

# 2023 POSNA Annual Meeting

**Nashville, Tennessee**  
**April 26-28, 2023**

## **Preliminary Brochure**

**Program Chair:** Nicholas Fletcher, MD

**Subspecialty Day Chair:** Anthony Riccio, MD

**Local Hosts:** Jeffrey Martus, MD

Gregory Mencio, MD

Jonathan Schoenecker, MD, PhD



# POSNA

PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA



# Nashville



# THANK YOU

The Pediatric Orthopaedic Society of North America gratefully acknowledges the following for their generous financial support during 2022.

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# DATES TO REMEMBER

## 2023 ANNUAL MEETING

- Early Registration Deadline ..... March 29, 2023
- Pre-Registration Deadline ..... April 24, 2023
- On-Site registration rate starts ..... April 25, 2023
- Housing Deadline ..... March 30, 2023

## FUTURE IPOS® MEETINGS

- December 5-9, 2023  
Orlando, FL
- December 3-7, 2024  
Orlando, FL

## FUTURE ANNUAL MEETINGS

### EPOSNA

- May 8-11, 2024  
Washington, DC
- May 14-16, 2025  
Las Vegas, NV



# PROGRAM COMMITTEE AND SESSION PLANNERS

## Program Committee

Nicholas Fletcher, MD  
Matthew Oetgen, MD, MBA  
Anthony Riccio, MD  
Julie Balch Samora, MD, PhD

## Virtual Symposia Chairs

Karen Bovid, MD, FAOA, FAAOS  
Michael Jofe, MD  
Jessica King, PA-C  
Raymond Liu, MD  
Megan Lomax, PA-C

## Subspecialty Day Chairs

Patrick Cahill, MD  
Jaime Denning, MD  
Jeanne Franzone, MD  
Hilton Gottschalk, MD  
Simon Kelley, MD  
Collin May, MD  
Ryan Muchow, MD  
Tom Novacheck, MD  
Nirav Pandya, MD  
Andrew Pennock, MD  
Stephanie Pun, MD  
Brandon Ramo, MD  
Sanjeev Sabharwal, MD, MPH  
Benjamin Sheffer, MD  
Rachel Thompson, MD  
Lindley Wall, MD

## ANNUAL MEETING VISION

To advance the musculoskeletal care of children worldwide through the discussion and dissemination of pediatric orthopaedic research.

## ANNUAL MEETING MISSION

To be the preeminent international platform for the exchange of research and ideas related to the orthopaedic care of children.





# THANK YOU - REVIEWERS

The Program Committee would like to acknowledge the hard work and dedication of the volunteer abstract reviewers.

## Abstract Reviewers

Andrew Abramowitz, MD  
Syed Ahmed, MD  
Melissa Allen, MD  
Soroush Baghdadi, MD  
Jennifer Bauer, MD, MS  
Craig Birch, MD  
John Birch, MD  
Patrick Bosch, MD  
Robert Bruce, MD  
Matthew Bueche, MD  
Michael Busch, MD  
Patrick Cahill, MD  
Michelle Caird, MD  
Kristen Carroll, MD  
Anthony Catanzano, Jr., MD  
R. Carter Clement, MD, MBA  
Ozgur Dede, MD  
Jamie Denning, MD  
Lori Dolan, PhD  
Shevaun Doyle, MD  
Andrew Dubina, MD  
Vivek Dutt, MBBS  
Matthew Ellington, MD  
Graham Fedorak, MD, FRCSC  
Jill Flanagan, MD  
Paul Fleissner, MD  
Nicholas Fletcher, MD  
Jeanne Franzone, MD  
Alex Gornitzky, MD  
Hilton Gottschalk, MD  
Emmanouil (Manos)  
Grigoriou, MD  
Matthew Halsey, MD  
Grant Hogue, MD  
Stephanie Holmes, MD  
Jason Howard, MD  
Joseph Janicki, MD

Aaradhana Jha, MD  
Megan Johnson, MD  
Muayad Kadhim, MD  
Brian Kaufman, MD  
Simon Kelley, MD  
Jung-Ryul Kim, MD  
D Raymond Knapp Jr, MD  
Jennifer Laine, MD  
Matthew Landrum, MD  
Ronald Lewis, MD  
Ying Li, MD  
Craig Louer, Jr., MD  
John Lubicky, MD  
Chris Makarewich, MD  
Michelle Marks, PT, MA  
Collin May, MD  
Dell McLaughlin, MD  
Jessica McQuerry, MD  
Charles Mehlman, DO, MPH  
Erin Meisel, MD  
Barbara Minkowitz, MD  
James Mooney, MD  
Sara Morgan, PhD  
William Morris, MD  
Ryan Muchow, MD  
Jose Munoz-Espeleta, MD  
Joshua Murphy, MD  
Robert Murphy, MD  
Margaret Siobhan  
Murphy-Zane, MD  
Kevin Neal, MD  
Cynthia Nguyen, MD  
Tom Novacheck, MD  
Matthew Oetgen, MD, MBA  
Z. Deniz Olgun, MD  
Dana Olszewski, MD, MPH  
Norman Otsuka, MD

Nirav Pandya, MD  
Harshadkumar Patel,  
MBBS, MD  
Andrew Pennock, MD  
Crystal Perkins, MD  
William Phillips, MD  
Stephanie Pun, MD  
Brandon Ramo, MD  
Christopher Redman, MD  
Anthony Riccio, MD  
Scott Rosenfeld, MD  
Kirsten Ross, MD  
Justin Roth, DO  
Sanjeev Sabharwal, MD, MPH  
Julie Balch Samora, MD, PhD  
Julieanne Sees, DO  
Lior Shabtai, MD  
Benjamin Sheffer, MD  
Benjamin Shore, MD,  
MPH, FRCSC  
Micah Sinclair, MD  
Ernest Sink, MD  
Chris Stutz, MD  
Vishwas Talwalkar, MD  
Rachel Thompson, MD  
Kali Tileston, MD  
Kirsten Tulchin-Francis, PhD  
Jennifer Ty, MD  
V. Salil Upasani, MD  
Kelly Vanderhave, MD  
Carley Vuillermin, FRACS,  
MBBS, MPH  
Sean Waldron, MD  
Lindley Wall, MD  
Megan Young, MD  
Ira Zaltz, MD  
Bryn Zomar, PhD



# YOU'RE INVITED

Dear Colleagues,

On behalf of POSNA President Jeffrey Sawyer, MD, and the 2023 Program Committee (Matthew Oetgen, MD, MBA; Tony Riccio, MD; Julie Balch Samora, MD, PhD, and myself), it is our pleasure to invite you to attend the 2023 Annual Meeting of the Pediatric Orthopaedic Society of North America in Nashville, Tennessee on April 26-28. We are excited to reconnect with colleagues and friends to share ideas and advance the science of pediatric orthopaedics. A remarkable 900+ abstracts were submitted and graded by a combination of invited and volunteer readers. Thank you to all 100+ POSNA members who volunteered and helped shape another great meeting. All 170+ podium presentations and 80 ePosters are exceptional. The meeting agenda follows:

- The meeting will be condensed this year with sessions spanning from Wednesday to Friday. This will allow attendees to optimize their time in Nashville while having the flexibility to return home prior to the weekend without missing any content.
- The meeting will begin on Wednesday with Subspecialty Day, chaired by Tony Riccio. This half-day event is divided into eight sessions covering advanced topics in Spine, Hip, Sports, Upper Extremity, Foot, Trauma, Neuromuscular, and Lower Extremity. Each session will consist of a combination of podium presentations and topic-specific lectures staggered throughout the morning so attendees can move between different sessions.
- Members can attend the business meeting following Subspecialty Day at 11:50 AM on Wednesday.
- The first scientific session, bringing everyone together, will begin at 1:40 PM on Wednesday with the trauma session. In recent years, this session focused on QSVI; however, this year's program will feature papers focusing on quality/safety/value evenly disseminated throughout all sessions.
- The scientific program will be followed by the Opening Ceremony, Wednesday at 6:00 PM. An opening reception, replacing the typical Friday evening festivities, will take place around the corner from the hotel at the Musicians Hall of Fame & Museum.
- Thursday morning will feature a brand new "Lead Like Lori" Lecture in honor of past POSNA president and pediatric orthopaedic trailblazer Lori Karol, MD.
- As in recent years, Thursday afternoon will be free of scheduled content. Attendees should plan for social gatherings, local excursions, or outings into the downtown honky tonks just two blocks from the hotel during this time as we seek to reconnect with friends.
- The awards presentations will be held on Friday morning, followed by the distinguished achievement award, meeting awards, presidential guest speaker, and presidential transfer. Friday afternoon will include concurrent sessions covering spine and sports topics.

The Annual Meeting is the premier event for pediatric orthopaedic research and education presented in a uniquely collegial and social atmosphere. We sincerely hope you will plan to join us for what will be a fantastic event.

We look forward to seeing you in Nashville!

Sincerely,  
Nicholas Fletcher, MD





# GENERAL MEETING INFORMATION

## LEARNING OBJECTIVES

**Objective 1:** Analyze new research for its quality, safety, and value to the field of pediatric orthopaedics.

**Objective 2:** Discuss treatment strategies amongst peers and world-renowned thought leaders.

**Objective 3:** Identify and apply appropriate practice changes to optimize patient care.

## ACCREDITATION

In support of improving patient care, this activity has been planned and implemented by Amedco LLC and Pediatric Orthopaedic Society of North America. Amedco LLC is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing education for the healthcare team.

## AMA CREDIT DESIGNATION

The total **AMA PRA Category 1 Credits™** will be updated in the coming weeks for both the Live Meeting and Enduring Content (ePosters and Virtual Symposia).

## DISCLOSURE

Each meeting presenter has been asked to disclose if he or she has received something of value from a commercial company or institution, which relates directly or indirectly to the subject of their presentation. In the online posted disclosure report, an indication of the participant's disclosure appears after his or her name as well as the commercial company or institution that provided the support. POSNA does not view the existence of these disclosed interests or commitments as necessarily implying bias or decreasing the value of the author's participation in the meeting.

## FDA STATEMENT (UNITED STATES)

Some drugs or medical devices demonstrated at the Annual Meeting may not have been cleared by the FDA or have been cleared by the FDA for specific purposes only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice. Academy policy provides that "off label" uses of a drug or medical device may be described in the Academy's CME activities so long as the "off label" use of the drug or medical device is also specifically disclosed (i.e., it must be disclosed that the FDA has not cleared the drug or device for the described purpose). Any drug or medical device is being used "off label" if the described use is not set forth on the product's approval label.



# REGISTRATION INFORMATION

*Registration sponsored by Orthofix*

Full meeting registration from Wednesday morning, April 26, 2023, through Friday, April 28, 2023, includes all sessions on these days, Wednesday Subspecialty Day, closing reception at the convention center, coffee breaks, and breakfast each day.

## SUBSPECIALTY DAY-ONLY RATE

POSNA offers a special **half-day** registration rate for those who wish to attend **ONLY** the Subspecialty Day on Wednesday morning. This registration rate includes breakfast and sessions. This **does not** include afternoon sessions or opening event offsite on Wednesday. Please Note: Registration and attendance to only Subspecialty Day does not meet the member meeting requirement.

## CANCELLATION POLICY

Full refunds will be provided less a processing fee if received in writing to [respeto@posna.org](mailto:respeto@posna.org) by the date listed below. No refunds will be granted after April 17, 2023. Registrants will receive a confirmation and refund within 14 days of receipt of their cancellation notice.

February 1–April 3, 2023 – less a 20% processing fee

April 4–April 17, 2023 – less a 50% processing fee

April 18, 2023 – No refunds

## POSNA MEMBERSHIP REQUIREMENT

Full meeting attendance at the 2023 POSNA Annual Meeting fulfills your POSNA membership meeting attendance requirement. Registration and attendance at Subspecialty Day only does not meet the member meeting attendance requirement.





# REGISTRATION FEES

EARLY REGISTRATION FEES (US DOLLARS)	
POSNA Member.....	\$ 800
Non-Member .....	\$ 1600
Resident/Fellow*.....	\$ 600
RN/PA/Allied Health.....	\$ 600
Delegates from Reduced Rate Countries: Low Income .....	\$ 400
Accompanying Person.....	\$ 350
Senior Members.....	\$ 425
Children 6-12, per child.....	\$ 10
Children 13-17, per child.....	\$ 100
<b>Early Registration deadline: March 29, 2023</b>	
<b>*An additional \$50 will apply to the above costs starting March 30, 2023</b>	
<b>Pre-Registration closes on April 24, 2023. There will be an additional fee of \$50 added on-site.</b>	
WEDNESDAY SUBSPECIALTY DAY REGISTRATION*	
WEDNESDAY ONLY–Member .....	\$ 270
WEDNESDAY ONLY–Non-Member .....	\$ 320
WEDNESDAY ONLY–Allied Health .....	\$ 215
WEDNESDAY ONLY–Resident/Fellow .....	\$ 215
Welcome Reception (Offsite).....	\$ 110

\*Residents/Fellows must have the phone number and signature of their Chief of Service on their registration form to qualify for the reduced fee. Without a signature and phone number, you will be charged the non-member fee. Please email completed registration forms to [respeto@posna.org](mailto:respeto@posna.org).

If you need to pay with a check, email [respeto@posna.org](mailto:respeto@posna.org) for a registration form. All checks must be in U.S. dollars drawn on a U.S. Bank. If paying by check, please mail your registration to:

**POSNA, 1 Tower Lane, Suite 2410, Oakbrook Terrace, IL 60181**

**ACCOMPANYING PERSONS MUST BE REGISTERED IN ORDER TO ATTEND ANY FUNCTION, INCLUDING OPTIONAL EVENTS**



# HOUSING

Nashville boasts a friendly and innovative spirit with a rich history and deep appreciation for all genres of music and a creative culture that pervades the city. You will not find a more accommodating, authentic, and accessible city than Nashville. There is award-winning cuisine, a lineup of diverse neighborhoods, world-class cultural attractions, and so much more. Come join us April 26-28, 2023 in Nashville!

## HOTEL

There are two hotels to choose from for your stay in Nashville, all within walking distance to the Music City Convention Center. The headquarters hotel is the Omni Nashville.

Omni Nashville [click here](#)

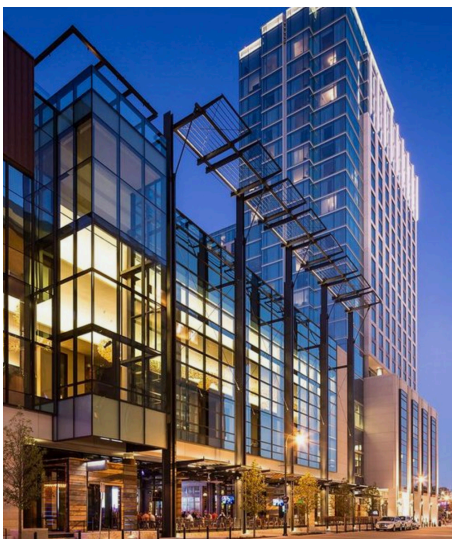
Hyatt Place [click here](#)

## PRIVACY POLICY – USE OF PERSONAL INFORMATION

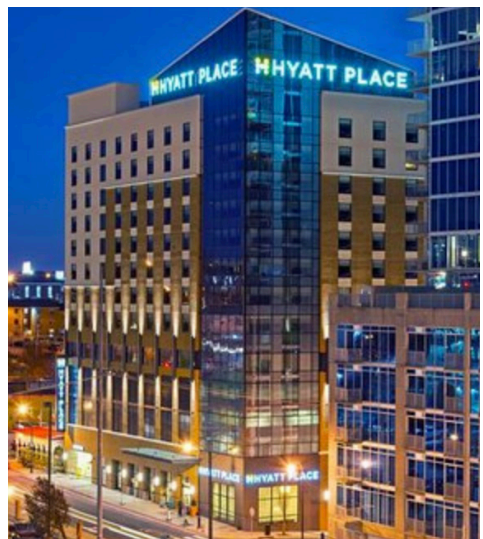
Annual Meeting registration lists, including the registrant's name and postal mailing address are used to process your meeting registration and to provide you with information and materials related to POSNA's meeting. POSNA shares your personal data with its sponsors, exhibitors, and other vendors related to the meeting in order to notify you of products and services which may be of interest to you. No financial or other personal identifying information is disclosed. POSNA takes reasonable steps to ensure that our sponsors protect your information on POSNA's behalf. Please [click here](#) for additional information on POSNA's Privacy Policy.

## DISCLOSURE OF PERSONAL INFORMATION

When registering for the Annual Meeting, your personal identifying information is retained by POSNA. You understand and agree that POSNA may disclose your name, address, and contact information to the hotel and other service providers.



Omni Nashville  
Adjacent to Music City Center



Hyatt Place Nashville  
0.2 miles away from Music City Center





# TRANSPORTATION

## AIRPORT

The Nashville International Airport (BNA) serves 17 airlines with 238 average daily departures to 88 destinations. For airline information [click here](#).

## GROUND TRANSPORTATION TO/FROM AIRPORT:

A variety of ground transportation options are available to/from the Nashville International Airport, [click here](#).

## GETTING AROUND TOWN

Travelers now have a convenient and inexpensive way to travel. For just \$2, you can ride the Nashville WeGo's route 18 Airport/Elm Hill Pike bus between the Nashville International Airport and Downtown Music City. Visit [nashvillemta.org](http://nashvillemta.org) or call (615) 862-5950 for more information on schedules and pickup locations.



# PROGRAM AT A GLANCE

TUESDAY, APRIL 25		
Registration	3:00 PM–6:00 PM	CC Level 1
POPS Meeting	8:00 AM–5:00 PM	Omni- Legends Ballroom AB

WEDNESDAY, APRIL 26		
Registration	7:00 AM–5:00 PM	CC Level 1
Breakfast/Exhibits	7:00 AM–8:00 AM	Karl Dean Ballroom A
<b>Subspecialty Day</b>		
Foot	7:30 AM–9:30 AM	105
Hand	10:00 AM–11:40 AM	105
Hip	7:30 AM–11:40 AM	101
Lower Extremity	7:30 AM–11:40 AM	103
Neuromuscular	7:30 AM–11:40 AM	209
Spine	7:30 AM–11:40 AM	Karl Dean Ballroom BC
Sports	7:30 AM–11:40 AM	106
Trauma	7:30 AM–11:40 AM	207
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Omni-Cumberland 1/2
Coffee Break/Exhibits	9:35 AM–9:55 AM	Karl Dean Ballroom A
Members Business Meeting	11:50 AM–1:30 PM	104
Welcome	1:40 PM–2:00 PM	Karl Dean Ballroom BC
Scientific Program	2:05 PM–5:15 PM	Karl Dean Ballroom BC
Coffee Break/Exhibits	3:35 PM–3:55 PM	Karl Dean Ballroom A
Opening Ceremony	6:00 PM–7:00 PM	Karl Dean Ballroom BC
Welcome Reception	7:30 PM–11:00 PM	Musicians Hall of Fame & Museum

## MEMBERS BUSINESS MEETING

All POSNA members are invited to attend the Members Business Meeting on Wednesday, April 26, from 11:50 AM–1:30 PM. Committee Chairs will share reports of their recent activities. Lunch will be served.





# PROGRAM AT A GLANCE

THURSDAY, APRIL 27		
Registration	7:00 AM–12:00 PM	CC Level 1
Breakfast/Exhibits	7:00 AM–8:00 AM	Karl Dean Ballroom A
Lead Like Lori Symposium	8:00 AM–9:00 AM	Karl Dean Ballroom BC
Scientific Program	9:05 AM–12:00 PM	Karl Dean Ballroom BC
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Omni-Cumberland 1/2
Coffee Break/Exhibits	10:05 AM–10:25 AM	Karl Dean Ballroom A

FRIDAY, APRIL 28		
Registration	7:00 AM–2:00 PM	CC Level 1
Breakfast/Exhibits	7:00 AM–8:00 AM	Karl Dean Ballroom A
Scientific Program & Award Papers	8:00 AM–11:29 AM	Karl Dean Ballroom BC
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Omni-Cumberland 1/22
Coffee Break/Exhibits	10:05 AM–10:25 AM	Karl Dean Ballroom BC
Distinguished Achievement Award	11:30 AM–11:45 AM	Karl Dean Ballroom BC
2024 Meeting Announcements	11:46 AM–11:51 AM	Karl Dean Ballroom BC
Award Announcements	11:52 AM–11:58 AM	Karl Dean Ballroom BC
Presidential Speaker	11:59 AM–12:19 PM	Karl Dean Ballroom BC
Presidential Transfer	12:20 PM–12:30 PM	Karl Dean Ballroom BC
Concurrent Session Spine	2:00 PM–5:00 PM	Karl Dean Ballroom BC
Concurrent Session Hip	2:00 PM–3:15 PM	101
Concurrent Session Sports	3:45 PM–5:00 PM	101
Coffee Break/Exhibits	3:00 PM–3:20 PM	Karl Dean Ballroom A
Closing Reception	5:00 PM–6:30 PM	Terrace

*\*Program subject to change*

## ACCOMPANYING PERSONS BREAKFAST

Breakfast will be provided on Wednesday, April 26, thru Friday, April 28 from 8:00 AM–10:00 AM for all spouses, children, and accompanying persons who are registered and have a badge.



# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – FOOT

Room: 105

**Moderators: Collin May, MD, MPH and Jaime Rice Denning, MD, MS**

The focus of this year’s Foot Subspecialty Day will be tackling the clinical conundrum of caring for older children with clubfeet that have been previously treated with surgery. Our esteemed panel will each present a brief summary of one particular (broad) approach to treating these challenging recurrent clubfeet: osteotomies, external fixation, fusion, and “other” (guided growth, casting, accommodative bracing). The four panelists will then discuss case examples of previously operated upon clubfeet and audience participation will be encouraged.

