique Safer than Medial-Entry Pinning?

**Roger Cornwall, MD**, Samuel T Kunkel, MS, Bradley S Dunkin, MD

*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

Eposter 15

Titanium Elastic Nailing of Length Stable vs. Length Unstable Femoral Shaft Fractures in Children

**David A Spiegel, MD**, Matthew Garner Ilkhom Khujanazarov, John (Jack) M Flynn, MD

*The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania*

Eposter 16

Titanium Elastic Nails for Tibia Fractures Children: Are Outcomes the Same for Closed and Open Fractures?

Demetri M Economedes, DO, **Martin J Herman, MD**

*Drexel University College of Medicine, Philadelphia, Pennsylvania*

Eposter 17

Evolution of Perthes Disease After Hip Distraction

**Bobby Kinwah Ng, MD**, King-lok LIU, Tsz-Ping Lam, MD, Jack Chun Y Cheng, MD

*The Chinese University of Hong Kong, Hong Kong*

Eposter 18

Congenital Clubfoot: Functional Method and Early Triceps Surae Lengthening

Alain Dimeglio, MD, **Federico Canavese, MD**, Martine Reigner, PT, Tayeb Bentahar, MD

*CHU Lapeyronie, Montpellier, France*

Eposter 19

A Comparison of Children with Clubfoot Who Underwent Surgical or Ponseti Treatment

Julie Coplan, DSc, PT, Chris F. Church, MPT, Dijana Poljak, John D. Henley, PhD, Roland Starr, MS, Mohan Venkatnarsimha Belthur, **John E. Herzenberg, MD, FRCSC**, Freeman Miller, MD

*Rubin Institute for Advanced Orthopedics, Baltimore, Maryland*

Eposter 20

The Surgeon Learning Curve for Closed Reduction and Percutaneous Pinning of Type III Supracondylar Humerus Fractures in Children

**Raymond W Liu, MD**, Kimberly Pytel, BS, Tracey P Bastrom, MA, Burt Yaszay, MD

*Rady Children's Hospital, San Diego, California*

Eposter 21

Open Reduction with Extensive Muscle Release for Development Dysplasia of the Hip: A 9-year Follow-Up

**Yuko Segawa, MD**, Makoto Kamegaya, MD, Takashi Saisu, MD, Wataru Koizumi, MD, Mituaki Morita, MD, Junichi Nakamura, Reiko Murakami, MD, Masanori Wako, MD

*Chiba Children's Hospital, Chiba, Japan*

Eposter 22

Disproportionate Growth in Radius of Adolescent Idiopathic Scoliosis Subjects - Is it a Systemic Problem?

**Jack Chun Y Cheng, MD** Hiu-Yan Yeung, PhD, William W Wang, PhD, Vivian W Hung, MPhil, Tsz-Ping Lam, MD, Bobby Kinwah Ng, MD, Ling Qin, PhD, Kwong-Man Lee, PhD, Yong Qiu, MD

*The Chinese University of Hong Kong, Shatin, Hong Kong*

Eposter 23

Do EMG and MRI Findings Predict Infraspinatus Muscle Function in Neonatal Brachial Plexus Palsy?

Robert Talbert, BA, **Charles T Mehlman, DO, MPH**, Linda J Michaud, MD, PT, Douglas G Kinnett, MD, Tal Laor, MD, Susan L Foad, MPH  
*Cincinnati Children's Hospital, Cincinnati, Ohio*

Eposter 24

Extension Type II Supracondylar Humerus Fractures; A Radiographic Outcomes Study of Closed Reduction and Cast Immobilization.