### Period 1: 7:30 AM–9:30 AM

7:30 AM–7:35 AM      Welcome & Remarks

**1**  
7:36 AM–7:40 AM      **Radiographic and Clinical Outcomes of Children with Congenital Vertical Talus Deformity Treated with the Dobbs Minimally Invasive Method**  
*Jason Cummings; Pooya Hosseinzadeh, MD*  
*Washington University in St. Louis, Saint Louis, MO*

**2**  
7:41 AM–7:45 AM      **Is Percutaneous Heel Cord Tenotomy a Necessary Component in the Ponseti Treatment of Idiopathic Clubfoot Deformity?**  
*Lisa Cao; Mauricio Valdez; Sarah Parenti; Chan-Hee Jo, PhD;*  
*Anthony Riccio, MD*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*

**3**  
7:46 AM–7:50 AM      **Prospective, Randomized Ponseti Treatment for Clubfoot: Orthopedic Surgeons versus Physical Therapists**  
*Stephanie Chen; Tyler Ragsdale; Lindsey Locke RN, CPNP-P;*  
*Leslie Rhodes, DNP; Alice Moisan; Derek Kelly, MD, FAAOS, FAOA*  
*Campbell Clinic Orthopaedics, Germantown, TN*

7:51 AM–7:59 AM      Discussion

**4**  
8:00 AM–8:04 AM      **Recurrent Toe Walking Following Operative Intervention in Children with Sensory Processing Disorders**  
*Taylor Zak; Anthony Minopoli; Jordan Polk; Claire Shivers;*  
*Chan-Hee Jo, PhD; Anthony Riccio, MD*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*



## SUBSPECIALTY DAY PROGRAM

5

8:05 AM–8:09 AM

**Putting a Better Foot Forward: Improved Radiographic, Functional, and Patient-Reported Outcomes After Reconstruction for Adolescent Idiopathic Flexible Flatfoot**

*Christopher DeFrancesco, MD; Matthew Conti; Caroline Gmelich; Howard Hillstrom; David Scher, MD  
Hospital for Special Surgery, New York City, NY*

6

8:10 AM–8:14 AM

**Prevalence and Long-Term Outcomes of Tarsal Coalitions: Results from the Johnston County Osteoarthritis Project**

*Alysa Nash; Carolina Alvarez; Jordan Renner; Yvonne Golightly; James Sanders, MD; Craig Louer Jr., MD  
University of North Carolina at Chapel Hill, Chapel Hill, NC*

8:15 AM–8:23 AM

Discussion

**Management of the Older Child with Recurrence After Previous Operative Treatment for Clubfeet**

8:25 AM–8:30 AM

**Introduction of the Clinical Conundrum**

*Jaime Rice Denning, MD, MS*

8:31 AM–8:39 AM

**Previously Operated on Clubfeet—Acute Osteotomies**

*Maryse Bouchard, MD, MSc, FRCSC*

8:40 AM–8:48 AM

**Previously Operated on Clubfeet—Frame Correction**

*John Herzenberg, MD*

8:49 AM–8:57 AM

**Previously Operated on Clubfeet—Triple Arthrodesis**

*Steven Frick, MD*

8:58 AM–9:06 AM

**Previously Operated on Clubfeet—“Other” Treatment**

*Stephanie Ihnow, MD*

9:07 AM–9:30 AM

**Panel Case Discussion**

9:35 AM–9:55 AM

Coffee Break/Exhibits





# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – HAND

Room: 105

**Moderators:** *Lindley Wall, MD and Hilton Gottschalk, MD*

As surgeons evolve in their careers, they change their surgical approaches over time for many reasons—complications being one. This case discussion will address specific complications which occur in the surgical treatment of MHE, CP, and thumb reconstruction and how surgeons have altered their surgical approaches and techniques to address these difficulties.

**Period 2: 10:00 AM–11:40 AM**

10:00 AM–10:05 AM    Welcome & Remarks

**7**  
10:06 AM–10:10 AM    **Early Elbow Flexion Contracture Predicts Shoulder Pathology in Brachial Plexus Birth Injury**  
*David Liu; Patricia Miller, MS; Anna Rothenberg; Carley Vuillermin, FRACS; Peter Waters, MD; Andrea Bauer, MD*  
*Boston Children’s Hospital, Boston, MA*

**8**  
10:11 AM–10:15 AM    **Assessing the Control of Residual Muscles in Children with Congenital Below Elbow Deficiency**  
*Justin Fitzgerald; Marcus Battraw; Anita Bagley; Jonathon Schofield; Wilsaan Joiner; Michelle James, MD*  
*Shriners Hospital for Children, Northern California, Sacramento, CA*

**9**  
10:16 AM–10:20 AM    **Radiographic Evaluation during Treatment of Salter-Harris II Proximal Phalanx Fractures: Implications on Clinical Care and Cost**  
*David Liu; Patricia Miller, MS; Donald Bae, MD*  
*Boston Children’s Hospital, Boston, MA*

10:21 AM–10:29 AM    Discussion

**10**  
10:30 AM–10:34 AM    **Revision Surgery following Primary Reconstruction for Congenital Syndactyly**  
*Zoe Belardo; Emily Graham; Meagan Pehnke; Niki Patel; Benjamin Chang; Shaun Mendenhall; Apurva Shah, MD, MBA*  
*The Children’s Hospital of Philadelphia, Philadelphia, PA*



## SUBSPECIALTY DAY PROGRAM

11

10:35 AM–10:39 AM

**Patient and Caregiver impressions of the impact of Madelung Deformity: A CoULD Registry analysis**

*Lindley Wall, MD; Suzanne Steinman, MD; Angela Wang; Carley Vuillermin, FRACS, MBBS, MPH; Charles Goldfarb, MD Washington University in St. Louis, St. Louis, MO*

12

10:44 AM–10:45 AM

**Ulnar Polydactyly: The Association of Race and Genetic Syndromes**

*Thomas McQuillan III; Hannah Antonellis; Kim Bjorklund; Deborah Bohn, MD; Mary Claire Manske, MD; Apurva Shah, MD, MBA; Suzanne Steinman, MD; Lindley Wall, MD; Angela Wang; Andrea Bauer, MD Boston Children's Hospital, Boston, MA*

10:46 AM–10:54 AM

Discussion

**Case Discussion—How Complications Have Changed My Surgical Approaches Over My Career**

10:55 AM–11:04 AM

**Case 1: Forearm Involvement in MHE**

*Donald Bae, MD; Charles Goldfarb, MD; Dan Zlotolow, MD*

11:05 AM–11:14 AM

**Case 2: Spasticity in the UE**

*Donald Bae, MD; Charles Goldfarb, MD; Dan Zlotolow, MD*

11:15 AM–11:24 AM

**Case 3: Radial Polydactyly**

*Donald Bae, MD; Charles Goldfarb, MD; Dan Zlotolow, MD*

11:25 AM–11:34 AM

**Case 4: Pollicization**

*Donald Bae, MD; Charles Goldfarb, MD; Dan Zlotolow, MD*

11:35 AM–11:40 AM

**Discussion**

*Hilton Gottschalk, MD and Lindley Wall, MD*



# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – HIP: FROM THE SUBLIME TO THE RIDICULOUS!

Room: 101

**Moderators:** *Simon Kelley, MD and Stephanie Pun, MD*

This hip symposium will cover two extreme situations regularly seen in our hip dysplasia practice both of which cause great anxiety regarding the best treatment. We start with stable dysplasia in the infant, where there is still so much practice variation. Should we treat, or observe, or have we reached the point where we should get ourselves together and organize a multicenter trial to answer the recurring question once and for all? We then move to the other end of the spectrum, the adolescent with severe dysplasia and degeneration. Has hip preservation surgery gone too far, or is there value in heroic efforts to obtain a few more years of native joint life, or are we just delaying the inevitable and complicating later reconstruction? Would the patient be better served with an early hip replacement? Join us for a lively interactive debate on the burning issues in the treatment of hip dysplasia.

### Period 1: 7:30 AM–9:30 AM

*Sponsored by OrthoPediatrics*

7:30 AM–7:35 AM Welcome & Remarks

**13**

7:36 AM–7:40 AM

#### Normal Development of the Secondary Ossification Centers of the Acetabulum and Their Effects on Acetabular Coverage of the Femoral Head

*Yoon Joo Cho; Young Min Choi; Mi Hyun Song; Tae-Joon Cho, MD; In Ho Choi, MD; Chang-Ho Shin, MD*

*Seoul National University Children's Hospital, Seoul, Republic of Korea*

**14**

7:41 AM–7:45 AM

#### Are the Patient-reported Outcomes After PAO for the Treatment of Symptomatic Hip Dysplasia in Adolescent Patients with Ehlers-Danlos Syndrome Comparable to Those Without?

*Camille Sullivan; Lei Zhao; Molly Uchtman; James McCarthy, MD; Patrick Whitlock, MD, PhD*

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

**15**

7:46 AM–7:50 AM

#### 3D ultrasound better predicts residual dysplasia following previously "successful" Pavlik treatment of infantile DDH: the importance of the femoral head centering

*Nathan Houlihan; Daniel Yang; Isabel Smith; Jessica Knight; Abhilash Rakkunedeth Hareendranathan; Sukhdeep Dulai, MD; Jacob Jaremko; Wudbhav Sankar, MD*

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





## SUBSPECIALTY DAY PROGRAM

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7:51 AM–7:59 AM Discussion

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**16**

8:00 AM–8:04 AM

**Medium Term Outcomes of Surgical Hip Dislocation in the Treatment of Residual Deformities Secondary to Perthes Disease with Minimum 5-year Follow-Up**

*Pranai Buddhdev, BSc, MBBS, MSc (OrthEng), FRCS (Tr&Orth);*

*Anshul Sobti; Tahir Khan; Aresh Hashemi-Nejad*

*Royal National Orthopaedic Hospital, Stanmore, London, United Kingdom*

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**17**

8:05 AM–8:09 AM

**Legg Calve Perthes Disease (LCPD), a New End Result Classification assessing Head, Acetabulum, and Trochanter (HAT)**

*John Anthony “Tony” Herring, MD, FRCS; Harry Kim, MD*

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

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**18**

8:10 AM–8:14 AM

**Pathogenic Gene Variants Identified in Patients Presenting with Perthes or Perthes-like Hip Disorder**

*Gabrielle Marchelli; Candelaria Mercado; Corey Gill, MD;*

*Harry Kim, MD*

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

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8:15 AM–8:23 AM

Discussion

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**Part A: Borderline Baby! How Should We Treat the Stable Dysplastic Hip?**

8:25 AM–8:30 AM

**Introduction**

*Simon Kelley, MD*

**Debate 1: The 6-Week-Old Infant with Stable Dysplasia**

8:31 AM–8:38 AM

**The Evidence Supports Early Brace Treatment**

*V. Salil Upasani, MD*

8:39 AM–8:46 AM

**The Evidence Supports Observation**

*Gaia Georgopoulos, MD*

8:47 AM–8:54 AM

**The Evidence is Inconclusive and Registry Data Will Give Us the Answer**

*Kishore Mulpuri, MBBS, MHSc, FRCSC*

8:55 AM–9:05 AM

**Case Discussion with Polling & Audience Questions**



SUBSPECIALTY DAY PROGRAM

Debate 2: The 3-Year-Old with High Acetabular Index

9:06 AM–9:13 AM	<b>Early Surgical Treatment is Indicated</b> <i>Emily Dodwell, MD</i>
9:14 AM–9:21 AM	<b>Observe! No Surgical Treatment is Necessary</b> <i>Meghan Imrie, MD</i>
9:22 AM–9:30 AM	<b>Case Discussion with Polling, Audience Questions, &amp; Wrap-Up</b>
9:35 AM–9:55 AM	Coffee Break/Exhibits

SUBSPECIALTY DAY – HIP (CONTINUED)

Period 2: 10:00 AM–11:40 AM Sponsored by OrthoPediatrics

19	
10:00 AM–10:04 AM	<b>Anterior Approach for Open Reduction and Internal Fixation (ORIF) of Acute Unstable Slipped Capital Femoral Epiphysis</b> <i>Katherine Wood; Thomas Lewis, MD</i> <i>University of Oklahoma Health Science Center, Oklahoma City, OK</i>
20	
10:05 AM–10:09 AM	<b>Proportion of Obesity in Stable SCFE is Higher Than in Unstable SCFE: A Multicentre, International Prospective Registry Study</b> <i>Emily Schaeffer, PhD; Bryn Zomar, PhD; Eduardo Novais, MD; David Bade, MD; Wudbhav Sankar, MD; Kevin Smit, MD; Debra Bartley, MD; Randall Loder, MD; Kishore Mulpuri, MBBS, MHSc, FRCSC</i> <i>BC Children’s Hospital, Vancouver, BC, Canada</i>
21	
10:10 AM–10:14 AM	<b>Outcomes of Modified Dunn Procedure Versus Delayed Imhauser Osteotomy for Moderate to Severe Stable Slipped Capital Femoral Epiphysis</b> <i>Michael Chau; Lauren Osborne; Laura Mayfield, MPH; Chan-Hee Jo, PhD; William Morris, MD; David Podeszwa, MD; Daniel Sucato, MD, MS</i> <i>Texas Scottish Rite Hospital for Children, Dallas, TX</i>
10:15 AM–10:23 AM	Discussion



## SUBSPECIALTY DAY PROGRAM

22

10:24 AM–10:28 AM

**Femoral Head Core Decompression and Bone Marrow Concentrate Injection in Pediatric Sickle-Cell Related Avascular Necrosis**

*Soroush Baghdadi, MD; Irene Chern; Leila Mehraban Alvandi, PhD; Eric Fornari, MD  
Children's Hospital at Montefiore, Bronx, NY*

23

10:29 AM–10:33 AM

**Does Screening Ultrasound Timing in Developmental Dysplasia of the Hip Need to be Adjusted for Prematurity: A Prospective Study**

*Claire Hockett; Laura Mayfield, MPH; Corey Gill, MD; Harry Kim, MD; Daniel Sucato, MD, MS; David Podeszwa, MD; William Morris, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX*

24

10:34 AM–10:38 AM

**The Adequacy of a Single follow up Radiograph in Children screened with Developmental Dysplasia of the Hip at birth**

*Angeline Aw Ai Ling; Nicole Lee; Kenneth Pak Leung Wong; Arjandas Mahadev, FRCS  
KK Women's and Children's Hospital, Singapore, Singapore*

10:39 AM–10:47 AM

Discussion

**Part B: The Last Hurrah! Managing Degenerative Dysplasia in the Adolescent**

10:50 AM–10:55 AM

**Introduction**

*Stephanie Pun, MD*

10:56 AM–11:04 AM

**What Are the Limits of Hip Preservation?**

*Rachel Goldstein, MD*

11:05 AM–11:13 AM

**When to Consider Extreme Osteotomies or Arthrodesis?**

*Claire Shannon, MD*

11:14 AM–11:22 AM

**Total Hip Replacement in Adolescents is the Future!**

*Mark Figgie, MD*

11:23 AM–11:35 AM

**Case Discussion & Polling**

11:36 AM–11:40 AM

Discussion





# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – LOWER EXTREMITY

Room: 103

**Moderators:** *Sanjeev Sabharwal, MD, MPH and Jeanne Franzone, MD*

The first session will include updates on the relevance of knee height asymmetry, evaluation of an injured physis using functional MRI, and the use of extramedullary internal lengthening techniques in children. Controversies around sleeper plates and the management of anterolateral bowing of the tibia will be framed around debates.

### Period 1: 7:30 AM–9:30 AM

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7:30 AM–7:35 AM	Welcome & Remarks
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<b>25</b> 7:36 AM–7:40 AM	<b>The Modified Fels Knee Skeletal Maturity System in Prediction of Leg-Length Discrepancy</b> <i>Dylan Kluck, MD; Marina Makarov; David Podeszwa, MD; Raymond Liu, MD; Chan-Hee Jo, PhD; John Birch, MD; Ryan Furdock</i> <i>Texas Scottish Rite Hospital for Children, Dallas, TX</i>
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<b>26</b> 7:41 AM–7:45 AM	<b>The Reliability of the Modified Fels Knee Skeletal Maturity System</b> <i>Ryan Furdock; Kristie Sun; Bryan Ren; Matthew Folkman; Michael Glotzbecker, MD; Jochen Son-Hing, MD, FRCSC; Allison Gilmore, MD; Christina Hardesty, MD; R. Justin Mistovich, MD; Raymond Liu, MD</i> <i>Rainbow Babies and Children's Hospital, Case Western Reserve University, Cleveland, OH</i>
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<b>27</b> 7:46 AM–7:50 AM	<b>Skeletal Maturity System Agreement: A Comparison of 7 Different Systems</b> <i>Kallie Chen; Amog Mysore; Ryan Furdock; Michael Glotzbecker, MD; Raymond Liu, MD</i> <i>University Hospitals/Case Western University, Cleveland, OH</i>
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7:51 AM–7:59 AM	Discussion
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<b>28</b> 8:00 AM–8:04 AM	<b>Achondroplasia: The Ruse of Rhizomelia</b> <i>Aaron Huser, DO; Craig Robbins, MD; Dror Paley, MD; David Feldman, MD</i> <i>The Paley Orthopedic and Spine Institute, West Palm Beach, FL</i>
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## SUBSPECIALTY DAY PROGRAM

29

8:05 AM–8:09 AM

### Validity of the Patient Reported Outcome Measurement Information System (PROMIS®) in Children and Adolescents with Lower Extremity Conditions

*Nicholas Sullivan; Patricia Miller, MS; Susan Mahan, MD; Samantha Spencer, MD; James Kasser, MD; Matthew Milewski, MD; Dennis Kramer, MD; Collin May, MD  
Boston Children's Hospital, Boston, MA*

30

8:10 AM–8:14 AM

### Optimizing Femoral Version Measurements in Pediatrics: Inter- and Intra-Rater Reliability Support the Method of Lee and Posterior Condylar Axis to Measure Femoral Version

*Peter Cirrincione; Erikson Nichols; Kiranpreet Nagra; Julia Retzky; Shevaun Doyle, MD; Jessica Heyer, MD; Emily Dodwell, MD  
Hospital for Special Surgery, New York City, NY*

8:15 AM–8:23 AM

Discussion

### Part A: Updates & Controversies

8:25 AM–8:26 AM

#### Introduction

*Jeanne Franzone, MD*

8:27 AM–8:34 AM

#### Knee Height Asymmetry - Does it Matter?

*Reggie Hamdy, MD*

8:35 AM–8:42 AM

#### Functional MRI of the Pysis

*Diego Jaramillo, MD, MPH*

8:43 AM–8:50 AM

#### Extra Medullary Internal Lengthening

*Christopher Iobst, MD*

8:51 AM–8:55 AM

Discussion

8:56 AM–8:57 AM

#### Debate Introduction. Sleeper Plates Should Be Left in for Future Guided Growth?

*Jeanne Franzone, MD*

8:58 AM–9:03 AM

#### Debate: Pro

*John Herzenberg, MD*

9:04 AM–9:09 AM

#### Debate: Con

*Mark Eidelman, MD*



SUBSPECIALTY DAY PROGRAM

9:10 AM–9:12 AM	<b>Debate Introduction. Anterolateral Bowing of the Tibia - Cross Union Versus Guided Growth?</b> <i>Jeanne Franzone, MD</i>
9:13 AM–9:18 AM	<b>Guided Growth</b> <i>Mark Dahl, MD</i>
9:19 AM–9:24 AM	<b>Cross Union</b> <i>Dror Paley, MD</i>
9:25 AM–9:30 AM	Discussion
9:35 AM–9:55 AM	Coffee Break/Exhibits

SUBSPECIALTY DAY – LOWER EXTREMITY (CONTINUED)

Period 2: 10:00–11:40

<b>31</b>	
10:00 AM–10:04 AM	<b>Does Lengthening With the Magnetic Intramedullary Nail Change the Mechanical Axis Zone</b> <i>Larysa Hlukha; Julio Jauregui; Kyle Kowalewski; Philip McClure, MD; Shawn Standard, MD; John Herzenberg, MD</i> <i>Sinai Hospital of Baltimore, Rubin Institute For Advanced Orthopedics, Baltimore, MD</i>
<b>32</b>	
10:05 AM–10:09 AM	<b>Does percentage of tibial canal reaming for insertion of intramedullary nail to correct limb length discrepancy influence consolidation time</b> <i>Larysa Hlukha; Oliver Sax, DO; Kyle Kowalewski; John Herzenberg, MD; Philip McClure, MD</i> <i>Sinai Hospital of Baltimore, Rubin Institute For Advanced Orthopedics, Baltimore, MD</i>
<b>33</b>	
10:10 AM–10:14 AM	<b>Intramedullary Rodding of Long Bones in Patients with Osteogenesis Imperfecta: To Supplement with a Plate or Not to Supplement with a Plate?</b> <i>Amelia Lindgren, MD; Kenneth Rogers, PhD, ATC; Richard Kruse, DO, MBA; Michael Bober; Cristina McGreal; Jeanne Franzone, MD</i> <i>Nemours Children’s Hospital, Delaware, Wilmington, DE</i>
10:15 AM–10:23 AM	Discussion





## SUBSPECIALTY DAY PROGRAM

**34**

10:24 AM–10:28 AM

**Hibernation of Percutaneous Hemiepiphyseodesis Plates is Safe in Congenital Longitudinal Deficiencies**

*Claire Shannon, MD; Corey Fuller, MD; Vincent Eaton; Dror Paley, MD  
Paley Orthopedic and Spine Institute, West Palm Beach, FL*

**35**

10:29 AM–10:33 AM

**The Perils of Sleeper Plates in Multiple Hereditary Exostosis: Retrospective Cohort Demonstrates 100% Rate of Tibial Overcorrection due to Bony Exostosis Tethering at the Empty Hole**

*Julia Retzky; Nicolas Pascual-Leone; Erikson Nichols; Peter Cirrincione; John Blanco, MD; Roger Widmann, MD; Emily Dodwell, MD  
Hospital for Special Surgery, New York City, NY*

**36**

10:34 AM–10:38 AM

**A Comparative Study on Terminal Hemimelia versus Fibular Hemimelia: Is Fibular Hypoplasia an Essential Prerequisite of Fibular Hemimelia?**

*Mi Hyun Song; Yoon Joo Cho; Chang-Ho Shin, MD; Tae-Joon Cho, MD  
Seoul National University Children's Hospital, Seoul, Republic of Korea*

10:39 AM–10:47 AM

Discussion

### **Part B: Staying Out of Trouble**

10:50 AM–10:51 AM

**Introduction**

*Jeanne Franzone, MD*

10:52 AM–11:00 AM

**Pitfalls in the Management of Children with Skeletal Dysplasia**

*W.G. Stuart Mackenzie, MD*

11:01 AM–11:09 AM

**Osteogenesis Imperfecta: Tips and Tricks**

*Jeanne Franzone, MD*

11:10 AM–11:18 AM

**Knee Instability in Limb Lengthening: Prevention and Management**

*Philip McClure, MD*

11:19 AM–11:27 AM

**Managing Children with Lower Limb Deformities: Lessons Learned**

*Sanjeev Sabharwal, MD, MPH*

11:28 AM–11:40 AM

Discussion



# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – NEUROMUSCULAR: FROM TOXINS TO TENDONS

Room: 209

**Moderators:** *Tom Novacheck, MD and Rachel Thompson, MD*

This year’s first session will be a mixture of novel scientific presentations and discussions on the pathophysiology of cerebral palsy. A variety of topics will be covered by experts in the field of the muscular pathology associated with spastic cerebral palsy as well as the effects of neurotoxin on this altered musculature, with a lively discussion of a perennially debated topic—the utility and consequences of neurotoxins in this population.

### Period 1: 7:30 AM–9:30 AM

7:30 AM–7:35 AM      Welcome & Remarks

**37**  
7:36 AM–7:40 AM      **Discrimination between Hereditary Spastic Paraplegia and Cerebral Palsy based on Gait Analysis Data: a Machine Learning Approach**  
*Kristen Carroll, MD; Bruce MacWilliams; Alan Stotts, MD; Lynne Kerr; Michael Schwartz*  
*Shriners Children’s Salt Lake City, Salt Lake City, UT*

**38**  
7:41 AM–7:45 AM      **Kinematic Trajectories Throughout Childhood in Cerebral Palsy: The Influence of Age and Orthopedic Surgery**  
*Nancy Lennon, MS, PT, DPT; Chris Church; Daniel Wagner; Timothy Niler; John Henley; Freeman Miller, MD; M. Wade Shrader, MD; Jason Howard, MD*  
*Nemours Children’s Hospital, Delaware, Wilmington, DE*

**39**  
7:46 AM–7:50 AM      **Inheritance Pattern in Hereditary Spastic Paraparesis Influences Gait Deviations**  
*Robert Lane Wimberly, MD; Lizabeth Bunkell; Cinthya Meza; Michelle Christie; Kelly Jeans*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*

7:51 AM–7:59 AM      Discussion

**40**  
8:00 AM–8:04 AM      **Single Event Multilevel Surgery (SEMLS) for Children with Cerebral Palsy (CP) – Does Adding a Second Surgeon Make a Difference?**  
*Michelle Mo, MD; Patricia Miller, MS; Sachin Pathangey; Brian Snyder, MD; Colyn Watkins, MD; Benjamin Shore, MD, MPH, FRCSC*  
*Boston Children’s Hospital, Boston, MA*



## SUBSPECIALTY DAY PROGRAM

41

8:05 AM–8:09 AM

### **Is Cell Salvage Truly Needed in Single Event Multilevel Surgery (SEMLS)?**

*Michelle Mo, MD; Hillary Nguyen; Danielle Cook; Robert Brustowicz; Benjamin Shore, MD, MPH, FRCSC  
Boston Children's Hospital, Boston, MA*

42

8:10 AM–8:14 AM

### **Does Size Really Matter? Incidence of Peri-prosthetic Fractures After Femoral Osteotomy in Patients with Cerebral Palsy**

*Sam Wimmer; Tishya Wren, PhD; Susan Rethlefsen, PT; Oussama Abousamra, MD; Robert Kay, MD  
Children's Hospital Los Angeles, Los Angeles, CA*

8:15 AM–8:23 AM

Discussion

### **Part A: Nerves & Muscles**

8:24 AM–8:27 AM

### **Introduction (Muscle Function and Hypertonia in CP)**

*Tom Novacheck, MD*

8:28 AM–8:46 AM

### **Muscle Disease in CP**

*Kristen Stearns-Reider, PhD, PT*

8:47 AM–8:56 AM

### **The Effects of Neurotoxins on Muscle Histology**

*Jason Howard, MD*

8:57 AM–9:06 AM

### **Debate: Pro (Botulinum Toxin)**

*Mark Gormley, MD*

9:07 AM–9:16 AM

### **Debate: Con (Botulinum Toxin)**

*Jason Howard, MD*

9:17 AM–9:25 AM

### **Rebuttals**

*Mark Gormley, MD and Jason Howard, MD*

9:26 AM–9:30 AM

Panel Discussion

9:35 AM–9:55 AM

Coffee Break/Exhibits





# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – NEUROMUSCULAR (CONTINUED)

### Period 2: 10:00–11:40

**43**

10:00 AM–10:04 AM

**Long-term results of posterior medial lateral release for neuromuscular clubfoot deformity**

*Jared May; Jill Larson, MD*

*Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL*

**44**

10:05 AM–10:09 AM

**Is Simple Talectomy a Good Salvage Procedure for Severe Foot Deformity?**

*Marianne Frydendal Nielsen; Jan Rolting; Michael Davidsen;*

*Line Pedersen; Bjarne Moeller-Madsen, MD*

*Aarhus University Hospital, Aarhus, Denmark*

**45**

10:10 AM–10:14 AM

**Medial Column Soft Tissue Plication with Internal Brace Augmentation Following Lateral Column Lengthening in the Ambulatory Pediatric Cerebral Palsy Population with Pes Planovalgus Foot Deformities: A Novel Indication**

*Sean Tabaie, MD; Ariana Gonzalez; Kelly McKeon; Smitha Mathew*

*Children's National Hospital, Washington, DC*

10:15 AM–10:23 AM

Discussion

**46**

10:24 AM–10:28 AM

**Gait Changes Over Time in Children with Charcot-Marie-Tooth Disease**

*Kristan Pierz, MD; Sylvia Ounpuu; Tishya Wren, PhD; Gyula Acsadi*

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

**47**

10:29 AM–10:33 AM

**Pes Valgus and Tibial Torsion in Ambulatory Children with Cerebral Palsy**

*Oussama Abousamra, MD; Eva Ciccodicola; Tishya Wren, PhD*

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

**48**

10:34 AM–10:38 AM

**Reproducibility of Winters et al. Classification and Prevalence of Transverse Plane Asymmetry in Spastic Hemiplegic Cerebral Palsy**

*Mauro Morais Filho, MD; Marcelo Fujino; Catia Kawamura;*

*Jose Augusto Lopes*

*AACD, São Paulo, SP, Brazil*



# SUBSPECIALTY DAY PROGRAM

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10:39 AM–10:47 AM      Discussion

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## Part B: Genes & Knees

This second session will involve a mixture of scientific presentations, a discussion on the genetic etiology of cerebral palsy, and an examination of patellar distalization, with presentations on divergent surgical practices offered by leading neuromuscular surgeons as well as interactive case discussions on the management of crouch gait.

10:50 AM–10:53 AM      **Introduction**  
*Rachel Thompson, MD*

10:54 AM–11:07 AM      **Genetics of CP**  
*Michael Kruer, MD*

11:08 AM–11:12 AM      **Discussion**  
*Rachel Thompson, MD*

11:13 AM–11:19 AM      **Surgical Technique: Patellar Tendon Advancement for Crouch Gait in CP**  
*Andrew Georgiadis, MD*

11:20 AM–11:26 AM      **Surgical Technique: Patellar Tendon Shortening for Crouch Gait in CP**  
*Paulo Selber, MD*

11:27 AM–11:34 AM      **Case Discussion & Polling**  
*Tom Novacheck, MD and Rachel Thompson, MD*

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11:35 AM–11:40 AM      Discussion

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# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – SPINE: BACK PAIN IS A PAIN IN THE NECK

Room: Karl Dean Ballroom BC

**Moderators: Patrick Cahill, MD and Brandon Ramo, MD**

Back pain is the most common chief complaint for an outpatient physician visit in the U.S. Teens and adolescents are facing increasing rates of mental health problems following the pandemic. With these two issues colliding to create an unprecedented epidemic of pediatric back pain, what do we do about it?

### Period 1: 7:30 AM–9:30 AM

7:30 AM–7:35 AM Welcome & Remarks

**49**

7:36 AM–7:40 AM

#### 3D Vertebral Body Shape Changes after Anterior Vertebral Body Tethering Dependent on Skeletal Growth

*Joshua Speirs, MD; Stefan Parent, MD, PhD; Michael Kelly, MD; V. Salil Upasani, MD; Tracey Bastrom, MA; Peter Newton, MD  
Rady Children's Hospital - San Diego, San Diego, CA*

**50**

7:41 AM–7:45 AM

#### Do Tethered Vertebrae Grow?

*Daniel Farivar; Michael Heffernan, MD; Ron El-Hawary, MD, MSc; A. Noelle Larson, MD; Firoz Miyajni, MD, FRCSC; Stefan Parent, MD, PhD; Lindsay Andras, MD; David Skaggs, MD  
Cedars-Sinai Medical Center, Los Angeles, CA*

**51**

7:46 AM–7:50 AM

#### Less than 10% of Patient's Major Cobb Angle Improved After Vertebral Body Tethering Surgery Following First Erect Radiograph

*Tiffany Phan; Tishya Wren, PhD; Firoz Miyajni, MD, FRCSC; Stefan Parent, MD, PhD; Michelle Welborn, MD; David Skaggs, MD; Kenneth Illingworth, MD; Lindsay Andras, MD  
Children's Hospital Los Angeles, Los Angeles, CA*

7:51 AM–7:59 AM

Discussion

**52**

8:00 AM–8:04 AM

#### Risk of UPROR Increases with Increased Curve Correction After Fusion in Severe Syndromic and Neuromuscular Early Onset Scoliosis (EOS)

*Rishi Sinha; Alondra Concepción-González; Theodore Quan; Hiroko Matsumoto, PhD; Afrain Boby; Michael Vitale, MD, MPH; Amer Samdani, MD; Lindsay Andras, MD; Mark Erickson, MD; Purnendu Gupta, MD; Joshua Pahys, MD; Benjamin Royce, MD;  
Pediatric Spine Study Group  
Columbia University Irving Medical Center, New York City, NY*



## SUBSPECIALTY DAY PROGRAM

53

8:05 AM–8:09 AM

**Is Spondylothoracic Dysplasia (Jarcho-Levin) a core surgical indication for a V-osteotomy Rib based expansion thoracoplasty of the posterior fused ribs**

*Norman Ramirez-Lluch, MD; Carlos Monroig-Rivera; Edwin Rosado; Norma Arciniegas-Medina; Alberto Santiago Cornier; Wilfredo De Jesus Rojas; Frances Velez-Bartolomei; Simon Carlo Mayaguez Medical Center, Mayaguez, PR*

54

8:10 AM–8:14 AM

**Scoliosis Development in Spinal Muscular Atrophy: The Influence of Genetic Severity, Functional Level, and Disease-Modifying Agents**

*Armagan Ulusaloglu, MD; Ali Asma, MD; William Mackenzie, MD; Mena Scavina; M Wade Shrader, MD; Jason Howard, MD Nemours Children's Hospital, Delaware, Wilmington, DE*

8:15 AM–8:23 AM

Discussion

### Part A

8:25 AM–8:29 AM

**Pediatric Back Pain Epidemic**

*Susan Nelson, MD, MPH*

8:30 AM–8:34 AM

**Opioid Addiction in Teens and Adolescents**

*Sheena Ranade, MD*

8:35 AM–8:44 AM

**The Role of Mental Health in Pediatric Back Pain**

*Emily Gale, PhD*

8:45 AM–8:53 AM

**Physical Therapy for Back Pain**

*Karina Zapata, PT, DPT, PhD*

8:54 AM–9:03 AM

Discussion

9:04 AM–9:09 AM

**Spinal Infections**

*Daniel Miller, MD*

9:10 AM–9:14 AM

**Grisel's Syndrome**

*Ishaan Swarup, MD*

9:15 AM–9:20 AM

**Spine Tumors**

*Alexandre Arkader, MD*

9:21 AM–9:30 AM

Discussion

9:35 AM–9:55 AM

Coffee Break/Exhibits





# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – SPINE (CONTINUED)

### Period 2: 10:00–11:40

55

10:00 AM–10:04 AM

#### Predicting Early Return to the Operating Room in Early Onset Scoliosis Patients using Machine Learning Techniques

*Brett Lullo, MD; Patrick Cahill, MD; Jason Anari, MD  
Children's Hospital of Philadelphia, Philadelphia, PA*

56

10:05 AM–10:09 AM

#### Mobile device based surface topography is a better predictor of spinal deformity than scoliometer

*Yousi Oquendo; Xochitl Bryson; Taylor Harris; Joanna Langner;  
Nadine Javier; Ann Richey; Kali Tileston, MD; Michael Gardner;  
John Vorhies, MD  
Stanford University Medical Center, Stanford, CA*

57

10:10 AM–10:14 AM

#### Do Smoke Evacuation Electrocautery Systems Reduce Levels of Harmful Compounds in Pediatric Spine Operating Rooms?

*Sreeharsha Nandyala, MD; Lucas Annabell; Akshay Seth; Grant Hogue,  
MD; Craig Birch, MD; Daniel Hedequist, MD; Brian Snyder, MD  
Boston Children's Hospital, Boston, MA*

10:15 AM–10:23 AM

Discussion

58

10:24 AM–10:28 AM

#### Pre-operative Psychosocial Assessment in Pediatric Patients with Cerebral Palsy Decreases Length of Stay after Spine Fusion

*Nancy Lennon MS, PT, DPT; Carolyn Sewell-Roberts; Tolulope Banjo;  
Denver Kraft; Arianna Trionfo, MD; Jose Salazar-Torres;  
M Wade Shrader, MD  
Nemours Children's Hospital, Delaware, Wilmington, DE*

59

10:29 AM–10:33 AM

#### A Novel Hinge-Link Correction System for Vertebral Column Resection: A Pilot Study in a Porcine Model

*Hong Zhang, MD; Daniel Sucato, MD, MS; John Ross  
Texas Scottish Rite Hospital for Children, Dallas, TX*



## SUBSPECIALTY DAY PROGRAM

60

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10:34 AM–10:38 AM **Pelvic Fixation in Pediatric Spine Deformity Patients Using Robotics Coupled With Navigation – Intraoperative Experience**  
*Nicole Welch; Daniel Hedequist, MD; Danielle Cook; Craig Birch, MD*  
*Boston Children's Hospital, Boston, MA*

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10:39 AM–10:47 AM Discussion

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### Part B

10:50 AM–10:56 AM **Spondylolisthesis: Classification and Etiology**  
*Sumeet Garg, MD*

10:57 AM–10:59 AM **Debate: High Grade Spondylolisthesis Case Presentation**  
*Jason Anari, MD*

11:00 AM–11:06 AM **Anterior Technique**  
*Michael Kelly, MD*

11:07 AM–11:13 AM **Posterior Technique**  
*Stefan Parent, MD, PhD*

11:14 AM–11:16 AM **Debate: Pars Repair Technique Case Presentation & Audience Poll**  
*Megan Johnson, MD*

11:17 AM–11:23 AM **L5 Pars: Repair and Save the Motion**  
*Firoz Miyanji, MD, FRCSC*

11:24 AM–11:30 AM **L5 Spondy: Just Fuse to S1**  
*Peter Sturm, MD*

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11:31 AM–11:40 AM Discussion

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# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – SPORTS: DEBATES ON CONTROVERSIAL TOPICS IN SPORTS MEDICINES

Room: 106

**Moderators: Andrew Pennock, MD and Nirav Pandya, MD**

The sports session talks will utilize a debate format. The focus will be on controversial topics ranging from shoulder and knee instability to clavicle fractures in adolescent patients. Several debates will discuss the role for early surgical stabilization compared to non-operative management (clavicle fractures, 1st time shoulder dislocations, and 1st time patella dislocations). The remaining debates will focus on surgical techniques with a focus on each surgeon's preferred technique as well as any technical pearls they have for the audience.

### Period 1: 7:30 AM–9:30 AM

7:30 AM–7:35 AM	Welcome & Remarks
61 7:36 AM–7:40 AM	<b>Intermediate-Term Functional Outcomes after Posterior Cruciate Ligament Injury in Pediatric and Adolescent Patients: Isolated Injury Portends Improved Outcomes</b> <i>Garrett Rupp; Katherine Adrian; James Bomar, MPH; Justin Chau; Andrew Pennock, MD; Eric Edmonds, MD</i> <i>Rady Children's Hospital - San Diego, San Diego, CA</i>
62 7:41 AM–7:45 AM	<b>Parent and Child PROMIS Scores Differ for Athletes</b> <i>Corinna Franklin, MD; Emily Nice; Jeremy Bauer, MD</i> <i>Shriners Children's Philadelphia, Philadelphia, PA</i>
63 7:46 AM–7:50 AM	<b>Biologic Augmentation in Anterior Cruciate Ligament Reconstruction: What Matters?</b> <i>Paul Fleissner, MD</i> <i>Crystal Clinic Orthopaedic Center, Akron, OH</i>
7:51 AM–7:59 AM	Discussion
64 8:00 AM–8:04 AM	<b>Functional Outcomes of Non-Operative Management of First-Time Patellar Dislocation in the Pediatric Population</b> <i>Soroush Baghdadi, MD; Alexandria Debasitis; Kathryn Segal; Steven Henick; Jayson Lian; Mauricio Drummond, MD; Leila Mehraban Alvandi, PhD; Eric Fornari, MD</i> <i>Children's Hospital at Montefiore, Bronx, NY</i>



# SUBSPECIALTY DAY PROGRAM

65

8:05 AM–8:09 AM

## Demographic and Clinical Characteristics of Patellar Instability Patients from Prospective JUPITER (Justifying Patellar Instability Treatment by Early Results) Cohort

Meghan Bishop; Jacqueline Brady; Simone Gruber; Matthew Veerkamp; Joseph Nguyen; **Benton Heyworth, MD**; Marc Tompkins; Daniel Green, MD; Eric Wall, MD; JUPITER GROUP; Beth Shubin Stein; Shital Parikh, MD, FACS  
Cincinnati Children's Hospital Medical Center, Cincinnati, OH

66

8:10 AM–8:14 AM

## Midterm (5 years) Outcomes of Isolated Medial Patellofemoral Ligament Reconstruction for Recurrent Patellar Instability in Ehlers-Danlos Syndrome

Shital Parikh, MD, FACS; James Nemunaitis; Eric Wall, MD; Rajul Gupta; Matthew Veerkamp  
Cincinnati Children's Hospital Medical Center, Cincinnati, OH

8:15 AM–8:23 AM

Discussion

### Part A

8:25 AM–8:26 AM

## Clavicle Fractures in the Throwing Athlete–Case Introduction

Nirav Pandya, MD

8:27 AM–8:33 AM

## Non-Op

Ying Li, MD

8:34 AM–8:40 AM

## Operative Fixation

David Spence, MD

8:41 AM–8:43 AM

## 1st Time Shoulder Dislocation–Case Presentation

Andrew Pennock, MD

8:44 AM–8:50 AM

## Non-Op

Matthew Ellington, MD

8:51 AM–9:57 AM

## Operative Stabilization

Jonathan Riboh, MD

8:58 AM–9:00 AM

## Capitellar OCD–Case Presentation

Nirav Pandya, MD

9:01 AM–9:07 AM

## Scope Debridement +/- Marrow Stimulation

Henry Ellis, MD

9:08 AM–9:14 AM

## Osteochondal Graft

Donald Bae, MD





# SUBSPECIALTY DAY PROGRAM

9:15 AM–9:30 AM	Panel Discussion
9:35 AM–9:55 AM	Coffee Break/Exhibits

## SUBSPECIALTY DAY – SPORTS (CONTINUED)

### Period 2: 10:00–11:40

67	
10:00 AM–10:04 AM	<b>Activity Influences Location and Characteristics of OCD of the Capitellum</b> <i>Sharon Huang; Charles Wyatt, NP; Benjamin Johnson; Henry Ellis, MD; Philip Wilson, MD</i> <i>Texas Scottish Rite Hospital for Children, Dallas, TX</i>
68	
10:05 AM–10:09 AM	<b>A Comparison of Outcomes in the Surgical Stabilization of Adolescents With Glenolabral Articular Disruption Versus an Isolated Bankart Lesion</b> <i>Caitlin Orner, MD; Tracey Bastrom, MA; Andrew Pennock, MD; Eric Edmonds, MD</i> <i>Rady Children's Hospital - San Diego, San Diego, CA</i>
69	
10:10 AM–10:14 AM	<b>A Predictive Model for Mobile vs. Immobile Osteochondritis Dissecans Lesions of the Knee</b> <i>Matthew Milewski, MD; Patricia Miller, MS; Ryan Coene; Marc Tompkins; Greg Myer</i> <i>Boston Children's Hospital, Boston, MA</i>
10:15 AM–10:23 AM	Discussion
70	
10:24 AM–10:28 AM	<b>The difference in trochlear tuberosity to trochlear groove distance between CT and MRI arises from the degree of knee flexion during imaging: a propensity score matching and cross-validation study</b> <i>Kunhyung Bae; Amaal Aldosari; Michael Kang</i> <i>Asan Medical Center, Seoul, Republic of Korea</i>



# SUBSPECIALTY DAY PROGRAM

71

10:29 AM–10:33 AM

## Repair of Radial Meniscus Tears in Pediatric Patients: Results from a 16-Institution Multicenter Quality Improvement Registry

*Jonathan Joyner; Keinan Agonias; Kevin Shea, MD; Matthew Rohde; Molly Meadows, MD; Benton Heyworth, MD; Matthew Milewski, MD; Eric Edmonds, MD; Philip Wilson, MD; Lizzie Adsit; Gregory Knell; Riley Brayton; Henry Ellis, MD*  
Texas Scottish Rite Hospital for Children, Dallas, TX

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10:34 AM–10:38 AM

## Clinical Outcomes of 4-in-1 Quadricepsplasty for Habitual and Fixed Lateral Patellar Dislocation in Children

*Shital Parikh, MD, FACS; Nicholas Lopreiato*  
Cincinnati Children's Hospital Medical Center, Cincinnati, OH

10:39 AM–10:47 AM

Discussion

### Part B

10:50 AM–10:52 AM

## Optimal Lateral Sided Procedure in Conjunction with ACL Reconstructions—Case Introduction

*Andrew Pennock, MD*

10:53 AM–10:58 AM

## LET Tenodesis

*Daniel Green, MD*

10:59 AM–11:04 AM

## SATURN Reconstruction

*Benton Heyworth, MD*

11:05 AM–11:07 AM

## 1st Time Patella Dislocation—Case Introduction

*Nirav Pandya, MD*

11:08 AM–11:12 AM

## Non-Op

*Kevin Shea, MD*

11:13 AM–11:17 AM

## Acute Reconstruction

*Shital Parikh, MD, FACS*

11:18 AM–11:21 AM

## Failed MPFL—Case Introduction

*Andrew Pennock, MD*

11:22 AM–11:27 AM

## Trochleoplasty

*John Schlechter, DO*

11:28 AM–11:33 AM

## Tubercle Treatment and Revision MPFL

*Samuel Willimon, MD*

11:34 AM–11:40 AM

Panel Discussion



# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – TRAUMA

Room: 207

**Moderators: Ryan Muchow, MD and Benjamin Sheffer, MD**

The Trauma Subspecialty session will aim to challenge our collective ability to provide excellent care to pediatric trauma patients, both in the outcomes of specific fractures and the processes implemented to achieve outstanding results. Scientific presentations will allow an interactive discussion about the latest findings in trauma care. Additionally, a two-part didactic session will present to us a road map for advancing the care of pediatric fracture patients. The first session will focus on value opportunities in treating trauma patients. The second session will explore the changing landscape of pediatric trauma care in the outpatient setting. An all-star faculty lineup will serve as the guides on this expedition to enhance the care of our pediatric trauma patients.