**Ron El-Hawary, MD**, Tristan Camus, BSc, Brent MacLellan, BSc, P Christopher Cook, MD, J Lorne Leahey, MD, John C Hyndman, MD  
*IWK Health Centre, Halifax, Nova Scotia, Canada*

Eposter 25

Nerve Injuries Associated with Pediatric Supracondylar Humeral Fractures: A Meta-Analysis

Jessica C Babal, BS, **Charles T Mehlman, DO, MPH**, Guy Klein, BS  
*Cincinnati Children's Hospital, Cincinnati, Ohio*

Eposter 26

Acetabular Development in Contralateral Hip with Unilateral Developmental Dysplasia of the Hip: Consideration of Primary Acetabular Dysplasia

**Daisuke Kobayashi, MD**, Shinichi Satsuma, Maki Kinugasa, MD, Risa Nunoi, MD  
*Kobe Children's Hospital, Kobe, Hyogo, Japan*

Eposter 27

Treatment of Osteochondral Defect by a Biphasic Osteochondral Implant with Mesenchymal Stem Cells and Nanofibre Mesh

**James Hoi Po Hui, FRCSE**, Kenon Chua, MBBS, Hitendra K. Doshi, MBBS  
*National University Health System, Singapore*

Eposter 28

Outcome of Anatomic All-Epiphyseal ACL Reconstruction in Skeletally Immature Patients

Megan M May, MD, **Eric J Wall, MD**, Gilbert Chan, MD, Shital N ParikhViral Jain, MD, Charles T Mehlman, DO, MPH, Alvin H Crawford, MD  
*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

Eposter 29

Nerve Structures at Risk during Tibialis Anterior Tendon Transfer

John E Herzenberg, MD, Christof Radler, MD, Monique C. Gourdine-Shaw, DPM, **John E. Herzenberg, MD, FRCSC**  
*Rubin Institute for Advanced Orthopedics, Baltimore, Maryland*

Eposter 30

Hemiepiphysodesis for Correction of Angular Deformity in Pediatric Amputees

**Bettina M Gyr, MD**, Matthew M Morel, CPO, Gabriela J Ferski, RN, MPH, MS  
*Shriners Hospital for Children, Minneapolis, Minnesota*

Eposter 31

Treatment Outcomes of Femoroacetabular Impingement in Adolescents

**Ernest L Sink, MD**, Alison J Ryba, BS, Amy K Monreal, BA, Michael Dayton, MD  
*University of Colorado, Boulder, Colorado*

Eposter 32

Utility of Advanced Imaging in Diagnosing Cervical Arterial Injury Following Blunt Cervical Spine Trauma in Children and Adolescents

Kelly Vanderhave, MD, **Frances A Farley, MD**, Stephen Tolhurst, MD, Hugh Garton, MD, Cormac O Maher, MD, Gregory Graziano, MD, Michelle S Caird, MD  
*University of Michigan, Ann Arbor, Michigan*

Eposter 33

Examination of the "Second-Hit" Phenomenon in Pediatric Blunt Polytrauma Patients Undergoing Orthopaedic Surgery

Vivek Sahai, MD, Michael L Forbes, MD, Mark O McCollum, MD, Melanie Morscher, PT, Ann E Salvator, MS, Andrew Schulz, BS, **Mark J Adamczyk, MD**  
*Akron Children's Hospital, Akron, Ohio*

Eposter 34

Temperature as a Diagnostic Test for Compliance with a Thoracolumbosacral Orthosis

**Lori Dolan, RN, PhD**, Stuart L Weinstein, MD, Bridget S Adams  
*University of Iowa, Iowa City, Iowa*

Eposter 35

Kyphectomy in Children with Myelodysplasia

**Sumeet Garg**, Matthew Oetgen, MD, B Stephens Richards III, MD, Karl E Rathjen, MD  
*Texas Scottish Rite Hospital for Children, Dallas, Texas*

Eposter 36

Ankle Valgus Secondary to Proximal Migration of the Fibula in Tibial Lengthening Using the Ilizarov External Fixator

Hui-Wan Park, MD, Ki Seok Lee, MD, **Hyun-Woo Kim MD**

Eposter 37

Melatonin Modulates Endochondral Ossification in Human

Guang-Quan Sun, Mphil, Willam Weijun Wang, PhD, Hiu-Yan Yeung, PhD, Gene Chi-Wai Man, Mphil, Kwong-Man Lee, PhD, Tzi-Bun Ng, PhD, Yong Qiu, MD, **Jack Chun-Yiu Cheng, MD**

*Gangnam Severance Hospital, Seoul, Korea*

Eposter 38

Regional Lung Volumes Predict Regional Ventilation and Perfusion Before But Not After Spine Surgery for Early Onset Scoliosis (EOS)

Greg Redding, MD, Jonathan Swanson, MD, **Kit Song, MD**, Ghioni Vic, MD, Dennis Tang, BA, Viviana Bompadre, PhD

*Seattle Children's Hospital, Seattle, Washington*

Eposter 39

The Musculoskeletal Manifestations of Prader-Willi Syndrome

**Jong Sup Shim, MD**, Sung Wook Seo, MD, Sang Hak Lee, MD, Kyung Hyo Koo, MD

*Samsung Medical Center, Seoul, Korea*

Eposter 40

On-call Coverage for Pediatric Orthopaedic Emergencies: Description of An Effective Call System to Optimize Pediatric Patient Care

**Steven L Frick, MD**, Christopher C Bray, MD, Brian Scannell, MD, J Michael Wattenbarger, MD, Virginia F Casey, MD, Christian Clark, MD, Michael Bosse, MD

*Carolinas Medical Center, Charlotte, North Carolina*

Eposter 41

Combined Femoral and Pelvic Osteotomies Versus Femoral Osteotomy Alone in the Treatment of Hip Dysplasia in Children with Cerebral Palsy

**R Baxter Willis, MD**, Muaz Al-Ghadir, MD, Julio Javier Masquijo, Luis Guerra, MD

*Children's Hospital of Eastern Ontario, Ottawa, Canada*

Eposter 42

Cobalt Chromium Spinal Rods: How Do They Stack Up?

Eric S Varley, DO, Thomas Nunn, BS, Arnel L Aguinaldo, MA, **Peter O Newton, MD**

*Rady Children's Hospital, San Diego, California*

Eposter 43

Juvenile Osteochondritis Dissecans: Is It a Growth Disturbance of the Secondary Physis of the Epiphysis

Tal Laor, MD, **Eric J Wall, MD**, Andrew M Zbojnowicz, MD

*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

Eposter 44

Proximal Tibial Rotational Osteotomy for Torsion of the Tibia

David M Walton, BS, **Raymond W Liu, MD**, Lutul D Farrow, MD, George H Thompson, MD

*Rady Children's Hospital, San Diego, California*

Eposter 45

Endoscopically Assisted Percutaneous Epiphysiodesis for Treatment of Leg Length Discrepancy

Elizabeth Desmond, MD, **Meghan Imrie, MD**, Lawrence A Rinsky, MD, James G Gamble, MD, PhD  
**Stanford University, Stanford, California**

Eposter 46

Biomechanical Comparison Between Two Guided Growth Systems

Annie Stitgen, BS, Katie Garrels, MD, Hiro Kobayashi, MD, Ray Vanderby, PhD, James McCarthy MD, **Kenneth J Noonan, MD**

*University of Wisconsin, Madison, Wisconsin*

Eposter 47

The Use of Electrodiagnosis in Operative Decision-Making for Early Plexus Reconstruction in Birth Brachial Plexus Palsy

Glendaliz Bosques, MD, Linda J Michaud, MD, PT, **Charles T Mehlman, DO, MPH**, Kevin P Yakuboff, MD, Mohab B Foad, MD, Shari L Wade, PhD, Douglas G Kinnett, MD, Judy A Bean, PhD

*Cincinnati Children's Hospital, Cincinnati, Ohio*

Eposter 48

Polydactyly Chondrocyte as a Cell Source for Physeal Reconstruction

**Jae Ho Cho, PhD, PhD**, Ri Long Jin, Byoung-Hyun Min, MD, PhD

*Ajou University School of Medicine, Suwon, Korea*

Eposter 49

Acetabular Retroversion in Developmental Dysplasia of the Hip

**Masanori Fujii, MD**, Yasuharu Nakashima, MD, Takuaki Yamamoto, MD, Taro Mawatari, MD, Goro Motomura, MD, Yukihide Iwamoto, MD