### Period 1: 7:30 AM–9:30 AM

7:30 AM–7:35 AM	Welcome & Remarks
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<b>73</b> 7:36 AM–7:40 AM	<b>Validation of the Patient/Parent Reported Outcome Measure of Fracture Healing (PROOF-UE ) Questionnaire for Upper Extremity Fractures in Children</b> <i>Lauren Di Nola; Unni Narayanan, MD, FRCSC; Anne Murphy; Mark Camp, MD; Jacqueline Chan; Emily Ho; Cornelia Borkhoff The Hospital for Sick Children, Toronto, ON, Canada</i>
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<b>74</b> 7:41 AM–7:45 AM	<b>Does Shorter Time to Treatment of Pediatric Supracondylar Humerus Fractures Impact Clinical Outcomes?</b> <i>Mikaela Sullivan; Brian Wahlig; Samuel Broida; A. Noelle Larson, MD; Todd Milbrandt, MD Mayo Clinic, Rochester, MN</i>
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<b>75</b> 7:46 AM–7:50 AM	<b>If One Is Good, Two Must Be Better: Re-Fractures Rates among Both-Bone-Forearm Fractures in Operatively Treated Cases</b> <i>Akbar Syed; Leta Ashebo; J Todd Lawrence, MD, PhD Children’s Hospital of Philadelphia, Philadelphia, PA</i>
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7:51 AM–7:59 AM	Discussion
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<b>76</b> 8:00 AM–8:04 AM	<b>Regional Anesthesia as an Alternative to Procedural Sedation for Forearm Fracture Reductions</b> <i>Carmen Sulton; Joshua Murphy, MD; Nicholas Fletcher, MD; Scott Gillespie; Amanda Artis; Rebecca Burger Children’s Healthcare of Atlanta, Atlanta, GA</i>
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## SUBSPECIALTY DAY PROGRAM

77

8:05 AM–8:09 AM

### Comparing Non-Accidental Trauma Protocols Across the U.S. – Not All Are Created Equal

*Manya Bali; Scott Rosenfeld, MD; Benjamin Shore, MD, MPH, FRCSC  
Boston Children's Hospital, Boston, MA*

78

8:10 AM–8:14 AM

### Controlled Ankle Movement (CAM) Boot Provides Improved Outcomes with Lower Complications Than Short Leg Walking Cast in Low Energy Pediatric Lateral Ankle Injuries: A Prospective, Randomized Study

*Jennifer Beck, MD; Victoria Kang; Abbie Bennett; Summer Runestad;  
Nicholas Jackson  
Orthopedic Institute for Children, Los Angeles, CA*

8:15 AM–8:23 AM

Discussion

### Part A: Enhancing Value in the Management of Pediatric Fractures

8:25 AM–8:30 AM

#### Introduction

*Ryan Muchow, MD*

8:31 AM–8:39 AM

#### Moving Fracture Management from the ED to the ASC

*Jeffrey Sawyer, MD*

8:40 AM–8:45 AM

Discussion

8:46 AM–8:54 AM

#### Identifying Opportunities for Enhancing Outpatient Fracture Management–Top 5 Ways to Improve Outpatient Pediatric Fracture Care

*Craig Eberson, MD, FAOA*

8:55 AM–9:00 AM

Discussion

9:01 AM–9:09 AM

#### Anesthesia and Pain Control Considerations for Fx Work in ASC

*Jerry Jones, MD*

9:10 AM–9:15 AM

Discussion

9:16 AM–9:24 AM

#### Value Equation from a Patient's Perspective vs. the Physician's Perspective

*John "Jack" Flynn, MD*

9:25 AM–9:30 AM

Discussion

9:35 AM–9:55 AM

Coffee Break/Exhibits





# SUBSPECIALTY DAY PROGRAM

## SUBSPECIALTY DAY – TRAUMA (CONTINUED)

### Period 2: 10:00–11:40

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10:00 AM–10:04 AM

#### **Risk Factors for Stiffness After Fixation of Tibial Tubercle Fractures: A Multicenter Study**

*Lauren Spirov; Konstantin Brnjoš; Neil Kaushal, MD; Folorunsho Edobor-Osula, MD; Alexander Griffith; John Blanco, MD; Clare Kehoe; John Schlechter, DO; Evelyn Thomas, DO; Lindsay Crawford, MD; Abhi Rashiwala; Dustin Greenhill, MD; Haley Tornberg; Brendan Williams, MD; Kevin Huang; Neeraj Patel, MD, MPH*  
*Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL*

80

10:05 AM–10:09 AM

#### **Long Leg Cast Versus Hinged Knee Brace Immobilization After Surgical Treatment Of Tibial Tubercle Fractures**

*Chizitam Ibezim; Joshua Cummings; Calvin Chandler; Courtney Matthews; Christopher Souder, MD; Brian Kaufman, MD; Matthew Ellington, MD*  
*University of Texas at Austin, Dell Medical School, Austin, TX*

81

10:10 AM–10:14 AM

#### **Evaluating the Outcomes of Long-term Orthopaedic Epiphyseal Screw Retention in Pediatric Distal Tibial Fractures**

*John Schlechter, DO; Kurt Barger; Evelyn Thomas, DO; Remy Zimmerman; William Fang; Garrett Rupp; Tracey Bastrom, MA; Andrew Pennock, MD*  
*Children's Hospital of Orange County, Orange, CA*

10:15 AM–10:23 AM

Discussion

82

10:24 AM–10:28 AM

#### **Treatment of Delbet II/III Pediatric Femoral Neck Fractures with Proximal Femoral Locking Plate Versus Canulated Screws**

*Timothy Harris; Shamrez Haider; Alexander Turner; David Podeszwa, MD; Courtney Hartman; William Morris, MD*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*



# SUBSPECIALTY DAY PROGRAM

83

10:29 AM–10:33 AM

**The Thoracolumbar Injury Classification and Severity Score Appropriately Predicts Treatment in Children Under the Age of 10**

*Tyler Metcalf; Katherine Sborov; Stephanie Moore-Lotridge, PhD; Gregory Mencio, MD; Jeffrey Martus, MD; Craig Louer Jr., MD  
Vanderbilt University Medical Center, Nashville, TN*

84

10:34 AM–10:38 AM

**Halo-Vest Immobilization is an Alternative to Posterior Cervical Fusion in the Treatment of Atlanto-Occipital Dissociation in Children**

*Matthew LaBarge; Tyler Metcalf; Stephanie Moore-Lotridge, PhD; Sumit Pruthi; Jarred Todd; Gregory Mencio, MD; Craig Louer Jr., MD; Jeffrey Martus, MD  
Vanderbilt University Medical Center, Nashville, TN*

10:39 AM–10:47 AM

Discussion

## **Part B: Expanding the Frontier of Pediatric Orthopaedic Trauma in the ASC**

10:50 AM–10:52 AM

**Introduction**

*Benjamin Sheffer, MD*

10:53 AM–10:57 AM

**Type II SCH Fracture**

*Derek Kelly, MD, FAAOS, FAOA*

10:58 AM–11:02 AM

**Type III SCH Fracture**

*Vincent Prusick, MD*

11:03 AM–11:10 AM

Discussion

11:11 AM–11:15 AM

**Stable SCFE**

*Eduardo Novais, MD*

11:16 AM–11:20 AM

**Tibia Tubercle & Shaft Fracture**

*Julia Sanders, MD*

11:21 AM–11:28 AM

Discussion

11:29 AM–11:33 AM

**Triplane/Bimalleolar Ankle Fx**

*Jennifer Laine, MD*

11:34 AM–11:40 AM

Discussion



SCIENTIFIC PROGRAM

- 11:50 AM–1:30 PM

**Member Business Meeting**  
Room: 104
- 1:40 PM–2:00 PM

**Meeting Welcome**  
Room: Karl Dean Ballroom BC

GENERAL SESSION I: TRAUMA & QUALITY, SAFETY, AND VALUE INDICATORS

Room: Karl Dean Ballroom BC

2:05 PM–3:30 PM

- 2:05 PM–2:10 PM

Welcome & Remarks

- 85

2:11 PM–2:15 PM

**Opioid vs. Non-Opioid Analgesia for Pediatric Supracondylar Humerus Fractures: Results from a Prospective Multicenter Trial**  
*Zoe Belardo BA; Divya Talwar; Todd Blumberg, MD; Susan Nelson, MD, MPH; V. Salil Upasani, MD; Wudbhav Sankar, MD; Apurva Shah, MD, MBA*  
*The Children's Hospital of Philadelphia, Philadelphia, PA*

- 86

2:16 PM–2:20 PM

**Outcomes in Operative vs. Non-Operative Management of Type 2 Pediatric Supracondylar Humerus Fractures: A Multi-Centre Prospective Cohort Trial**  
*Sasha Carsen, MD; Emily Schaeffer, PhD; Caitlyn Siu; Kishore Mulpuri, MBBS, MHSc, FRCSC; Christopher Reilly, MD*  
*BC Children's Hospital, Vancouver, BC, Canada*

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2:21 PM–2:25 PM

**Eliminating routine post-operative radiographs for surgically-managed paediatric supracondylar humerus fractures**  
*George Zhao; Eliane Rioux Trottier, MDCM; Kelvin Ng; Stanley Moll; Anne Murphy; Unni Narayanan, MD, FRCSC; Mark Camp, MD*  
*The Hospital for Sick Children, Toronto, ON, Canada*

- 2:26 PM–2:34 PM

Discussion

- 88

2:35 PM–2:39 PM

**Completely Displaced Midshaft Clavicle Fractures with Skin Tenting in Adolescents: Results from the FACTS Multi-center Prospective Cohort Study**  
*Joshua Pang; Samuel Willimon, MD; Philip Wilson, MD; Donald Bae, MD; Michael Busch, MD; Eric Edmonds, MD; Henry Ellis, MD; Mininder Kocher, MD; Ying Li, MD; Jeffrey Nepple, MD; Nirav Pandya, MD; Crystal Perkins, MD; Andrew Pennock, MD; Coleen Sabatini, MD, MPH; David Spence, MD; Benton Heyworth, MD*  
*Boston Children's Hospital, Boston, MA*



## SCIENTIFIC PROGRAM

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2:40 PM–2:44 PM

### **Anesthesia Complications of NPO Violations in Pediatric Orthopedic Emergencies**

*Andrew Nahr; Austin Sturdivant; Christian Roberts;  
Jeffrey Sawyer, MD; David Spence, MD; Benjamin Sheffer, MD;  
Derek Kelly, MD, FAAOS, FAOA  
Campbell Clinic Orthopaedics, Germantown, TN*

90

2:45 PM–2:49 PM

### **Pediatric Floating Elbows...What is All the Fuss About? A Multicenter Perspective**

*Jenny Zheng; Jaclyn Hill, MD; Anthony Riccio, MD; Julia Sanders, MD;  
Allan Beebe, MD; Keith Baldwin, MD; Benjamin Shore, MD, MPH,  
FRCSC; Rachel Goldstein, MD; Jonathan Schoenecker, MD, PhD;  
Todd Blumberg, MD; Ying Li, MD; Ishaan Swarup, MD;  
David Spence, MD; Kathleen Rickert, MD; Jaime Rice Denning, MD, MS  
Children's Hospital of Philadelphia, Philadelphia, PA*

2:50 PM–2:58 PM

Discussion

91

2:59 PM–3:03 PM

### **Implementation of Forearm and Wrist Treatment Algorithm Decreases Follow-up Burden, Improves Office Efficiency, and Decreases Cost**

*Trinity Samson; Amanda Edmonds; Arika Hull; Nikki McKenna;  
Cara Mossides; Denise Rapacz, NP, RN; Jessica Westfall;  
Richard Steiner; Lorena Floccari, MD; Todd Ritzman, MD  
Akron Children's Hospital, Akron, OH*

92

3:04 PM–3:08 PM

### **Safety First: Developing a Novel Real-Time Temperature Sensor System for Cast Saw Blades to Decrease Risk of Cast Saw Burns**

*Jenny Zheng; Leta Ashebo; J Todd Lawrence, MD, PhD;  
David Horn, MD  
Children's Hospital of Philadelphia, Philadelphia, PA*

93

3:09 PM–3:13 PM

### **Virtual Reality as an adjunct to pediatric cast removal: a randomized controlled trial**

*Andrew Georgiadis, MD; Jennifer Laine, MD; Walter Truong, MD  
Gillette Children's Specialty Healthcare, St. Paul, MN*

3:14 PM–3:22 PM

Discussion

3:35 PM–3:55 PM

Coffee Break/Exhibits





## SCIENTIFIC PROGRAM

### GENERAL SESSION II: ORTHOPAEDIC POTPOURRI: SOMETHING FOR EVERYONE

Room: Karl Dean Ballroom BC

*Moderators: V. Salil Upasani, MD and Matthew Halanski, MD*

**4:00 PM–5:15 PM**

**94**

4:00 PM–4:04 PM

#### **Efficacy of Patient Education in Pediatric Orthopaedic Trauma: A Blinded, Randomized Controlled Trial**

*Hannah Chi; Toshali Katyal; Laura Carrillo; Jennifer O'Donnell; Ishaan Swarup, MD  
UCSF Benioff Children's Hospital, Oakland, CA*

**95**

4:05 PM–4:09 PM

#### **Financial Burden as Determined by Billing Structure and Insurance Type for Patients Receiving Nonoperative Treatment of Distal Radius Fractures – A Single Center Pilot Study**

*Ariana Gonzalez; Ellie Randolph; Laurel Blakemore, MD; Benjamin Martin, MD  
Pediatric Specialists of Virginia, Fairfax, VA*

**96**

4:10 PM–4:14

#### **A looming challenge for paediatric orthopaedic surgeons: hip instability in SMA type II patients receiving Nusinersen**

*Evelyn Kuong, MD; Lok Wah Noah So; Wang Chow  
Hong Kong Children's Hospital, Hong Kong, Hong Kong*

4:15 PM–4:23 PM

Discussion

**97**

4:24 PM–4:28 PM

#### **Initiation of Ponseti Casting is Not Urgent – No differences in Outcomes Between the Early Casting Group (<4 weeks old) and Late Casting Group (1 to 6 months old)**

*Guang Yang; Leila Mehraban Alvandi, PhD; Jessica Johnstone; Edina Gjonbalaj; Alexa Karkenny, MD; Melinda Sharkey, MD; Jacob Schulz, MD  
Children's Hospital at Montefiore, Bronx, NY*

**98**

4:29 PM–4:33 PM

#### **The Kids Are Not Alright: The Decline of Pre-Operative SRS Scores over Time in Patients with Adolescent Idiopathic Scoliosis**

*Adam Jamnik; David Thornberg; Chan-Hee Jo, PhD; Jaysson Brooks, MD; Amy McIntosh, MD; Brandon Ramo, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX*



## SCIENTIFIC PROGRAM

99

4:34 PM–4:38 PM

### Automating Patient-Reported Data Collection in Pediatric Orthopaedics: Does it work?

*Sayah Bogor; Justin Less; Veronica Andaya; Kian Niknam;  
Ishaan Swarup, MD  
UCSF Benioff Children's Hospital, Oakland, CA*

4:39 PM–4:47 PM

Discussion

100

4:48 PM–4:52 PM

### Pre-operative Antibiotic Choice for Pediatric Orthopaedic Surgery in the Setting of Penicillin Allergy – A Process Improvement Project

*Nicholas Lopreiato; Kendall Anigian; Jennifer Kelley; Laura Brower;  
Krista Carpenter  
Cincinnati Children's Medical Center, Cincinnati, OH*

101

4:53 PM–4:57 PM

### Low-Fidelity Distraction Techniques are as Effective as Virtual Reality for Minimizing Patient Anxiety and Maximizing Parent Satisfaction During Pediatric Cast and Pin Removal: A Prospective Randomized Controlled Trial

*Peter Fabricant, MD, MPH; Alexandra Mackie; Madison Heath;  
Preston Gross; Nicolas Pascual-Leone; John Denneen; Peyton Gelley;  
David Scher, MD; Lisa Ipp  
Hospital for Special Surgery, New York City, NY*

102

4:58 PM–5:02 PM

### The First North American Hip Surveillance Program: Enrollment after 5 Years

*Stacey Miller; Jennifer Farr, BA;  
Kishore Mulpuri, MBBS, MHSc, FRCSC  
BC Children's Hospital, Vancouver, BC, Canada*

5:03 PM–5:11 PM

Discussion

6:00 PM–7:00 PM

Opening Ceremony

7:30 PM–11:00 PM

Welcome Reception



WEDNESDAY, APRIL 26

# WELCOME RECEPTION

Interested in playing the guitar, recording a Garth Brooks song, or singing with Ray Charles? Join us as we celebrate the first day of the Annual Meeting at the Musicians Hall of Fame & Museum, a premiere Nashville attraction.



WEDNESDAY, APRIL 26

7:30 PM	DOORS OPEN
7:30 PM–8:00 PM	COCKTAILS
8:00 PM–11:00 PM	DINNER AND MUSIC

TICKET \$110 PER PERSON

Includes dinner, drinks, live band, line dancing instruction, transportation, and interactive museum. Casual attire.

Sponsored by





## LEAD LIKE LORI INITIATIVE



Lori Karol, MD

Last year, we tragically lost one of the greats of the pediatric orthopaedic community. Dr. Lori Karol was a friend and mentor to many and an inspiration to all. Her distinguished career includes the devoted care of many children with complex issues, landmark research, and the training of countless young surgeons. She was not only a trailblazer but excelled at fostering conversations and connections among POSNA members. As the first female president of POSNA, she not only brought decades of experience but also diversity to the senior leadership and had a hand in welcoming many of us into this society.

In the hopes of filling some of the void that is left by her absence, we have instituted a 3-year leadership lecture series to be held at the POSNA Annual Meeting. Funded by donations in her honor, we look forward to hearing from inspiring and inciteful speakers who are trailblazers in their own right in worlds outside of pediatric orthopaedics. We hope that you enjoy the unique perspectives that each will bring and the opportunity to continue building on the many leadership lessons she instilled in us.

### Keynote: Crisis Management & Peak Performance



General Lori J. Robinson

General Lori J. Robinson retired from the Air Force in July 2018, following a 37-year military career, including serving as Commander of North American Aerospace Defense Command (NORAD) and U.S. Northern Command (NORTHCOM). In those positions, she commanded 1,600 Soldiers, Sailors, Airmen, Marines, Coast Guardsmen, and civilians from the United States and Canada. Working with the Governors of all 50 states and their Adjutants General, General Robinson was responsible for coordinating the activities of 300,000 National Guard forces that could be tasked for response to natural disasters or internal defense of the United States. Reporting directly to the President of the United States and the Prime Minister of Canada, she was

responsible for early warning and engagement of air and space threats to the United States and Canada, including the ballistic missile threats from North Korea.

Prior to her command of NORAD/NORTHCOM, General Robinson was the Commander, United States Air Forces Pacific, responsible for 45,000 Airmen to deliver combat air power throughout the Pacific Theater. She exerted direct global influence representing the Chief of Staff of the Air Force in meetings with heads of state, political, and military leaders throughout the Pacific.

General Robinson served in many other senior leadership positions including: Director of Joint Capabilities Development (J-8), reporting to the Chairman of the Joint Chiefs of Staff; and Director of Air Force Legislative Liaison on Capitol Hill, reporting directly to the Secretary of the Air Force, responsible for budget issues and coordination with political leadership in the House and Senate. Earlier in her career, she commanded the Air Force's only Airborne Warning and Control Wing (AWACS) – including command of combat units engaged in the Middle East. General Robinson's entire career demonstrates remarkable achievements at the highest levels of war fighting operation, diplomatic engagement, and political coordination.

General Robinson has earned two master's degrees, served in a fellowship at the Brookings Institution, and completed the Senior Executive Fellows program at Harvard. She is a non-resident Senior Fellow at the Belfer Center and on the Honorary Advisory Committee for the Leadership Council for Women in National Security. General Robinson continues to serve as a role model and mentor to career-minded men and women who seek to balance the demands of career with personal and family responsibilities. She is married to Major General (Ret.) David A. Robinson. They reside in St. Pete Beach, FL.