*Kyushu University, Fukuoka, Japan*

Eposter 50

Revisit Harris Growth Attest Line: A Radiological, Histochemical, and Micro-CT Observation in Rabbit

**Won Joon Yoo, MD**, In Ho Choi, MD, Tae-Joon Cho, MD, Hye Ran Lee, Chin Youb Chung, MD, Moon Seok Park, Jung-Eun Cheon, MD

*Seoul National University College of Medicine, Seoul, Korea*

Eposter 51

The Utility of Erythrocyte Sedimentation Rate Values and White Blood Cell Counts After Spinal Deformity Surgery in the Early (<3 month) Postoperative Period

Margaret Kuhn, MD, **Scott J Luhmann, MD**, Lawrence G Lenke, MD, Timothy R Kuklo, MD, Keith H Bridwell, MD

*Washington University, St. Louis, Missouri*

**Eposter 52**

**Longer Surgical Times May Increase Your Complication Rate**

**Suken A Shah, MD**, Harry J Robinson, MD, Baron S Lonner, MD, Randal R Betz, MD, Tracey P Bastrom, MA, Michelle Marks, PT, Harms Study Group  
Alfred I. duPont Hospital for Children, Wilmington, Delaware

Eposter 53

Trends in Spine Injuries Caused by All-Terrain Vehicles in Children.

**Jeffrey R Sawyer, MD**, Matthew Bernard, MD, Derek M Kelly, MD, David Spence, MD, R. Jason Schroeder, PhD, William C Warner Jr., MD  
*Campbell Clinic, Germantown, Tennessee*

Eposter 54

Management of Surgical Risk in High Risk Pediatric Patients: Provider and Family Caregiver Experiences of Spinal Fusion Surgery and Care Program

Juliana G Barnard, MA, Juliana G Barnard, MA, Elaine H Morrato, DrPH, Carolyn T Nowels, MSPH, Elise M Benefield, RN, Nancy Hadley Miller, MD, Allison Kempe, MD, **Mark A Erickson, MD**

*University of Colorado, Boulder, Colorado*

Eposter 55

A Survey of Physician Opinion: Adolescent Clavicle Fracture Treatment Preferences Among POSNA Members

Patrick M Carry, BA, Ryan Koonce, MD, Zhaoxing Pan, PhD, **John D Polousky, MD**  
*The Children's Hospital, Aurora, Colorado*

Eposter 56

Which is the Best Method to Determine the Patellar Height in Children and Adolescents?

**Moon Seok Park, MD**, Chin Youb Chung, MD, Kyoung Min Lee, MD, Sang Hyeong Lee, In Ho Choi, MD, Tae-Joon Cho, MD, Won Joon Yoo, MD

*Seoul National University Bundang Hospital, Seoul, Korea*

Eposter 57

Quality of Life for Children with Neuromuscular Scoliosis Two-Years After Spinal Fusion Surgery

Juliana G Barnard, MA, Juliana G Barnard, MA, Elaine H Morrato, DrPH, Carolyn T Nowels, MSPH, Elise M Benefield, RN, Nancy Hadley Miller, MD, Allison Kempe, MD, **Mark A Erickson, MD**

*University of Colorado, Boulder, Colorado*

Eposter 58

Benign-Appearing Ewing Sarcoma of the Tibia

Karen Myung, M.D., Leo Mascarenhas, M.D., **Alexandre Arkader, M.D.**

*Children's Hospital of Los Angeles, Los Angeles, California*

Eposter 59

Treatment of Pediatric Femur Fractures with a Distal Femoral Pin and a One Leg Spica Cast

**William L Hennrikus Jr, MD**, William Hennrikus, MD Matthew Drake, MD  
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Eposter 60

Reappraisal of the Silfverskiold Test: Ultrasonographic Assessment of Architectural Properties of the Triceps Surae Muscle Complex

Kun B Park, MD, Hui-Wan Park, MD, **Hyun-Woo Kim MD**

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Eposter 61

Evaluation of Percutaneous Medial Hamstring Lengthening Outcomes in Ambulatory Children with Cerebral Palsy

**Kristan A Pierz, MD**, Sylvia Ounpuu, MSc, Kristie E Anderson, BS

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Eposter 62

Age-Related Patterns of Spine Injury Following All-Terrain Vehicle Accidents in Children and Adolescents.

**Jeffrey R Sawyer, MD**, Michael J Beebe, MD, Aaron T Creek, MD, George H Thompson, MD, Matthew G Yantis, MD, Derek M Kelly, MD, William C Warner Jr., MD

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Eposter 63

Growing Rods as a Salvage Procedure After Convex Staple Epiphyseodesis to Control Curve Progression in Young Patients

Gupta Purnendu, MD, **Peter F Sturm, MD**, Sahar HassaniKim Hammerberg, MD

*Shriners Hospitals for Children, Chicago, Illinois*

Eposter 64

Level of Improvement Determined by PODCI is Related to Parental Satisfaction after Single-Event Multilevel Surgery in Children with Cerebral Palsy

Kyoung Min Lee, MD, Chin Youb Chung, MD, **Moon Seok Park, MD**, Sang Hyeong LeeIn Ho Choi, MD, Tae-Joon Cho, MD, Won Joon Yoo, MD

*Seoul National University Bundang Hospital, Seoul, Korea*

Eposter 65

Chronic Missed Symptomatic Os Subfibulare in Children

**Richard S Davidson, MD**, Stephan G Pill, Michael Hatch, MD, Julie M. Linton, MD

*The Children's Hospital of Philadelphia, Pennsylvania*

Eposter 66

An Orthopaedic Rotation for Pediatric Residents

**William L Hennrikus Jr, MD**, Robert Wells, PhD, Bjorn Nilson, MD

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Eposter 67

The Quality of Life Of Patients With Hereditary Multiple Exostoses : A Cross Sectional Study Of Adult And Pediatric Populations

**Christine M Alvarez, MD, FRCSC, MSc**, Harpeet k Chhina, MSC, Mary De Vera, PHD

*University Of British Columbia, Vancouver, Canada*

Eposter 68

Pediatric Rib Anatomy Changes with Growth

Joshua D Stewart, BS, **Richard Schwend, MD**, Douglas C Rivard, DO

*Children's Mercy Hospital, Kansas City, Missouri*

Eposter 69

The Effect of Spinal Arthrodesis on Height in Patients with Congenital Scoliosis

**Brent Berger, MD**, Scott Mitchell, MD, Richard E Bowen, MD, Anthony Scaduto, MD

*Shriners Hospitals for Children Los Angeles, California*

Eposter 70

Effectiveness of A Single Incision Percutaneous Epiphysiodesis Technique for Treating Leg Length Discrepancy

**Bryan Tompkins, MD**, Sean P Kearney, MD, MPH, Glen O Baird, MD, Paul M Caskey, MD

*Madigan Army Medical Center, Tacoma, Washington*

Eposter 71

Impact of Surgical Waitlist Times on Scoliosis surgery: Surgeon's Perspective

**Firoz Miyanji, MD, FRCSC**, Christopher W Reilly, MD, Ranjit Abraham Varghese, Suken A Shah, MD, Amer F Samdani, MD, Peter O Newton, MD, Kishore Mulpuri, MD

*BC Children's Hospital, Vancouver, Canada*

Eposter 72

Contralateral Acetabular Morphology in Patients treated for Unilateral Slipped Capital Femoral Epiphysis

**Brian K Brighton, MD, MPH**, Wudbhav N Sankar, MD, Young Jo Kim, MD, Michael B Millis, MD

*Carolinas Medical Center, Charlotte, North Carolina*

Eposter 73

FAI & Prolonged Drehmann's Sign in SCFE

**Makoto Kamegaya, MD**, Takashi Saisu, MD, Junichi Nakamura, Ryuitirou Akagi, MD, Reiko Murakami, MD, Yuko Segawa, MD, Kinya Ito, MD