# SCIENTIFIC PROGRAM

## LEAD LIKE LORI SYMPOSIUM

Room: Karl Dean Ballroom BC

8:00 AM–9:00 AM

### **Crisis Management & Peak Performance**

*Commander, NORAD and Commander, U.S. Northern Command  
(May 2016-May 2018), Commander, Pacific Air Forces  
(Oct 2014-May 2016) Lori Robinson*

## GENERAL SESSION III: TUMOR & INFECTION

Room: Karl Dean Ballroom BC

*Moderators: Alfred Mansour III, MD and Samantha Spencer, MD*

### **9:01 AM–10:00 AM**

9:01 AM–9:04 AM

Welcome & Remarks

### **103**

9:05 AM–9:09 AM

### **Size Matters but is Not Everything! Location as The Predictor of Fracture in Non-Ossifying Fibromas of The Femur**

*Soroush Baghdadi, MD; Jie Nguyen; Akbar Syed; Daniel Weltsch, MD;  
Alexandre Arkader, MD  
The Children's Hospital of Philadelphia, Philadelphia, PA*

### **104**

9:10 AM–9:14 AM

### **Wide Resection for Paediatric Extremity Vascular Malformation – A Tertiary Hospital's Experience**

*Kenneth Pak Leung Wong; Lester Chan; Arjandas Mahadev, FRCS;  
Mathew Cheng  
KK Women's and Children's Hospital, Singapore, Singapore*

### **105**

9:15 AM–9:19 AM

### **Optimal Treatment of Pediatric Unicameral Bone Cysts includes Curettage and Synthetic Bone Grafting: A Retrospective Multi-Center Cohort Study**

*Leonardo Albertini Sanchez; Eric Zhao; Peter Cirrincione;  
Erikson Nichols; John Healey; Emily Dodwell, MD  
Hospital for Special Surgery, New York City, NY*

9:20 AM–9:28 AM

Discussion

### **106**

9:29 AM–9:33 AM

### **Accelerated Severity of Illness Scoring for Children with Osteomyelitis Corresponds with Objectively Categorized Outcomes**

*Tahmina Jahan; Michael O'Connell; Naureen Tareen;  
Chan-Hee Jo, PhD; Yuhua Ma; Lawson Copley, MD  
Children's Health System of Texas, Dallas, TX*



## SCIENTIFIC PROGRAM

**107**

9:34 AM–9:38 AM

### **Characteristics of Septic Arthritis of the Foot and Ankle in Children— Review of a Retrospective Multicenter Database**

*Matthew Stepanovich, MD; Danielle Cook; Benjamin Shore, MD, MPH,  
FRCSC; Ying Li, MD*

*CORTICES Study Group / University of Michigan, Ann Arbor, MI*

**108**

9:39 AM–9:43 AM

### **Bedside Hip Aspiration Results in Decrease in Total General Anesthesia Time in Pediatric Patients: a Multicenter Study**

*Zachary Braig; Pratik Pradhan; Meagan Tibbo; William Shaughnessy, MD;  
Anthony Stans, MD; A. Noelle Larson, MD; Benjamin Shore, MD, MPH,  
FRCSC; Todd Milbrandt, MD*

*Mayo Clinic, Rochester, MN*

9:44 AM–9:52 AM

Discussion

10:05 AM–10:25 AM

Coffee Break/Exhibits

## GENERAL SESSION IV: LOWER EXTREMITY & NEUROMUSCULAR

**Room: Karl Dean Ballroom BC**

**Moderators: Kristan Pierz, MD and Robert Lane Wimberly, MD**

**10:30 AM–12:00 PM**

**109**

10:30 AM–10:34 AM

### **Hemiepiphyodesis for lower extremity coronal plane angular correction in the distal femur and proximal tibia in children with Achondroplasia – Osteotomy can be avoided**

*Emily Zhang; Peter Stevens, MD; Chris Makarewich, MD*

*University of Utah, Department of Orthopaedics, Salt Lake City, UT*

**110**

10:35 AM–10:39 AM

### **Retrograde femoral lengthening with acute deformity correction**

*Mark Dahl, MD; Andrew Georgiadis, MD; Deven Carroll;  
Elizabeth Wellings, MD*

*Gillette Children's Specialty Healthcare, St. Paul, MN*

**111**

10:40 AM–10:44 AM

### **Rotational Guided Growth: Unwinding a New Technique**

*Claire Shannon, MD; Dror Paley, MD*

*Paley Orthopedic and Spine Institute, West Palm Beach, FL*



SCIENTIFIC PROGRAM

10:45 AM–10:53 AM Discussion

**112**  
10:54 AM–10:58 AM **A Predictive Score for Infantile Blount's Disease Recurrence After Tibial Osteotomy**  
*Nath Adulkasem; Jidapa Wongcharoenwatana; Thanase Ariyawatkul; Chatupon Chotigavanichaya; Perajit Eamsobhana*  
*Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand*

**113**  
10:59 AM–11:03 AM **Metabolic Impacts on Post-Surgical Outcomes after Hemiepiphysiodesis for Hypophosphatemic Rickets**  
*Ian Marpuri; Irene Chen; Chelsey Grimbly; Anna Ryabets-Lienhard; Oussama Abousamra, MD*  
*Children's Hospital Los Angeles, Los Angeles, CA*

**114**  
11:04 AM–11:08 AM **9-Year Review of Intra-Operative Neuro-Monitoring (IONM) for Non-Spine Surgery**  
*Madeleine Jackson; Amanda Galambas; Jennifer Bauer, MD, MS*  
*Seattle Children's Hospital, Seattle, WA*

11:09 AM–11:17 AM Discussion

**115**  
11:18 AM–11:22 AM **Flexed Knee Gait in Spastic Hemiplegic Cerebral Palsy**  
*Jeremy Bauer, MD; Khanh Do; Jing Feng*  
*Shriners Children's Portland, Portland, OR*

**116**  
11:23 AM–11:27 AM **Isolated Anterior Distal Femoral Hemiepiphysiodesis Does Not Change Pelvic Tilt in Children with Cerebral Palsy**  
*Robert Kay, MD; Alison Hanson; Tishya Wren, PhD*  
*Children's Hospital Los Angeles, Los Angeles, CA*



## SCIENTIFIC PROGRAM

**117**

11:28 AM–11:32 AM

**Six Minute Walk Test in Ambulatory Children with Spina Bifida**

*Karina Zapata, PT, DPT, PhD; Rosa Cooksey; Veronica Meneses; Chan-Hee Jo, PhD; Brenda Santillan; Richard Adams  
Texas Scottish Rite Hospital for Children, Dallas, TX*

11:33 AM–11:41 AM

Discussion

**118**

11:42 AM–11:46 AM

**Plain Radiographs Underestimate Neuromuscular Acetabular Dysplasia: A Comprehensive 3D Evaluation of Acetabular Deficiency in Cerebral Palsy**

*Benjamin Shore, MD, MPH, FRCSC; Pratik Pradhan; Hillary Nguyen; Mohammadreza Movahhedi; Mallika Singh; Eduardo Novais, MD; Ata Kiapour, PhD, MMSc  
Boston Children's Hospital, Boston, MA*

**119**

11:47 AM–11:51 AM

**Femoral Head Deformity Associated with Hip Displacement in Non-ambulatory Cerebral Palsy: Results at Skeletal Maturity**

*Armagan Ulusaloglu, MD; Ali Asma, MD; M. Wade Shrader, MD; Kenneth Rogers, PhD, ATC; Freeman Miller, MD; Jason Howard, MD  
Nemours Children's Hospital, Delaware, Wilmington, DE*

**120**

11:52 AM–11:56 AM

**Quality of Surgery and Patient Selection Are Keys to Success in Hip Stabilization Surgery in Cerebral Palsy**

*Evelyn Kuong, MD; Janus Wong; Wang Chow  
Hong Kong Children's Hospital, Hong Kong, Hong Kong*

11:57 AM–12:05

Discussion





SCIENTIFIC PROGRAM

AWARD-NOMINATED PAPERS

Room: Karl Dean Ballroom BC

Moderators: Unni Narayanan, MD, FRCSC and Eric Edmonds, MD

Period 1: 8:00 AM–10:00 AM

8:00 AM–8:04 AM Welcome & Remarks

**121**  
8:05 AM–8:10 AM **Comparing Periacetabular Osteotomy with and without an arthrotomy/osteochondroplasty: a propensity matched analysis**  
*Nathan Houlihan; Tanner Thornton; Daniel Sucato, MD, MS; Jeffrey Nepple, MD; John Clohisy, MD; Wudbhav Sankar, MD*  
*Children's Hospital of Philadelphia, Philadelphia, PA*

**122**  
8:11 AM–8:16 AM **Does Antibiotic Prophylaxis Reduce Risk of Infection in Pediatric Supracondylar Humerus Fracture Pinning? A Prospective Randomized Controlled Trial**  
*Ennio Rizzo Esposito; Rachel Phillips; Pierre-Emmanuel Schwab; Daniel Hoernschemeyer, MD; Sumit Gupta, MD, MPH*  
*University of Missouri, Columbia, MO*

8:17 AM–8:25 AM Discussion

**123**  
8:26 AM–8:30 AM **Collagenase Clostridium Histolyticum Decreases Muscle Stiffness in Cerebral Palsy: An Ex-Vivo Biomechanical Analysis of Hip Adductor Muscle Fiber Bundles and Dose-Response Determination**  
*Venus Joumaa; Walter Herzog; Timothy Leonard; Karyn Robinson; Robert Akins; Ali Asma, MD; James Huntley; M. Wade Shrader, MD; H. Graham, MD, FRCS; Jason Howard, MD*  
*Nemours Children's Hospital, Delaware, Wilmington, DE*

**124**  
8:31 AM–8:35 AM **Deep Learning Classification of Spinal Radiographs for use in Large Scale Imaging Registries**  
*Kellen Mulford; A. Noelle Larson, MD; Bardia Khosravi; Pouria Rouzrokh; Connie Chang-Chien; Charles Nolte; Christina Regan; Hilal Maradit Kremers; Shi Yan; Cody Wyles*  
*Mayo Clinic, Rochester, MN*

8:36 AM–8:43 AM Discussion



## SCIENTIFIC PROGRAM

**125**

8:44 AM–8:49 AM

**Back pain and quality of life 10 years after segmental pedicle screw instrumentation for adolescent idiopathic scoliosis. Comparison to age and gender matched untreated adolescent idiopathic scoliosis patients and Healthy controls**

*Matti Ahonen; Johanna Syvänen; Linda Helenius; Mikko Mattila, MD; Elias Diarbakerli; Tanja Perokorpi; Paul Gerdhem; Ilkka Helenius, MD*  
Department of Paediatric Surgery, Orthopaedics and Traumatology,  
University of Helsinki and Helsinki, Helsinki, Finland

**126**

8:50 AM–8:55 AM

**Clinical and Radiographic Outcomes Following Correction of Idiopathic Scoliosis in Adolescence vs. Adulthood**

*Matthew LaBarge; William Waddell; Justin Vickery; Amir Abtahi; Jeffrey Martus, MD; Gregory Mencia, MD; Craig Louer Jr., MD; Byron Stephens, MD, MSCI*  
Vanderbilt University Medical Center, Nashville, TN

8:56 AM–9:03 AM

Discussion

**127**

9:04 AM–9:08 AM

**Like a Lizard: Repair of Perthes Disease Occurs Through Recapitulation of Development of The Proximal Femoral Epiphysis**

*Jonathan Schoenecker, MD, PhD; Rachel McKee; Courtney Baker, MD; Hernan Correa; Stephanie Moore-Lotridge, PhD*  
Vanderbilt University Medical Center, Nashville, TN

**128**

9:09 AM–9:13 AM

**Untargeted Serum Proteomics Profiling in Females with Adolescent Scoliosis (AIS) Identifies a Bone Morphogenetic Protein Antagonist (alpha 2-HS glycoprotein) as a Candidate for Follow-Up**

*Patrick Carry; Elizabeth Terhune; Anna Monley; Cambria Wethey; Nancy Hadley Miller, MD*  
University of Colorado, Aurora, CO

9:14 AM–9:21 AM

Discussion

**129**

9:22 AM–9:27 AM

**A Multi-center Cohort Study of Complication Risk Factors in Intramedullary Lengthening Nails**

*Christopher Iobst, MD; Anirejuoritse Bafor; Ole Rahbek; Søren Kold; Markus Frost*  
Nationwide Children's Hospital, Columbus, OH



SCIENTIFIC PROGRAM

130	9:28 AM–9:33 AM	<p><b>Peri-Operative Complications, Safety, and Early Outcomes of a Novel ACL+ALL Reconstruction Technique Using Iliotibial Band Autograft vs. Patellar Tendon ACL Reconstruction: A Retrospective Pilot Study of the SATURN (Skeletally-Mature ACLR Technique Using Reinforcement Network) STUDY GROUP</b></p> <p><i>Benton Heyworth, MD; Yi-Meng Yen, MD; David Spence, MD; Joshua Pang; Dennis Kramer, MD; Mininder Kocher, MD, MPH</i> <i>Boston Children’s Hospital, Boston, MA</i></p>
	9:34 AM–9:42 AM	Discussion
131	9:43 AM–9:47 AM	<p><b>Detrimental Effects of Chlorhexidine on Articular Cartilage Viability, Matrix, and Mechanics</b></p> <p><i>Maziar Moslehyazdi; Benjamin Bielajew; John Schlechter, DO; K. Athanasiou; Dean Wang</i> <i>University of California Irvine, Irvine, CA</i></p>
132	9:48 AM–9:52 AM	<p><b>Mesenchymal Stromal Cell Exosomes Enhance Primary Repair Of Rabbit Anterior Cruciate Ligament</b></p> <p><i>James Hui; Gin Way Law; Keng Lin Wong; Barry Tan; Dexter Seow; Shipin Zhang; Sai Kiang Lim; Wei Seong Toh</i> <i>National University of Singapore, Singapore, Singapore</i></p>
	9:53 AM–10:00 AM	Discussion
	10:05 AM–10:25 AM	Coffee Break/Exhibits

AWARD-NOMINATED PAPERS (CONTINUED)

Room: Karl Dean Ballroom BC

Moderators: Peter Newton, MD and Wuddhav Sankar, MD

Period 2 : 10:30 AM–11:29 AM

133	10:30 AM–10:35 AM	<p><b>A Rapid MRI Protocol for Acute Pediatric Musculoskeletal Infection Eliminates Contrast, Decreases Sedation, Scan and Interpretation Time, Hospital Length of Stay and Charges without Missing Actionable Diagnoses</b></p> <p><i>Kyle Chan; Daniel McBride; Jacob Wild; Jonathan Samet; Romie Gibly, MD</i> <i>Ann &amp; Robert H. Lurie Children’s Hospital of Chicago, Chicago, IL</i></p>
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SCIENTIFIC PROGRAM

134	
10:36 AM–10:41 AM	<p><b>Changes in Foot Posture Over the Course of Childhood in Ambulatory Youth with Cerebral Palsy</b></p> <p><i>Chris Church; Nancy Lennon, MS, PT, DPT; Madison Lennon; John Henley; Thomas Shields; Timothy Niiler; Daveda Taylor; M. Wade Shrader, MD; Freeman Miller, MD</i></p> <p><i>Nemours Children’s Hospital, Delaware, Wilmington, DE</i></p>
10:42 AM–10:50 AM	Discussion
135	
10:51 AM–10:55 AM	<p><b>The Biology of Spinal Fusion: A New Paradigm Suggesting Transdifferentiation of Chondrocytes Derived from the Periosteum of the Spinal and Transverse Processes</b></p> <p><i>Atsuyuki Kawabata; Takuya Oyaizu; Rachel McKee; J. Court Reese; Satoru Egawa; Jonathan Schoenecker, MD, PhD; Stephanie Moore-Lotridge, PhD</i></p> <p><i>Vanderbilt University Medical Center, Nashville, TN</i></p>
136	
10:56 AM–11:00 AM	<p><b>High dietary Glutamine suppresses the severity of enchondromatosis</b></p> <p><i>Benjamin Alman, MD, FRCSC</i></p> <p><i>Duke, Durham, NC</i></p>
11:01 AM–11:08 AM	Discussion
137	
11:09 AM–11:14 AM	<p><b>Does glenoid anteversion osteotomy stiffen the shoulder in brachial plexus birth palsy?</b></p> <p><i>Deeptiman James; Alison Anthony; Kristen Davidge; Howard Clarke; Sevan Hopyan, MD</i></p> <p><i>The Hospital for Sick Children, Toronto, ON, Canada</i></p>
138	
11:15 AM–11:20 AM	<p><b>Health-related quality of life in Idiopathic toe walkers: A multicentre prospective study</b></p> <p><i>Eileen Morrow; Yael Gelfer, MD, PhD; Jennifer Harris; John Cashman; Alpesh Kothari, MA, BM, BCh, AFHEA, MSc, DPhil, FRCS</i></p> <p><i>Oxford University Hospitals NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom</i></p>
11:21 AM–11:29 AM	Discussion
11:30 AM–11:45 AM	<b>Distinguished Achievement Awards</b>
11:46 AM–11:51 AM	<b>2024 Meeting Announcements</b>



SCIENTIFIC PROGRAM

- 11:52 AM–11:58 AM Award Announcements
- 11:59 AM–12:19 PM Presidential Speaker
- 12:20 PM–12:30 PM Presidential Transfer

CONCURRENT SESSION – SPINE

Room: Karl Dean Ballroom BC

Moderators: Jennifer Bauer, MD, MS and Michael Glotzbecker, MD

Period 1: 2:00 PM–3:15 PM

- 139

2:00 PM–2:04 PM

Smaller Curves in Juvenile Idiopathic Scoliosis Improve with Part-Time Bracing

Christina Rymond; Rishi Sinha; Jacob Ball; Afrain Boby; Michael Vitale, MD, MPH; Benjamin Roye, MD

Columbia University Medical Center - Children's Hospital of New York, New York City, NY
- 140

2:05 PM–2:09 PM

Unsupervised machine learning mediated clustering of bone microarchitecture phenotypes in the prediction of curve progression to surgical threshold in adolescent idiopathic scoliosis – a 6-year longitudinal study up to skeletal maturity

Kenneth Yang; Anubrat Kumar; Jack Cheng, MD; Ping Tsz Lam, MBBS

The Chinese University of Hong Kong, Hong Kong, People's Republic of China
- 141

2:10 PM–2:14 PM

Subclassification of Sanders Maturation Stage (SMS) 3: Differences in Spine and Total Height Growth Rates Between SMS 3A and 3B in Patients with Idiopathic Scoliosis

Yusuke Hori; Burak Kaymaz; Luiz Carlos Almeida Da Silva; Kenneth Rogers, PhD, ATC; Peter Gabos, MD; Suken Shah, MD

Nemours Children's Hospital, Delaware, Wilmington, DE
- 2:15 PM–2:23 PM

Discussion
- 142

2:24 PM–2:28 PM

High Rates of Successful Return to Competitive Athletics Following Posterior Spinal Fusion for AIS Regardless of Distal Fusion Level: A Prospective Cohort Study

Nicolas Pascual-Leone; Preston Gross; Julia Retzky; Daniel Green, MD; John Blanco, MD; Roger Widmann, MD; Peter Fabricant, MD, MPH

Hospital for Special Surgery, New York City, NY





## SCIENTIFIC PROGRAM

**143**

2:29 PM–2:33 PM

**Is shorter really better? Results of selective vs. nonselective thoracic fusion in adolescent idiopathic scoliosis patients at minimum 10-year follow-up**

*Nicholas Fletcher, MD; Tracey Bastrom, MA; A. Noelle Larson, MD; Michael Kelly, MD  
Children's Healthcare of Atlanta, Atlanta, GA*

**144**

2:34 PM–2:38 PM

**Increasing Cervical Kyphosis Correlates with Cervical Degenerative Disc Disease in Patients with Adolescent Idiopathic Scoliosis**

*Adrian Lin; David Skaggs, MD; Lindsay Andras, MD; Vernon Tolo, MD; Kenneth Illingworth, MD  
Children's Hospital Los Angeles, Los Angeles, CA*

2:39 PM–2:47 PM

Discussion

**145**

2:48 PM–2:52 PM

**The Effects of Gastrojejunostomy Tube Placement on Pulmonary and Gastrointestinal Complications following Spinal Fusion for Neuromuscular Scoliosis**

*Candice Legister; Chrystina James; Walter Truong, MD; Tenner Guillaume, MD; Danielle Harding; Casey Palmer; Sara Morgan; Eduardo Beauchamp; Joseph Perra, MD; Daniel Miller, MD  
Gillette Children's Specialty Healthcare, St. Paul, MN*

**146**

2:53 PM–2:57 PM

**Why are we fixing the spine? Surgeon and caregiver answers on the goals of surgery for patients with CP scoliosis**

*Ali Asma, MD; Armagan Ulusaloglu, MD; Petya Yorgova; Irene Li; Patrick Cahill, MD; Keith Baldwin, MD; Paul Sponseller, MD, MBA; Amit Jain, MD; Burt Yaszay, MD; M. Wade Shrader, MD; Suken Shah, MD  
Nemours Children's Hospital, Delaware, Wilmington, DE*

**147**

2:58 PM–3:02 PM

**Why are we giving additional parenteral antibiotics to non-ambulatory cerebral palsy patients with isolated acute post-operative fevers following posterior spinal fusion?**

*Joshua Murphy, MD; Ryan Koehler, MD; K. Aaron Shaw, DO, FAAOS; Hilary Harris; Numera Sachwani; Robert Bruce, MD; Dennis Devito, MD; Michael Schmitz, MD; Jorge Fabregas, MD; Daniel Raftis; Nicholas Fletcher, MD  
Children's Healthcare of Atlanta, Atlanta, GA*

3:03 PM–3:11 PM

Discussion



SCIENTIFIC PROGRAM

3:00 PM–3:20 PM      Coffee Break/Exhibits

CONCURRENT SESSION – SPINE (CONTINUED)

Room: Karl Dean Ballroom BC

Moderators: Meghan Imrie, MD and Todd Ritzman, MD

Period 2: 3:45 PM–5:00 PM

**148**  
3:45 PM–3:49 PM      **Radiographic Motion Preservation Modest After Anterior Vertebral Body Tethering Compared with Posterior Spinal Fusion for Thoracic Scoliosis.**  
*Michelle Marks, PT, MA; Maty Petcharaporn; Tracey Bastrom, MA; Firoz Miyanji, MD, FRCSC; Patrick Cahill, MD; John “Jack” Flynn, MD; Baron Lonner, MD; Harms Study Group; Peter Newton, MD*  
*Setting Scoliosis Straight Foundation, San Diego, CA*

**149**  
3:50 PM–3:54 PM      **Incidence of Tether Breakage in Anterior Vertebral Body Tethering**  
*Patrick Cahill, MD; Firoz Miyanji, MD, FRCSC; Brett Lullo, MD; Amer Samdani, MD; Baron Lonner, MD; Joshua Pahys, MD; Steven Hwang, MD; Lawrence Haber, MD; Ahmet Alanay, MD; Suken Shah, MD; Stefan Parent, MD, PhD; Laurel Blakemore, MD; Daniel Hoernschemeyer, MD; Kevin Neal, MD; Harms Study Group; Peter Newton, MD*  
*Children’s Hospital of Philadelphia, Philadelphia, PA*

**150**  
3:55 PM–3:59 PM      **A New Look at Vertebral Body Tethering: Through the Modified Clavien-Dindo-Sink (mCDS) Classification**  
*John Vorhies, MD; Samantha Garcia; Lucas Hauth; Benjamin Roye, MD; Peter Sturm, MD; Michael Glotzbecker, MD; Nicholas Fletcher, MD; Joseph Stone, MD; Patrick Cahill, MD; Pediatric Spine Study Group; Jason Anari, MD*  
*The Children’s Hospital of Philadelphia, Philadelphia, PA*