*Chiba Children & Adult Orthopaedic Clinic, Chiba, Japan*

Eposter 74

Quality of Life in Achondroplasia Patients

**Hae Ryong Song, MD**, Basit MS M.A, MD, Song Sang Heon, MD, Kim Sang Gyun,  
MD

*Korea University Guro Hospital, Seoul. Korea*

Eposter 75

The Prevalence of Elbow Flexion Contractures in Children with Brachial Plexus Birth  
Palsy

**Michelle A James, MD**, Lindsey Sheffler, BS

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*University of California Davis, Sacramento California*

## Paper Poster Program

### Paper Poster 1

Personalizing Management of Adolescent Idiopathic Scoliosis: Can DNA-based Prognostic Testing Lead To Evidence Based Care and Lowered Costs?

**Baron S Lonner, MD**, Vasantha L. Murthy, M.D., Yael Goldstein, PA, Phedra Penn, B.A., Kenneth Ward, M.D.

*Lennox Hill Hospital, New York, New York*

### Paper Poster 2

Cost-effectiveness of Femoral Fracture Immediate Spica Casting in the Operating Room versus the Emergency Department

Alfred A Mansour, MD, Jill C Wilmoth, MD, Ashton S Mansour, BS, **Gregory A Mencio, MD**, Steven A Lovejoy, MD, Jeffrey E Martus, MD

*Vanderbilt University Medical Center, Nashville, Tennessee*

### Paper Poster 3

MRI Evaluation of the Medial Patello-Femoral Ligament after Acute Patellar Dislocation in Children

Christopher K Kepler, MD, MBA, Eric Bogner, MD, Sommer Hammoud, MD, Hollis Potter, MD, **Daniel W Green, MD**

*Hospital for Special Surgery, New York, New York*

### Paper Poster 4

Instrumentation Constructs in Pediatric Patients Undergoing Deformity Correction Correlated with SRS Scores

**John P Lubicky, MD**, Jean Hansen, PhD, Elizabeth H Riley, MLS/MIS

*Indiana University School of Medicine, Riley Hospital for Children, Indianapolis, Indiana*

### Paper Poster 5

A Study in vivo of the Effects of a Static Compressive Load on the Proximal Tibial Physis in Rabbits

Andrew D Bries, MD, Robin D Jacquet, MS, Elizabeth M Lowder, BS, Denise L McBurney, BS, William J Landis, PhD, **Mark J Adamczyk, MD**, Richard P Steiner, PhD, Michael J Askew, PhD

*Akron Children's Hospital, Akron, Ohio*

### Paper Poster 6

Familial Kyphoscoliosis: Association with the IRX Homeobox Gene Family

**Nancy Hadley Miller, MS, MD**, Cristina M Justice, PhD, Pedro D Cruz, PhD, Baishali Maskeri, PhD, Jim C Mullikin, PhD, Kandice Swindle, BS, Alexander F Wilson, PhD

*University of Colorado Denver, Aurora, Colorado*

### Paper Poster 7

Periacetabular Osteotomy for Symptomatic, Residual Acetabular Dysplasia after Previous Pediatric Hip Reconstruction

John Clohisy, MD, Daniel J Sucato, MD, David A Podeszwa, MD, Jeffery Nepple, MD,  
Gail Pashos, BS, MT, **Perry L Schoenecker, MD**  
**Washington University School of Medicine, St. Louis, Missouri**

Paper Poster 8

Ligamentum Teres (LT) Reattachment at an Isocentric Point: A Porcine Study with  
Clinical Implications

Harish S Hosalkar, MD, Diana A Glaser, PhD, Eric Varley, DO, Christine Farnsworth,  
MS, Thomas Nunn, BS, James D Bomar, BBS, **Dennis R Wenger, MD**  
*Rady Children's Hospital, San Diego, California*

Paper Poster 9

Posterior Surgical Approach for Humeral Lateral Condyle Fracture in Children

**Yin-Chun Tien, MD**

*Kaohsiung Medical University, Kaohsiung, Taiwan*

Paper Poster 10

Publication of Abstracts Submitted to the Annual Meeting of the Pediatric Orthopaedic  
Society of North America: Is There a Difference Between Accepted vs. Rejected  
Abstracts?