4:00 PM–4:08 PM      Discussion

**151**  
4:09 PM–4:13 PM      **The Price of Another Centimeter: Reimplantation with a Second Set of Magnetic Growing Rods Yields Diminishing Returns**  
*David Fralinger, MD; Ali Asma, MD; Luiz Carlos Almeida Da Silva; W.G. Stuart Mackenzie, MD; Peter Gabos, MD; William Mackenzie, MD; Suken Shah, MD*  
*Nemours Children’s Hospital, Delaware, Wilmington, DE*



## SCIENTIFIC PROGRAM

**152**

4:14 PM–4:18 PM

### Early Results of a Prospective Outcome Study on a Posterior Dynamic Distraction Device for AIS

*Geoffrey Haft, MD; Ron El-Hawary, MD, MSc; A. Noelle Larson, MD; Ryan Fitzgerald, MD; Michael Albert, MD; Timothy Oswald, MD; Gilbert Chan, MD; Todd Milbrandt, MD  
Avera Health, Sioux Falls, SD*

**153**

4:19 PM–4:23 PM

### Sagittal Spinal Malalignment and Complications One Year After Posterior Dynamic Distraction Device Implantation for Adolescent Idiopathic Scoliosis

*Grace Chew; Stacy Ng; Woei Jack Pan; Nicole Lee; Kevin Lim, FRCS  
KK Women's and Children's Hospital, Singapore, Singapore*

4:24 PM–4:32 PM

Discussion

**154**

4:33 PM–4:37 PM

### Scoliosis in Patients with Autism Spectrum Disorder

*Trinity Samson; Anna Swetz; Dustin Greenhill, MD; Todd Ritzman, MD; Lorena Floccari, MD  
Akron Children's Hospital, Akron, OH*

**155**

4:38 PM–4:42 PM

### The Role of Liposomal Bupivacaine in Multimodal Pain Management Following Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis: Faster and Farther with Less Opioids

*Stuart Changoor; Alec Giakas; Ali Asma, MD; Karen Sacks; Petya Yorgova; Kenneth Rogers, PhD, ATC; Robert Lang; Peter Gabos, MD; Suken Shah, MD  
Nemours Children's Hospital, Delaware, Wilmington, DE*

**156**

4:43 PM–4:47 PM

### Single-Stage Revisions Provide Less Correction Loss than Implant Removal Only Following Late Infections After Posterior Spinal Fusions for Adolescent Idiopathic Scoliosis

*Gregory Benes; Harry Shufflebarger, MD; Suken Shah, MD; Burt Yaszay, MD; Michelle Marks, PT, MA; Peter Newton, MD; Paul Sponseller, MD, MBA  
The Johns Hopkins University, Baltimore, MD*

4:48 PM–4:56 PM

Discussion



SCIENTIFIC PROGRAM

CONCURRENT SESSION – HIP

Room: 101

Moderators: Kevin Klingele, MD and Matthew Schmitz, MD

Period 1: 2:00 PM–3:15 PM

**157**  
2:00 PM–2:04 PM      **Do Children With Normal Acetabuli After Successful Pavlik Harness Treatment For Infantile Hip Dislocation Develop Residual Acetabular Dysplasia At Minimum 4.0 Year Follow-Up?**  
*Chinmay Paranjape; James Bomar, MPH; V. Salil Upasani, MD*  
*Rady Children's Hospital - San Diego, San Diego, CA*

**158**  
2:05 PM–2:09 PM      **Identification of Predictors for the Development of Femoral Nerve Palsy in Brace Treatment for Developmental Dysplasia of the Hip**  
*Emily Schaeffer, PhD; Jack Hu; Vuong Nguyen; Wudbhav Sankar, MD; Simon Kelley, MD; Kishore Mulpuri, MBBS, MHSc, FRCSC*  
*BC Children's Hospital, Vancouver, BC, Canada*

**159**  
2:10 PM–2:14 PM      **Fate of Acetabular Dysplasia after Closed and Open Reduction of Hips in Children with Developmental Hip Dysplasia**  
*Abhishek Tippabhatla; Beltran Torres-Izquierdo; Jason Cummings; Gaia Georgopoulos, MD; Lindsay Stephenson, MD; Scott Rosenfeld, MD; Rachel Goldstein, MD; Megan Johnson, MD; Pooya Hosseinzadeh, MD*  
*Washington University in St. Louis, St. Louis, MO*

2:15 PM–2:23 PM      Discussion

**160**  
2:24 PM–2:28 PM      **Untreated DDH in the second year of life: Closed Reduction vs. Open Reduction?**  
*Jason Cummings; Rachel Goldstein, MD; Scott Rosenfeld, MD; Gaia Georgopoulos, MD; Megan Johnson, MD; Lindsay Stephenson, MD; Pooya Hosseinzadeh, MD*  
*Washington University in St. Louis, St. Louis, MO*

**161**  
2:29 PM–2:33 PM      **Predictors of Avascular Necrosis of the Femoral Head Following Closed or Open Reduction in the Treatment of Developmental Dysplasia of the Hip: Two-Year Update**  
*Ethan Ponton; Jeffrey Bone; Wudbhav Sankar, MD; Kishore Mulpuri, MBBS, MHSc, FRCSC; Emily Schaeffer, PhD*  
*BC Children's Hospital, Vancouver, BC, Canada*



SCIENTIFIC PROGRAM

162	<b>A Prospective, Multicenter Study of Developmental Dysplasia of the Hip: What Can Patients Expect After Open Reduction?</b> <i>Sara Kiani, MD; Alex Gornitzky, MD; Travis Matheney, MD; Emily Schaeffer, PhD; Kishore Mulpuri, MBBS, MHSc, FRCSC; Hitesh Shah, MD; Yihua Ge, V. Salil Upasani, MD; Alaric Aroojis, MS(Ortho), D'Ortho, DNB(Ortho); Venkatadass Krishnamoorthy, MD; Wudbhav Sankar, MD</i> <i>Children's Hospital of Philadelphia, Philadelphia, PA</i>
2:34 PM–2:38 PM	
2:39 PM–2:47 PM	Discussion
163	<b>Does Duration of Non-weightbearing After Femoral Varus Osteotomy Affect Radiographic Outcome at 2-Year Follow-up of 8 to 11 Year-old Patients with Legg-Calvé-Perthes Disease? An International Multicenter Prospective Study</b> <i>Harry Kim, MD; Hitesh Shah, MD; David Chong, MD; Kumar Singh; Ishaan Swarup, MD; Yasmin Hailer; Scott Yang, MD; Luiz Renato De Angeli; William Morris, MD; Candelaria Mercado; Chan-Hee Jo, PhD; Jennifer Laine, MD; Wudbhav Sankar, MD</i> <i>Texas Scottish Rite Hospital for Children, Dallas, TX</i>
2:48 PM–2:52 PM	
164	<b>Long-term Patient Reported Outcomes and Satisfaction Following In Situ Epiphysiodesis for Stable Slipped Capital Femoral Epiphysis: a Multi-center Retrospective Cohort Study</b> <i>Camille Sullivan; Lei Zhao; Molly Uchtman; Robert Bardsley; Lukas Keil; Joseph Stone, MD; Courtney Selberg, MD; Patrick Whitlock, MD, PhD</i> <i>Cincinnati Children's Hospital Medical Center, Cincinnati, OH</i>
2:53 PM–2:57 PM	
165	<b>How Are Adults with Perthes Disease Functioning After a Total Hip Replacement? Results of an International Web-based Survey</b> <i>Michael Millis, MD; Bella Vakulenko-Lagun; Roi Almakias; Harry Kim, MD</i> <i>Texas Scottish Rite Hospital for Children, Dallas, TX</i>
2:58 PM–3:02 PM	
3:03 PM–3:11 PM	Discussion
3:00 PM–3:20 PM	Coffee Break/Exhibits





SCIENTIFIC PROGRAM

CONCURRENT SESSION – SPORTS

Room: 101

Moderators: Benton Heyworth, MD and Crystal Perkins, MD

Period 2 : 3:45 PM–5:00 PM

- 166

3:45 PM–3:49 PM

Medial Patellofemoral Ligament Augmentation Repair Provides Stabilization and Improved Outcomes in Primary Patellar Dislocations with Concomitant Chondral or Osteochondral Injury in Children and Adolescents

*Bryn Gornick; Kevin Kwan; John Schlechter, DO*  
*Children's Hospital of Orange County, Orange, CA*
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3:50 PM–3:54 PM

Does Distalization Increase the Risk of Complications Following Tibial Tubercle Osteotomy in Adolescent Patients with Patellofemoral Instability? – A Multicenter Cohort Analysis

*Akbar Syed; Kevin Orellana; David Kell; Max Jacobs; Alexandra Dejneka; Neeraj Patel, MD, MPH; J .Todd Lawrence, MD, PhD; Theodore Ganley, MD; Brendan Williams, MD*  
*The Children's Hospital of Philadelphia, Philadelphia, PA*
- 168

3:55 PM–3:59 PM

Valgus in Pediatric Patients Presenting with Patellofemoral Instability

*Julia Kirby; Hunter Jones; Benjamin Johnson; Madison Brenner; Philip Wilson, MD; Henry Ellis, MD*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*
- 4:00 PM–4:08 PM

Discussion
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4:09 PM–4:13 PM

Pediatric Meniscus Repair: Safety Profile Based on > 2000 Arthroscopic Meniscus Repairs

*Keinan Agonias; Kevin Shea, MD; Jonathan Joyner; Matthew Rohde; Henry Ellis, MD; Molly Meadows, MD; Benton Heyworth, MD; Matthew Milewski, MD; Eric Edmonds, MD; Philip Wilson, MD; Lizzie Adsit; Gregory Knell; Riley Brayton*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*



## SCIENTIFIC PROGRAM

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4:14 PM–4:18 PM

### Revision Anterior Cruciate Ligament Reconstruction with an All-Soft Tissue Quadriceps Tendon Autograft

*Adam Jamnik; Jesse Seilern Und Aspang; Amalie Nash; Sameer Khawaja; **Stephanie Logterman, MD**; John Xerogeanes Emory University, Atlanta, GA*

**171**

4:19 PM–4:23 PM

### Meniscal Ramp Lesions In Adolescent Patients Undergoing Primary Acl Reconstruction: The Importance Of Striations In The Medial Femoral Condyle

*Katharine Hollnagel; Andrew Pennock, MD; James Bomar, MPH; Henry Chambers, MD; Eric Edmonds, MD Rady Children's Hospital - San Diego, San Diego, CA*

4:24 PM–4:32 PM

Discussion

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4:33 PM–4:37 PM

### Outcome Predictors of Surgical Fixation in Unstable Knee Osteochondritis Dissecans Lesions: A Prospective Multicenter Study

*Jeffrey Nepple, MD; Benton Heyworth, MD; Matthew Milewski, MD; Henry Ellis, MD; Philip Wilson, MD; Eric Wall, MD; Daniel Green, MD; Theodore Ganley, MD; Kevin Shea, MD Washington University in St. Louis, Saint Louis, MO*

**173**

4:38 PM–4:42 PM

### Which Osteochondritis Dissecans Subjects Will Heal Non-Operatively? An Application of Machine Learning Methods to the ROCK Cohort

*Thomas Johnstone; Marc Tompkins; Matthew Milewski, MD; Carl Nissen, MD; **Kevin Shea, MD** Stanford University Medical Center, Stanford, CA*

**174**

4:43 PM–4:47 PM

### Particulate Articular Cartilage Implantation: Mid-Term Results

*Paul Fleissner, MD Crystal Clinic Orthopaedic Center, Akron, OH*

4:48 PM–4:56 PM

Discussion



# ePOSTERS

## BASIC SCIENCE

### ePoster 1

#### The Pressure is On: Dorsal versus Volar Univalves for Long Arm Casts

*John Schlechter, DO; Dallyn Udall; Remy Zimmerman  
Riverside University Health System, Moreno Valley, CA*

## FOOT & ANKLE

### ePoster 2

#### Do We Have to Remove the Hardware? A Computer Based Model of Ankle Joint Contact Forces Following Transepiphyseal Screw Fixation of Pediatric Distal Tibia Fractures

*Akram Habibi; Nicholas Parody; Karim Masrouha, MD; Cordelia Carter, MD  
NYU Langone Health, New York City, NY*

### ePoster 3

#### Clinical Presentation and Treatment of Foot Syndactyly in Children

*Eliza Buttrick; Niki Patel; Christine Goodbody; Shaun Mendenhall; Sulagna Sarkar; David Horn, MD; Benjamin Chang; Apurva Shah, MD, MBA  
Children's Hospital of Philadelphia, Philadelphia, PA*

### ePoster 4

#### Patient Reported Pain and Mobility after Calcaneal Lengthening Osteotomy in Children with Painful Flatfoot Deformity

*Matthew William; Jason Cummings; Daniel Pereira; Pooya Hosseinzadeh, MD; Zachary Meyer  
Washington University in St. Louis, St. Louis, MO*

### ePoster 5

#### Accessory Naviculars of the Foot Cause Minimal Physical Dysfunction Over a Lifetime

*Kristin Toy; Alysa Nash; Craig Louer Jr., MD; Yvonne Golightly; Carolina Alvarez;  
James Sanders, MD  
University of North Carolina Hospitals, Chapel Hill, NC*

### ePoster 6

#### Minimally Invasive and Open Posterior Calcaneal Displacement Osteotomy in Paediatric Hindfoot Deformity Correction – Comparison of Clinical and Radiographic Outcomes

*Madeleine Willegger; Maryse Bouchard, MD, MSc, FRCSC  
The Hospital for Sick Children, Toronto, ON, Canada*



# ePOSTERS

## ePoster 7

### Quantitative Scoring of Gait Analysis in Ponseti-Treated Clubfoot Patients: A Pilot Study in 62 Unilateral Clubfeet.

*Sally Tennant, MD; Christine Douglas; Olivia McVeigh-Mellor; Roisin Delaney; Matt Thornton  
Royal National Orthopaedic Hospital, Stanmore, United Kingdom*

## ePoster 8

### Utilizing the Area Deprivation Index to Predict Idiopathic Clubfoot Recurrence

*Smitha Mathew; William Schaberg; Megan Young, MD; Benjamin Martin, MD; Shannon Kelly, MD;  
Laura Tosi, MD; Sean Tabaie, MD; Matthew Oetgen, MD, MBA  
Children's National Hospital, Washington, DC*

## ePoster 9

### Efficacy of the Scarf Osteotomy for Symptomatic Juvenile Bunion Deformities

*Michael O'Sullivan; Kelsie Coe; Jacob Zide, MD; Anthony Riccio, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX*

## HAND & UPPER EXTREMITY

## ePoster 10

### Deformity, Patient-Reported Outcomes, and Scar Assessment following Reconstruction for Complex Syndactyly

*Steven Ayotte; Meagan Pehnke; Zoe Belardo, BA; Eliza Buttrick; Shaun Mendenhall;  
Benjamin Chang; Apurva Shah, MD, MBA  
Children's Hospital of Philadelphia, Philadelphia, PA*

## ePoster 11

### Indications for Early Surgical Intervention in Adolescents with Salter-Harris II Distal Radius Fractures

*Cyrus Etebari; Jonathan Warren; Olivia Pruss; Sricharan Yadali; Vincent Staggs;  
Micah Sinclair, MD  
Children's Mercy Kansas City, Kansas City, MO*

## ePoster 12

### Management of Shoulder Instability in Adolescent Patients: A Survey of PRISM Members

*Rajul Gupta; Shital Parikh, MD, FACS  
Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

## ePoster 13

### Functional Outcomes And Patient Satisfaction After the Modified Outerbridge-Kashiwagi Procedure For Elbow Flexion Contractures in Brachial Plexus Birth Injury

*Andrew Price, MD  
NYU Langone Health, New York City, NY*



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## HIP

### ePoster 14

#### **Racial Disparities in Readmission Rates Following Surgical Treatment of Pediatric Developmental Dysplasia of the Hip**

*Omar Tarawneh; Theodore Quan; Ivan Liu; Jordan Pizzarro; Sean Tabaie, MD  
Children's National Hospital, Washington, DC*

### ePoster 15

#### **Novel Use of the O-Arm Following Open Reduction of a Dislocated Hip for a Walking Age Patient Provides a Low-Radiation Alternative to CT**

*Alexander Aretakis, MD; Rachael Martino, BA; Jordyn Adams, BA; Courtney Selberg, MD  
Children's Hospital Colorado, Aurora, CO*

### ePoster 16

#### **Liposomal Bupivacaine Is Associated With Decreased Opioid Use And Comparable Pain Scores In Patients Undergoing Major Hip Surgery**

*Saeid Tabatabaei; James Bomar, MPH; V. Salil Upasani, MD  
Rady Children's Hospital - San Diego, San Diego, CA*

### ePoster 17

#### **Predicting Avascular Necrosis after Unstable Slipped Capital Femoral Epiphysis**

*Jonathan Warren; Alexander Metoxen; Michael Held; Brant Ansley; Lisa Berglund, MD  
Children's Mercy Kansas City, Kansas City, MO*

### ePoster 18

#### **Intraoperative Three-Dimensional Fluoroscopy During Open Reduction for Developmental Dysplasia of the Hip: An Effective Alternative to Post-Operative Computed Tomography/ Magnetic Resonance Imaging**

*Amna Baljoun; Yashvi Verma, MSc, BSc; Catharine Bradley; Simon Kelley, MD  
The Hospital for Sick Children, Toronto, ON, Canada*

### ePoster 19

#### **Mid-term Follow-up of Adolescents Treated with a Bernese Periacetabular Osteotomy for Symptomatic Acetabular Dysplasia**

*Daniel Sucato, MD, MS; David Podeszwa, MD; William Morris, MD; Nicholas Anable;  
Lauren Osborne; Chan-Hee Jo, PhD  
Texas Scottish Rite Hospital for Children, Dallas, TX*

### ePoster 20

#### **What is the Compliance of Wide-Abduction Brace Treatment for Legg-Calvé-Perthes Disease (LCPD)?**

*Jai Prasad; Harry Kim, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX*





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## ePoster 21

### Patient Reported Outcomes Measured With PROMIS in Patients With Legg-Calvé-Perthes Disease (LCPD) Diagnosed Before The Age of 6 Years

*Eric Fornari, MD; Jennifer Laine, MD; Benjamin Martin, MD; Susan Novotny; Leila Mehraban Alvandi, PhD; Harry Kim, MD*

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

## ePoster 22

### Acetabular Rim Syndrome Revisited: Can Persistent Os Acetabuli Heal Following Periacetabular Osteotomy?

*Sean Hinds; Shamrez Haider; Daniel Sucato, MD, MS; David Podeszwa, MD; Henry Ellis, MD; Lauren Osborne; William Morris, MD*

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

## ePoster 23

### The Effect of Femoral Deformity on Hip Contact Mechanics in Patients with Hip Dysplasia: A Finite Element Analysis Study

*Christian Klemt; Stephanie Kha; Jayme Koltsov; Hiba Naz; Stephanie Pun, MD*

*Stanford University, Palo Alto, CA*

## ePoster 24

### Femoral Head Sphericity Improvement Quantified after Hip Preservation Surgery in Children with Cerebral Palsy

*Phoebe Stark; Liane Chun, MD; Christine Farnsworth, MS; James Bomar, MPH;*

*Patrick Curran, MD; V. Salil Upasani, MD*

*Rady Children's Hospital - San Diego, San Diego, CA*

## INFECTION & TUMORS

## ePoster 25

### Retrospective Review of 80 Patients with Chronic Recurrent Multifocal Osteomyelitis evaluated by Pediatric Orthopedic Surgeons

*Tristen Taylor; Callie Bridges; Ekene Ezeokoli; Tyler Smith; Nicole Montgomery, MD*

*Texas Children's Hospital, Houston, TX*

## ePoster 26

### Chronic Nonbacterial Osteomyelitis: Cohort Characteristics and Treatment Response at a Single Center

*Katherine Nowicki, MD; Nathan Rogers, MPH; Nathan Donaldson, DO; Jennifer Soep*

*University of Colorado, Aurora, CO*

## ePoster 27

### Prevalence of Malignancy in Pediatric Patients with Multiple Hereditary Exostoses

*Aaron Huser, DO; David Feldman, MD*

*The Paley Orthopedic and Spine Institute, West Palm Beach, FL*



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## ePoster 28

### Evaluation of Pathological Fractures in Benign Bone Tumors at a Tertiary Pediatric Hospital

Shengqing Wang; Mikayla Roof; Alexandra Callan

UT Southwestern Medical Center, Dallas, TX

## ePoster 29

### Anxiety and Depression treatment in Pediatric Sarcoma Patients

Mikayla Roof; Alexandra Callan

UT Southwestern Medical Center, Dallas, TX

## LOWER EXTREMITY & DEFORMITY

## ePoster 30

### Incidence of Growth Arrest Following Use of Isotretinoin in Pediatric Patients: A Population-based Study Using Both Nationwide Big Data and Single Institution Data

Sunghyun Hwang; Yoon Joo Cho; Mi Hyun Song; Tae-Joon Cho, MD; In Ho Choi, MD;

Chang-Ho Shin, MD

Seoul National University Children's Hospital, Seoul, Republic of Korea

## ePoster 31

### Fully Automated Analysis of The Anatomical and Mechanical Axes From Pediatric Standing Lower Limb Radiographs Using Convolutional Neural Networks

Yousif Murad; Harpreet Chhina; Anthony Cooper, FRCSC

BC Children's Hospital, Vancouver, BC, Canada

## ePoster 32

### The Utility of Examination Under Anesthesia as a Diagnostic Test for Patellar Instability

Shital Parikh, MD, FACS; Matthew Veerkamp; Beth Shubin Stein; JUPITER GROUP

Cincinnati Children's Hospital Medical Center, Cincinnati, OH

## ePoster 33

### Comparison Of Instability, Re-Dislocation, And Revision Rates Between Tibial Tubercle Osteotomy (TTO) and Medial Patellofemoral Ligament (MPFL) Reconstruction for the Treatment of Patellofemoral Instability (PFI)

Graham Buchan; Amelia El-Mahdy; Ryan Goodwin, MD; David Gurd, MD; Robert Ballock, MD;

Ernest Young, MD, MS

Cleveland Clinic, Cleveland, OH



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### LIMB-Q Kids: An Internationally Applicable Patient Reported Outcome Measure for Lower Limb Differences

*Harpreet Chhina; Louise Johnson; Mohan Belthur, MD; Sanjeev Sabharwal, MD, MPH; David Podeszwa, MD; Bjoern Vogt, MD; Melissa Esparza, MD; Christopher Iobst, MD; Alicia Kerrigan, MD; Jonathan Wright; Juergen Messner; James Fernandes; Anne Klassen; Jan Roling; David Bade, MD; Anthony Cooper, FRCS*  
BC Children's Hospital, Vancouver, BC, Canada

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### Parameters for Adult Discoid Meniscus Diagnosis on Magnetic Resonance Imaging Apply for Pediatric Patients

*Jennifer Beck, MD; Abbie Bennett; Charlotte Wahle; Nicholas Jackson*  
David Geffen School of Medicine at UCLA, Los Angeles, CA

## NEUROMUSCULAR

## ePoster 36

### Zoledronate Increases Bone Mineral Density in Children With Severe Cerebral Palsy: A Randomized, Controlled Trial

*Jakob Granild-Jensen; Bjarne Møller-Madsen; Gija Rackauskaite; Stense Farholt; Charlotte Søndergaard; Esben Vestergaard; Bente Langdahl*  
Randers Regional Hospital, Randers, Denmark

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### Meralgia Paresthetica in the Pediatric Population: A Case Series

*Jeremy Bernhardt; William Roepke; David Chong, MD*  
University of Oklahoma Health Sciences Center, Oklahoma City, OK

## SPINE

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### Thoracic Inlet Insufficiency, A Previously Unrecognized Form of Thoracic Insufficiency: Diagnosis and Surgical Treatment

*Blake Montgomery, MD; Emily Eickhoff; Benjamin Zendejas; Ali Kamran; Shawn Izadi; Edward Lee; David Zurakowski; Russell Jennings; Brian Snyder, MD*  
Boston Children's Hospital, Boston, MA

## ePoster 39

### Mid-term Outcome of Multimodal Treatment for Severe Spinal Deformity in Osteogenesis Imperfecta: Minimum Two Years Follow-up

*Yusuke Hori; Tyler McDonald, MD; Kenneth Rogers, PhD, ATC; Petya Yorgova; Irene Li; Michael Bober; Richard Kruse, DO, MBA; Jeanne Franzone, MD; Suken Shah, MD*  
Nemours Children's Hospital, Delaware, Wilmington, DE



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## ePoster 40

### Asymptomatic Lumbar Spondylolysis in the Pediatric Population: Analysis of CT Scans

*Anna Rambo, MD; Blake Hajek; Abraham Almatari; Parker Suit; Leslie Rhodes, DNP; Xueyuan Cao; Jeffrey Sawyer, MD; Derek Kelly, MD, FAAOS, FAOA; Benjamin Sheffer, MD; William Warner, MD; David Spence, MD*  
Campbell Clinic Orthopaedics, Germantown, TN

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## ePoster 41

### Which AIS Patients are at Highest Risk of Intra-Operative Neuromonitoring Alerts?

*Sassan Keshavarzi; Subaraman Ramchandran; Jeffrey Spardy; Thomas Errico, MD; Stephen George*  
Nicklaus Children's Hospital, Miami, FL

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## ePoster 42

### Major Complications following Anterior Vertebral Body Tethering Surgery

*Firoz Miyanji, MD, FRCSC; Ali Eren; Baron Lonner, MD; Patrick Cahill, MD; Lawrence Haber, MD; Ahmet Alanay, MD; Suken Shah, MD; Stefan Parent, MD, PhD; Laurel Blakemore, MD; Daniel Hoernschemeyer, MD; Kevin Neal, MD; Peter Newton, MD*  
BC Children's Hospital, Vancouver, BC, Canada

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## ePoster 43

### A Matched Comparison of 2-Year Clinical and Radiographic Outcomes in Syrxin-Associated vs. Adolescent Idiopathic Scoliosis: A 30-Year Experience at a Single Institution

*Harold Moore; Anna McClung; David Thornberg; Brenda Santillan; Daniel Sucato, MD, MS*  
Texas Scottish Rite Hospital for Children, Dallas, TX

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## ePoster 44

### Does a Dedicated "Scoliosis Team" and Surgical Standardization Improve Outcomes in Adolescent Idiopathic Scoliosis Surgery and is it Reproducible?

*Vishal Sarwahi, MBBS, MS; Sayyida Hasan; Himanshu Rao; Keshin Visahan; Rushabh Vora; Jesse Galina; Yungtai Lo; Terry Amaral, MD; Jon Paul DiMauro, MD*  
Northwell Health, New Hyde Park, NY

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## ePoster 45

### Back Pain in Children -18 Years of Age with Spine Concerns

*Karina Zapata, PT, DPT, PhD; Chan-Hee Jo, PhD; Brandon Ramo, MD*  
Texas Scottish Rite Hospital for Children, Dallas, TX

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## ePoster 46

### Youth with Adolescent Idiopathic Scoliosis Have Increased Risk of Suicidal Behavior

*Mackenzie Kelly; David Louie; Catherine McClellan; Michelle Welborn, MD; Daniel Bouton, MD*  
Shriners Children's Portland, Portland, OR

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### No Better, No Worse: Stable Health-Related Quality of Life Outcome Parameters for Magnetically Controlled Growing Rod Graduates

Adam Jamnik; K. Aaron Shaw, DO, FAAOS; David Thornberg; Anna McClung;  
Chan-Hee Jo, PhD; Brandon Ramo, MD; **Amy McIntosh, MD**  
Texas Scottish Rite Hospital for Children, Dallas, TX

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## ePoster 48

### Children with Presumed Early-Onset Idiopathic Scoliosis and Treated in Cast May Have Delayed Ambulation

Oliver Dong; Bryan Ren; Peter Sturm, MD; Joshua Pahys, MD; Sumeet Garg, MD;  
**Michael Glotzbecker, MD**  
University Hospitals, Cleveland, OH

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## ePoster 49

### Minimum 5-Year Results of Long-term Mehta Casting: The Story Isn't Over until Skeletal Maturity

Christina Regan; Todd Milbrandt, MD; Anthony Stans, MD; **A. Noelle Larson, MD**  
Mayo Clinic, Rochester, MN

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## ePoster 50

### Double Major Curvature Treated with Vertebral Body Tethering of Both Curves: How Do Outcomes Compare to Posterior Spinal Fusion?

**Baron Lonner, MD**; Lily Eaker; Daniel Hoernschemeyer, MD; Jessica Zhang; Patrick Elliott;  
Nicholas Fletcher, MD; Ahmet Alanay, MD; Caglar Yilgor, MD; Peter Newton, MD;  
Harms Study Group; Firoz Miyanji, MD, FRCSC  
Mount Sinai Medical Center, New York City, NY

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## ePoster 51

### Tethering Incidence as Indications Narrow: A Look Back to Look Ahead

Lucas Hauth; Sulabh Singhal; Patrick Cahill, MD; John "Jack" Flynn, MD; **Jason Anari, MD**  
The Children's Hospital of Philadelphia, Philadelphia, PA

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## ePoster 52

### Failure to Lengthen Consensus for the Magnetically Controlled Growing Rod

Benjamin Royce, MD; Selina Poon, MD; Samantha Garcia; Lucas Hauth; Pediatric Spine Study Group; **Jason Anari, MD**  
The Children's Hospital of Philadelphia, Philadelphia, PA

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## ePoster 53

### Development of Pelvic Incidence, Sacral Slope and Pelvic Tilt and the Effect of age, Sex, and BMI: An Automated 3D-CT Study of 882 Children and Adolescents

**Eduardo Novais, MD**; Pratik Pradhan; Grant Hogue, MD; Mohammadreza Movahhedi;  
Mallika Singh; Ata Kiapour, PhD, MMSc  
Boston Children's Hospital, Boston, MA





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### The Adjunct Use of Descending Neurogenic-Evoked Potentials When Transcranial Motor-Evoked Potentials Degrade Into Warning Criteria in Pediatric Spinal Deformity Surgery: Minimizing False-Positive Events

*Scott Luhmann, MD; Stockton Troyer*

*Washington University in St. Louis, St. Louis, MO*

## ePoster 55

### Early Brace Treatment for Idiopathic Scoliosis May Change the Paradigm to Improve Curves

*Karina Zapata, PT, DPT, PhD; Megan Johnson, MD; Don Virostek; Kara Davis; Matthew Owen; Chan-Hee Jo, PhD; Daniel Sucato, MD, MS*

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

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### A Multicenter Comparative analysis of AVBT to PSF in the Treatment of Lenke 5 curves

*Firoz Miyanji, MD, FRCSC; Baron Lonner, MD; Burt Yaszay, MD; Stefan Parent, MD, PhD; Ahmet Alanay, MD; Lawrence Haber, MD; Laurel Blakemore, MD; Suken Shah, MD; Peter Newton, MD*

*BC Children's Hospital, Vancouver, BC, Canada*

## ePoster 57

### How Do Implants Overlying the Spine Influence The "Law of Diminishing Returns" in Early-Onset Scoliosis Patients?

*Stuart Mitchell; Jessica Heyer, MD; Keith Baldwin, MD; Jason Anari, MD; Pranav Kodali;*

*John "Jack" Flynn, MD; Patrick Cahill, MD*

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

## SPORTS

## ePoster 58

### Does Bupivacaine Liposome Injectable Suspension Further Aid in Decreasing At-home Narcotic Utilization in Children and Adolescents Following Anterior Cruciate Ligament Reconstruction: A Preliminary Report

*John Schlechter, DO; Evelyn Thomas; Halle Walls; Zeev Kain*

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

## ePoster 59

### Concomitant Meniscal and Ligamentous Injuries Associated with Pediatric and Adolescent ACL Tears: An Analysis of 20 years of ACL Surgeries at a Tertiary Care Regional Children's Hospital

*Ata Kiapour, PhD, MMSc; James Pruneski; Nazgol Tavabi; Benton Heyworth, MD;*

*Mininder Kocher, MD, MPH; Dennis Kramer, MD; Melissa Christino, MD; Matthew Milewski, MD;*

*Yi-Meng Yen, MD; Lyle Micheli, MD*

*Boston Children's Hospital, Boston, MA*



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## ePoster 60

### Is the Use of Pretreatment Magnetic Resonance Imaging Necessary Prior to Surgery in Pediatric Tibial Spine Fractures

*Nicholas Lopreiato; Kenneth Ierardi; Michael Wilk; Shital Parikh, MD, FACS  
Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

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## ePoster 61

### Concomitant Anterior Medializing Osteotomy and MPFL Reconstruction Improves Patella Tilt When Compared to MPFL Reconstruction Alone: A Retrospective Comparison Cohort Study of Patients Matched with Similar Pre-Operative TT-TG Values

*Nicolas Pascual-Leone; Danielle Chipman; Blake Meza; Douglas Mintz; Peter Fabricant, MD, MPH; Daniel Green, MD  
Hospital for Special Surgery, New York City, NY*

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## ePoster 62

### Psychological Readiness after Revision ACL Reconstruction: A Roar Study

*Magdalena Tarchala, MD; Matthew Milewski, MD; Ryan Coene; Danielle Cook; Mininder Kocher, MD, MPH; Dennis Kramer, MD; Lyle Micheli, MD; Yi-Meng Yen, MD; Melissa Christino, MD  
Boston Children's Hospital, Boston, MA*

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## ePoster 63

### Traumatic Anterior Shoulder Instability in Younger Adolescents Results in a Higher Incidence of Atypical Injury

*Holt Cutler; Peter Cannamela; Garrett Sohn; Charles Wyatt, NP; Henry Ellis, MD; Philip Wilson, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX*

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## ePoster 64

### Novel, Video-Directed Crutch Training Method is Perceived to be Safer, More Efficient, and Less Disruptive to Clinical Workflow Compared to In-Person Training Method

*Alfred Atanda, MD; Maureen Leffler; Magdalena Falasca; Holly Antal  
Nemours Children's Hospital, Delaware, Wilmington, DE*

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## ePoster 65

### How TT-TG Can Change with Time and Through the Knee Rotation: An Analysis of Sequential MRIs of PFI Patients and a Cadaveric Knee Study

*Nicolas Pascual-Leone; Danielle Chipman; Amirhossein Jahandar; Ryann Davie; Joshua Bram; Douglas Mintz; Peter Fabricant, MD, MPH; Carl Imhauser; Daniel Green, MD  
Hospital for Special Surgery, New York City, NY*

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## ePoster 66

### Is the Greulich & Pyle Bone Atlas Suitable When Measuring Bone Age for Pediatric ACL Reconstruction in the Modern U.S. Population?

*Borna Guevel; Lauren Hutchinson, MPH; Patricia Miller, MS; Mininder Kocher, MD, MPH  
Boston Children's Hospital, Boston, MA*

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### Traumatic Adolescent Knee Dislocations: Beware of the KDIII Injury Pattern

Samuel Willimon, MD; Andrew Pennock, MD; Kevin Dale, MD; Jordan Vokes; Crystal Perkins, MD  
Children's Healthcare of Atlanta, Atlanta, GA

## ePoster 68

### Tibial Tubercle Osteotomy In the Adolescent Management of Patellofemoral Instability – A Multicenter Review of Radiographic Indications

Kevin Orellana; Akbar Syed; David Kell; Alexandra Dejneka; Max Jacobs; Neeraj Patel, MD, MPH; J. Todd Lawrence, MD, PhD; Theodore Ganley, MD; Brendan Williams, MD  
The Children's Hospital of Philadelphia, Philadelphia, PA

## ePoster 69

### Intermediate Outcomes of Medial Ulnar Collateral Ligament Reconstruction Using Gracilis Allograft in Adolescent Patients

Leonie Campbell; Michael Lauth; Tracey Bastrom, MA; Eric Edmonds, MD  
Rady Children's Hospital - San Diego, San Diego, CA

## TRAUMA

## ePoster 70

### Non-Operative Treatment of Tibial Tubercle Fractures: Who is at Risk for Failure?

Lauren Spirov; Konstantin Brnjoš; Neil Kaushal, MD; Folorunsho Edobor-Osula, MD; Alexander Griffith; John Blanco, MD; Clare Kehoe; John Schlechter, DO; Evelyn Thomas, DO; Lindsay Crawford, MD; Abhi Rashiwala; Dustin Greenhill, MD; Haley Tornberg; Brendan Williams, MD; Kevin Huang; Neeraj Patel, MD, MPH  
Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL

## ePoster 71

### Are Waterproof Casts More Cost Effective than Regular Casts During the Summer Months?

Rachel DiFazio, PhD, RN; Patricia Miller, MS; Lanna Feldman; Susan Mahan, MD, MPH  
Boston Children's Hospital, Boston, MA

## ePoster 72

### Antegrade Flexible Nailing for Pediatric Metaphyseal-Diaphyseal Junction Distal Radius Fracture, Is it Safe?

Aaron Lam; Adam Gordon; Ahmed Hagag, MD, PhD; Amr Abdelgawad, MD, MBA  
Maimonides Medical Center, Brooklyn, NY

## ePoster 73

### Outcomes of Early Weightbearing and Accelerated Rehabilitation Protocol in Tibial Tubercle Fractures: Can We Go Faster?

Nathaniel Lempert, MD; Craig Louer Jr., MD; Stephanie Moore-Lotridge, PhD; Jonathan Schoenecker, MD, PhD  
Vanderbilt University Medical Center, Nashville, TN

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## ePoster 74

### Epidemiology and Outcomes of Supracondylar Humerus Fractures in Older Versus Younger Patients

Jessica McGraw-Heinrich, MD; Rachel Silverstein, MD; Nathaniel Loyd; David Hsiou; Pablo Coello; Armando Martinez; Muhamad Shamim; Lon Kai Pang; Scott Rosenfeld, MD  
Texas Children's Hospital, Houston, TX

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## ePoster 75

### Reduction in Prescription of Opioids Following Surgical Treatment of Supracondylar Humerus Fractures in Children

Garrett Rupp; Joanna Langner; Claire Manhard; James Bomar, MPH; Amy Bryl; V. Salil Upasani, MD  
Rady Children's Hospital - San Diego, San Diego, CA

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## ePoster 76

### Association of Child Access Prevention Laws with Pediatric Firearm Injuries

Emily Wilson; William Barfield; Matthew Dow, MD; Robert Murphy, MD; Sara Van Nortwick, MD  
Medical University of South Carolina, Charleston, SC

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## ePoster 77

### Rigid Femoral Nailing Can be Safely Used for Pediatric Femoral Shaft Fracture in Children 8-10

Kwangwon Park, MD, PhD; Stefano Cardin, MD; Bensen Fan, MD; James Toledano, MD; Jose Herrera-Soto, MD  
Arnold Palmer Hospital for Children, Orlando, FL

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## ePoster 78

### Pediatric T-Condylar Fractures: Kids Do Not Always Make You Look Good

Jason Young; Claudia Hendrick; Patricia Miller, MS; Carley Vuillermin, FRACS, MBBS, MPH; Yi-Meng Yen, MD; Andrea Bauer, MD  
Boston Children's Hospital, Boston, MA

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## ePoster 79

### Complications following Operative Treatment of Lateral Condyle Humerus Fractures

Callie Bridges; Tristen Taylor; Brian Smith, MD  
Texas Children's Hospital, Houston, TX

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## ePoster 80

### Atlanto-Occipital Ligament Injury Score (AOLIS): A Novel Scoring System Predicts Successful Treatment with Cervical Collar versus Rigid Fixation

Tyler Metcalf; Matthew LaBarge; Jarred Todd; Sumit Pruthi; Gregory Mencio, MD; Jeffrey Martus, MD; Craig Louer Jr., MD  
Vanderbilt University Medical Center, Nashville, TN



# VIRTUAL SYMPOSIA

## POGO

### GLOBAL PERSPECTIVES ON LIMB RECONSTRUCTION

**80 Minutes**

*Chair: Caroline Tougas, MD*

*Cochair: Heather Kong, MD and Anna Rambo, MD*

This year's POGO Symposium focuses on global perspectives on limb reconstruction. We will review techniques and approaches to limb reconstruction of various etiologies around the globe and especially in resource-limited areas. We will discuss cultural differences in the approach to limb reconstruction and prosthetic management around the world. We will also explore innovations in treating these conditions. Several content experts will discuss these topics from their unique perspectives. Finally, a panel discussion will follow including a case review followed by a Q&A session.

#### Introduction

*Caroline Tougas, MD*

#### Frugal Innovations and Bidirectional Learning in Treating Limb Deformities

*Sanjeev Sabharwal, MD, MPH*

#### Perspectives from Gaza - Growth Adjustable Prosthetic Considerations

*Ramona Okumura, CP and Anna Vergun, MD*

#### Introducing the Recycled Autograft Reconstruction in the U.S. and Abroad

*Ana Cecilia Belzarena, MD and Claudio Silveri, MD*

#### High-Grade Osteosarcoma Involving the Limbs Treated by Pedicle-Freezing Using a Novel Freezing Tank

*Po-Kuei Wu, MD, PhD*

#### Panel Discussion

*Sanjeev Sabharwal, MD, MPH; Ramona Okumura CP; Anna Vergun, MD;*

*Ana Cecilia Belzarena, MD; Claudio Silveri, MD; Po-Kuei Wu, MD, PhD;*

*Alvin Su, MD, PhD; Mihir Thacker, MD*

#### Conclusion

*Caroline Tougas, MD*





# VIRTUAL SYMPOSIA

## POPS

### THE VALUE OF ADVANCED PRACTICE PROVIDERS IN PEDIATRIC ORTHOPAEDICS

**75 Minutes**

*Chair: Megan Lomax, PA-C*

*Cochair: Jessica King, PA-C*

Running an efficient and successful pediatric orthopaedic practice continues to become more challenging each year. Advanced practice providers play a vital role in running a successful practice by providing a high quality of care for patients. The value of the APP can be defined by three key areas of success—maximizing practice efficiency, maximizing practice reimbursement, and providing quality patient care while improving patient satisfaction. This symposium will serve as a forum for discussion on this topic.

#### Introduction

*Megan Lomax, PA-C*

#### Show Me the Money - The Cost and Benefit of APPs in Pediatric Orthopedics

*Brian Smith, MD, FAAP, FAOA*

#### Patient Satisfaction with APPs in Pediatric Orthopedics

*Christine Ho, MD*

#### Growing Your Practice with APPs

*Michael Schmitz, MD*

#### Forming a Collaborative Education Group

*Valerie Parrish, PA-C*

#### Discussion

*Jessica King, PA-C and Megan Lomax, PA-C*



# VIRTUAL SYMPOSIA

## PUBLISHING PEDIATRIC ORTHOPAEDIC RESEARCH

**90 Minutes**

*Chair: Raymond Liu, MD*

*Cochair: Jennifer Laine, MD*

The goal of this symposium is to provide POSNA members with the skills and knowledge to publish in quality journals. This session features a panel of journal editors-in-chief and deputy editors to provide practical information and wisdom learned from decades of journal editing.