Ranjit Abraham Varghese, Justin Chang, BSc, Firoz Miyanji, MD, Christopher W Reilly,  
MD, **Kishore Mulpuri, MBBS, MS, MHSc**  
*BC Children's Hospital, Vancouver, Canada*

Paper Poster 11

Genetic Association Study of MMP-3 and IL-6 Gene with Adolescent Idiopathic  
Scoliosis: A Case-control Study in Chinese Han

Zhen Liu, PhD, Nelson L.S Tang, MD, Benson H.Y Yeung, PhD, **Jack C.Y Cheng, MD,**  
Yong Qiu, MD

*The Chinese University of Hong Kong, Hong Kong, China*

Paper Poster 12

Muscle Derived Stem Cell for Limb Lengthening in Rabbit Model

Andy Wee, MBBS, **James Hoi Po Hui, FRCSE**, Eng Hin Lee, MD, FRCSC

*National University Health System, Singapore*

Paper Poster 13

Percutaneous versus Buried Wires for the Fixation of Fractures of the Lateral Humeral  
Condyle in Children. Is there a Difference in Outcome?

**Hua Ming Siow, MBChB**, Lester WM Chan, MBBS;

*KK Women's and Children's Hospital, Singapore*

Paper Poster 14

Implications of Serial MRI Following Diagnosis of Acute Hematogenous Osteomyelitis  
Stochastic Simulation Analysis of Economic and clinical Implications

Suneel B. Bhat, MPhil, Kriti Sehgal, BA, Maxwell Courtney, BS, **David A. Spiegel, MD**

*The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania*

Paper Poster 15

Scaphoid Nonunions in Children and Adolescents: Surgical Treatment with Internal Fixation and Bone Grafting.

**R Baxter Willis, MD**, Julio Javier Masquijo

*Children's Hospital of Eastern Ontario, Ottawa, Canada*

Paper Poster 16

A Unique Program Teaching Sustainable Pediatric Orthopaedics in the Developing World

**Robert M Bernstein, MD**, Carol Beth Cozen, AIA, Saul M Bernstein, MD, Hugh G Watts, MD

*Cedars-Sinai Medical Center, Los Angeles, California*

Paper Poster 17

Pathophysiology of Contractures Following Neonatal Brachial Plexus Injury: A Role for Abnormal Postnatal Development of Denervated Muscle

**Roger Cornwall, MD**, Sia Nikolaou, PhD, Elizabeth Peterson, BS, Annie Kim, Christopher Wylie, PhD

*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

Paper Poster 18

Repetitive Physiologic Stresses Generate Osteochondral Lesions

**Eric J Wall, MD** Stone V Austin, BSDavid L Glos, BSEKeith F Stringer, MDZachary R Sheppard, Kevin J Little, MDEric J Wall, MD(Cincinnati Children's Hospital Medical Center)

*Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

Paper Poster 19

Six Months of Spinal Growth Modulation: Is the Disc Still Normal?

**Peter O Newton, MD**, Vidyadhar V Upasani, MD, Christine L Farnsworth, MS, Reid C Chambers, BA, Tracey P Bastrom, MA, Gregory M Williams, MS, Robert L Sah, MD, Koichi Masuda, MD

*Rady Children's Hospital, San Diego, California*

Paper Poster 20

The Use of rhBMP7 Treatment for Congenital Pseudoarthrosis of the Tibia in Children

Reggie C Hamdy, MD, Bruno Dohin, MD,FRCS, **Francois Fassier, MD, FRCS**

*McGill University, Shriners Hospital for Children, Montreal, Canada*