### Introduction

*Raymond Liu, MD*

### Broad Level Overview of Getting Your Research Published

*Marc Swiontkowski, MD*

### Designing a Basic Science Study and Assembling a Team

*Clare Rimnac, PhD*

### Writing a Question-Driven Manuscript

*Seth Leopold, MD*

### Finishing: Revision and Addressing Rejection

*Robert Hensinger, MD*

### Leveraging Your Paper: The Power of Digital Publication

*Kenneth Noonan, MD*

### Roundtable Discussion with Questions from the POSNA Research Committee

*Jennifer Laine, MD*

### Conclusion

*Raymond Liu, MD*



# VIRTUAL SYMPOSIA

## PRACTICE MANAGEMENT SYMPOSIUM

**90 Minutes**

*Chair: Michael Jofe, MD*

### Introduction

*Michael Jofe, MD*

### Maximizing Office Efficiency

*James Kasser, MD*

### Maximizing ASF Efficiency

*Michael Busch, MD*

### Promoting an Environmentally Friendly Office

*Mark Rieger, MD*

### Transitioning to Retirement

*Henry Chambers, MD*

### Using Epic Templates

*Randolph Cohen, MD*

### Tips on Physician Hiring from Two Perspectives

*Michael Jofe, MD*



# 2022 RESEARCH GRANT WINNERS

## ANGELA S.M. KUO MEMORIAL AWARD

**A. Noelle Larson, MD—\$30,000**

Development of an Automated National Pediatric Scoliosis Registry  
Mayo Clinic, Rochester, MN

## ARTHUR H. HUENE MEMORIAL AWARD

**Benton E. Heyworth, MD—\$50,000**

The SATURN Trial: ITB vs. BTB ACLR in Skeletally Mature Adolescents  
Boston Children's Hospital, Boston, MA

## ST. GILES YOUNG INVESTIGATOR AWARD

**Daniel Miller, MD—\$29,691.96**

Effects of Surgery on Seating Pressures in Neuromuscular Scoliosis Patients  
Gillette Children's Specialty Healthcare, St. Paul MN

## ZIMMER BIOMET SPINE RESEARCH GRANT

**Craig R. Louer, Jr., MD—\$30,000**

Vertebral Remodeling Achieved with Vertebral Body Tethering  
Vanderbilt University Medical Center (VUMC), Nashville, TN

## POSNA RESEARCH GRANTS (4)

**Carol A. Wise, PhD—\$29,840**

In Vivo Analysis of Pathologic Cells from NF1 Patient Pseudarthroses  
Scottish Rite for Children, Dallas, TX

**Chi Ma, PhD—\$30,000**

William Morris, MD (co-PI)  
Uncovering the Efficacy of Stem Cell Therapy for Pediatric Osteonecrosis  
Scottish Rite for Children, Dallas, TX

**Peter D. Fabricant, MD, MPH—\$30,000**

Development of a Preseason Injury Risk Calculator for Adolescent Athletes  
Hospital for Special Surgery, New York, NY

**Maryse Bouchard, MD, FRCSC—\$29,570**

Accelerating the Learning Curve in Pediatric MSK Radiograph Interpretation  
The Hospital for Sick Children, Toronto, Ontario, Canada

## POSNA REGISTRY GRANT (3-YEAR GRANT- YEAR 1 OF 3)

**Anthony Philip Cooper, FRCS, MBChB—\$148,900 total (Year 1 \$49,100)**

International Limb Differences Registry  
University of British Columbia, Vancouver, BC, Canada

## POSNA REGISTRY GRANT (YEAR 3 OF 3)

**Andrea Bauer, MD—\$49,437**

## CLINICAL TRIAL PLANNING GRANT

**Walter Lam Huu Truong, MD—\$29,913.32**

Nighttime vs. Full-time Bracing in AIS: Clinical Trial Planning  
Gillette Children's Specialty Healthcare, St. Paul, MN

# 2022 SPRING MICROGRANT WINNERS

## **Jaysson Brooks, MD–\$1,000**

Quantification of the Dynamic Forces Experienced During Halo Gravity Traction for the Correction of Spine Deformities: A Pilot Study  
Scottish Rite for Children, Dallas, TX

## **Allison Gilmore, MD–\$1,000**

Insights into the Mechanical Behavior of Maturing Cortical Bone: A Porcine Model  
Rainbow Babies & Children's Hospital, Cleveland, OH

## **Madeleine Willegger, MD–\$1,000**

Comparison of Open Versus Percutaneous Osteotomies for Pediatric Foot and Ankle Deformity Correction – A Cadaveric Study  
The Hospital for Sick Children, Toronto, Ontario, Canada

## **Alvin Su, MD, PhD–\$1,000**

Motion Analysis of Karate Techniques for Youth Karate Athletes Injury Prevention: A Pilot Study  
Nemours Children's Health / Al duPont Hospital for Children, Wilmington, DE

## **Amy Steele, MD–\$1,000**

Improving the Delivery of High-Quality, Culturally Competent Care, At a Same-Day Surgery Center  
Boston Children's Hospital, Boston, MA

## **Maïke van Niekerk, PhD, BScN–\$350**

Development of an Educational Psychosocial Handbook for Pediatric Patients with Spine Conditions  
Stanford University, Stanford, CA

## **Sumeet Garg, MD–\$1,000**

Evaluation of Percussive Therapy as A Treatment for Back Pain in Adolescents With Primary Lumbar Idiopathic scoliosis  
University of Colorado School of Medicine and Children's Hospital Colorado, Aurora, CO

## **Joshua Abzug, MD–\$1,000**

Comparison of Goniometer Applications (Apps) Utilizing an iPad in the Clinical Setting  
University of Maryland School of Medicine, Baltimore, MD

## **Emily Grant, BS–\$600**

Promoting Firearm Safety in a Pediatric Orthopaedic Clinic  
Medical University of South Carolina, Charleston, SC

## **David Edwards, BS, BA–\$1,000**

Development of Porcine Ex-Vivo Model of Femoral Head Deformity  
Scottish Rite for Children, Dallas, TX

## **Hayley Sacks, MD–\$1,000**

Pre-operative 3D Printing and Mock Osteotomy for Developmental Dysplasia of the Hip: Effects on Intraoperative Efficiency and Patient Outcomes  
NYU Langone Health, New York, NY





# 2022 FALL MICROGRANT WINNERS

**Stephanie Kha, MD—\$1,000**

**Funded by Gillette Children's Specialty Healthcare**

Role and Function of Human Skeletal Stem Cells in Acute Pediatric Fractures  
Stanford University School of Medicine, Stanford, CA

**Steven Criss, BSBA—\$1,000**

**Funded by Gillette Children's Specialty Healthcare**

VR Quality Improvement Program for Orthopaedic Patients with Autism  
President and Fellows of Harvard College, Harvard Medical School, Boston, MA

**Kelly Jeans, MS—\$1,000**

**Funded by Gillette Children's Specialty Healthcare**

Community Ambulation in Patients with Hereditary Spastic Paraplegia  
Scottish Rite for Children, Dallas, TX

**Brian Kaufman, MD—\$1,000**

**Funded by Gillette Children's Specialty Healthcare**

Efficacy of Perioperative Yoga at Reducing Pain in Surgical AIS Patients  
The University of Texas at Austin Dell Medical School, Austin, TX

**Kirsten Norrell, MD—\$1,000**

**Funded by Gillette Children's Specialty Healthcare**

Outcomes of Open Treatment of Developmental Hip Dysplasia in Ecuador  
University of Florida, Gainesville, FL

**Allen Kadado, MD—\$962**

**Funded by Orthofix**

Screw Stimulation for Pedicle Screw Placement in Pediatric Spine Deformity  
Nationwide Children's Hospital, Columbus, OH

**Kevin Williams, MD—\$1,000**

Return to Sport in Pediatric Upper Extremity Fractures

The Children's Hospital of Alabama (Children's Hospital), Birmingham, AL



# 2022 QSVI GRANT WINNERS

**Jennifer Marie Bauer, MD, MS—\$20,000**

**Funded by Medtronic**

Spine at Risk Safety Program

Seattle Children's Hospital, Seattle, WA

**John Vorhies, MD—\$5,000**

**Funded by Medtronic**

A Biopsychosocial Model of Care for Pediatric Spine Clinic


The Board of Trustees of the Leland Stanford Junior University, Stanford, CA

**Haleh Badkoobei, MD—\$10,000**

**Funded by POSNA**

Creation of a Sharable Database to Improve Patient Access to Specialty Care

Harbor-UCLA Medical Center, Torrance, CA



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PEDIATRIC ORTHOPAEDIC SOCIETY OF NORTH AMERICA

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December 2022

April 2023

2023 Annual Meeting  
Apr 29 to May 02, 2023 | Apr 29 to May 02, 2023


Calendar


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the Annual Meeting



Events



# POLICIES

## LANGUAGE

English is the official language of the Annual Meeting.

## NO SMOKING POLICY

Smoking is not permitted during any meeting or event.

## EVENT CANCELLATION

Due to circumstances beyond our control, the Pediatric Orthopaedic Society of North America may elect to cancel the Annual Meeting. These circumstances may include, but are not limited to, disaster, severe weather, civil commotion, pandemics, or government laws or regulations. In the event of such cancellation, all Annual Meeting registrants will be notified by email at the address noted in the POSNA database and registration fees will be refunded in full. Other costs incurred by the registrant, such as airline or hotel penalties, are the responsibility of the registrant.

## INSURANCE/LIABILITIES

POSNA will not be held liable for personal injuries or for loss or damage to property incurred by participants or guests at the Annual Meeting, including those participating in social events. Participants and guests are encouraged to take out insurance to cover losses incurred in the event of cancellation, medical expenses, or damage to or loss of personal effects when traveling outside their own country. POSNA cannot be held liable for any hindrance or disruption of the Annual Meeting arising from natural, political, social, or economic events, or other unforeseen incidents beyond its control. Registration of a participant implies acceptance of this condition.

## DISCLAIMER

The material presented at the Annual Meeting has been made available by the Pediatric Orthopaedic Society of North America for educational purposes only. The material is not intended to represent the only, nor necessarily best, method or procedure appropriate for the medical situations discussed but rather is intended to present an approach, view, statement, or opinion of the faculty which may be helpful to others who face similar situations. POSNA disclaims all liability for injury or other damages resulting to any individual attending the Annual Meeting and for all claims which may arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by the physician or any other person.

## PHOTOGRAPHY

Registration and attendance at, or participation in, POSNA activities constitutes an agreement by the registrant to allow POSNA to capture, retain, and utilize (both now and in the future) the attendees' image, likeness, voice, and actions, whether captured live or recorded and in any format, during the Annual Meeting, for display, exhibition, publication, or reproduction in any medium or context for any purpose, including but not limited to, POSNA member communications, commercial, or promotional purposes.

## NO CAMERAS OR VIDEO CAMERAS

No cameras or video recorders are allowed in any of the sessions or meeting rooms.

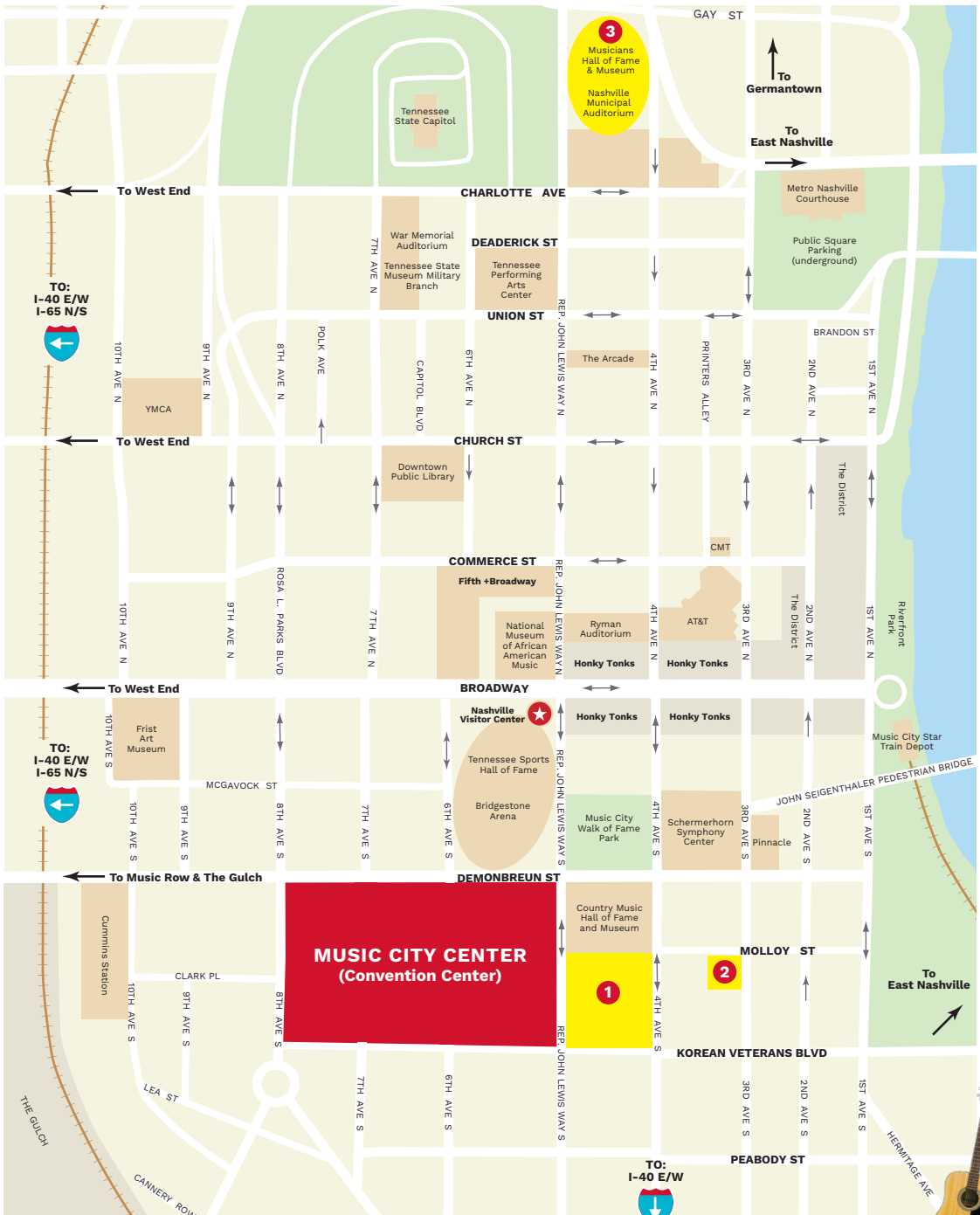
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# HOUSING MAP & VENUE LOCATION


- 1** Omni Nashville  
Adjacent
- 2** Hyatt Place Nashville  
Downtown  
2 blocks
- 3** Musicians Hall of Fame  
Welcome Reception  
Wednesday, April 26

\*Distance noted are in relation to Music City Center

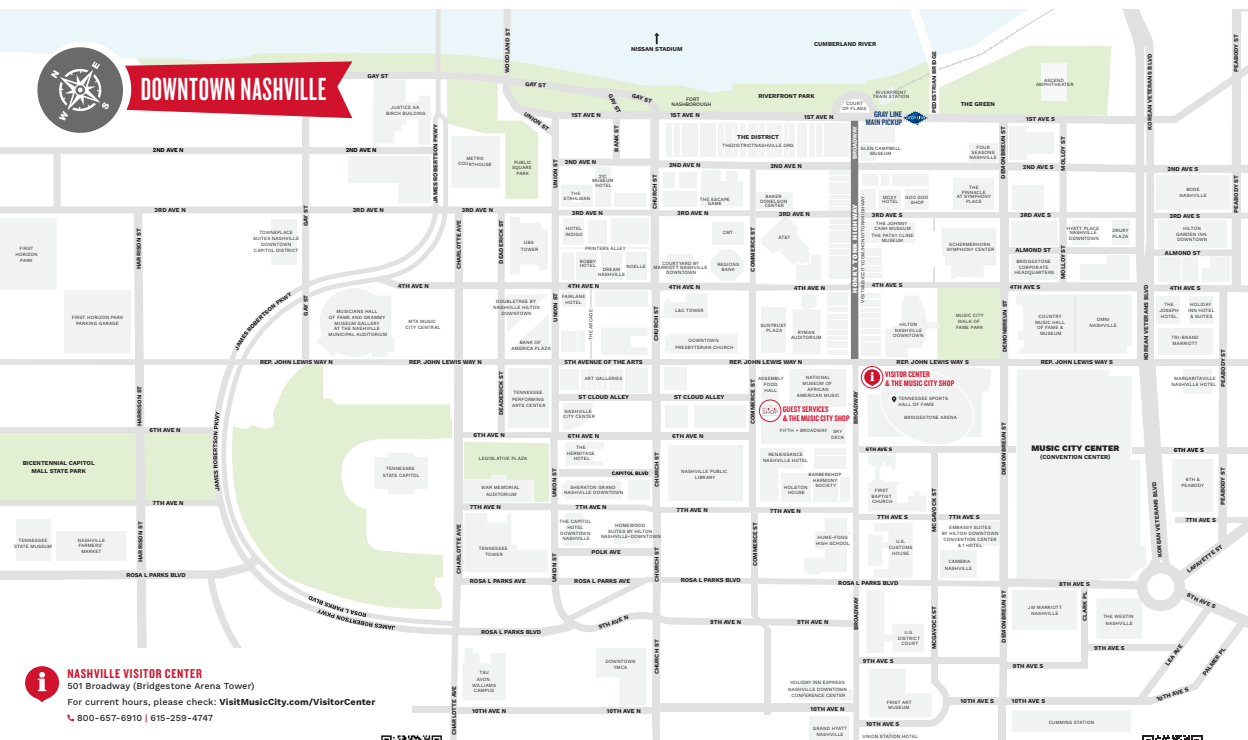






# DOWNTOWN NASHVILLE






**DOWNTOWN NASHVILLE**



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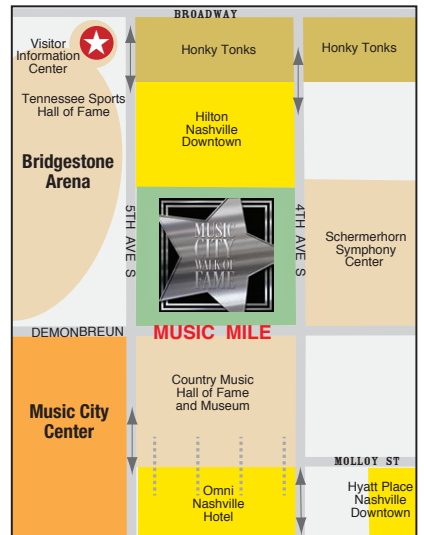
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**SCAN FOR DIGITAL MAP**





# MUSIC CITY WALK OF FAME PARK



1	6	11	16	21	26	31	40	53	58	63	68	73	78	83
2	4	9	14	19	24	29	34	47	56	61	66	71	76	81
3	5	10	15	20	25	30	35	48	57	62	67	72	77	82
8	13	18	23	28	33	42	55	60	65	70	75	80	85	89
<p>Demonbreun St. between 4th and 5th Ave. Nashville, TN</p>														
<p><a href="http://visitmusiccity.com/walkoffame">visitmusiccity.com/walkoffame</a> walkoffame@visitmusiccity.com</p>														

- |                              |                            |                          |                        |
|------------------------------|----------------------------|--------------------------|------------------------|
| 1. Boudleaux & Felice Bryant | 23. Steve Wariner          | 46. Lady A               | 69. Kix Brooks         |
| 2. Kenneth Schermerhorn      | 24. Nitty Gritty Dirt Band | 47. Kid Rock             | 70. Dottie Rambo       |
| 3. Fisk Jubilee Singers      | 25. Martina McBride        | 48. Ernest Tubb          | 71. Bob Babbitt        |
| 4. Ronnie Milsap             | 26. Little Richard         | 49. Little Big Town      | 72. Steve Winwood      |
| 5. Reba McEntire             | 27. Elvis Presley          | 50. Ben Folds            | 73. Kings of Leon      |
| 6. Roy Orbison               | 28. Trace Adkins           | 51. Ray Stevens          | 74. Loretta Lynn       |
| 7. Frances W. Preston        | 29. Jo Walker-Meador       | 52. Clint Black          | 75. Jack White         |
| 8. Emmylou Harris            | 30. Randy Travis           | 53. Tootsie Bess         | 76. Trisha Yearwood    |
| 9. Michael W. Smith          | 31. Michael McDonald       | 54. Charlie Daniels      | 77. Garth Brooks       |
| 10. John Hiatt               | 32. R.H. Boyd              | 55. Eddy Arnold          | 78. Karl Dean          |
| 11. The Crickets             | 33. Marty Stuart           | 56. Little Jimmy Dickens | 79. E.W. "Bud" Wendell |
| 12. Wynonna Judd             | 34. Cowboy Jack Clement    | 57. Rascal Flatts        | 80. Johnny Cash        |
| 13. Barbara Mandrell         | 35. CeCe Winans            | 58. Mel Tillis           | 81. Steve Cropper      |
| 14. Vince Gill               | 36. Captain Tom Ryman      | 59. Bobby Hebb           | 82. Miranda Lambert    |
| 15. Rodney Crowell           | 37. Brenda Lee             | 60. Kris Kristofferson   | 83. Sam Moore          |
| 16. Jimi Hendrix             | 38. Chet Atkins            | 61. Bill Anderson        | 84. Alabama            |
| 17. Buddy Killen             | 39. DeFord Bailey          | 62. Keith Urban          | 85. Kenny Rogers       |
| 18. Bob DiPiero              | 40. Mike Curb              | 63. Dan Miller           | 86. Faith Hill         |
| 19. Hank Williams Sr.        | 41. Josh Turner            | 64. Dr. Bobby Jones      | 87. Tim McGraw         |
| 20. Steven Curtis Chapman    | 42. Dolly Parton           | 65. Peter Frampton       | 88. Amy Grant          |
| 21. Kirk Whalum              | 43. Lula C. Naff           | 66. Alan Jackson         | 89. Martha R. Ingram   |
| 22. Merle Kilgore            | 44. Jeannie Seely          | 67. Manuel               |                        |
|                              | 45. Mac McAnally           | 68. Les Paul             |                        |



# POSNA MEMBERSHIP INFORMATION

The Pediatric Orthopaedic Society of North America (POSNA) is a not-for-profit professional organization of over 1,400 surgeons, physicians, and allied health members passionately dedicated to advancing musculoskeletal care for children and adolescents through education, research, and quality care.

**Mission:** To advance pediatric orthopaedics by promoting education, research, and quality care.

**Vision:** A world with optimal musculoskeletal health for all children.

POSNA values diversity, and we are committed to creating an equitable and inclusive environment for all of our current and future members” [Click here](#) for more information.

## Become a POSNA Member and Advance Your Pediatric Orthopaedic Career!

*Applications for 2024 membership open in June 2023 at [POSNA.org](https://posna.org).*

POSNA members benefit from a robust and diverse array of resources that advance and fulfill the society’s commitment to education, research, and quality care. There are excellent opportunities to forge enduring professional relationships and mentorship. Many members utilize the POSNA platform and its collegial network of colleagues to develop innovative, multi-institution, and multi-national programs.

## BENEFITS

With a culture that is committed to embracing diversity, inclusion, and equity for POSNA members, we offer unparalleled access for all to the following range of benefits:

- Reduced registration fees for the Annual Meeting and International Pediatric Orthopaedic Symposium (IPOS®)
- \$400,000+ in research funding awarded annually
- Committee Appointment Program (CAP) – make your voice heard in 40+ committees
- Participate in the POSNA-Sponsored Traveling Fellowship Program
- Reduced subscription rate to the *Journal of Pediatric Orthopaedics*
- Become a mentor or mentee through the Mentorship Program
- Be a part of the POSNA Safe Surgery Program (PSSP)

## ADDITIONAL EDUCATION:

- POSNA.org Study Guide – over 100 topics available!
- *JPOSNA*® - The official Journal of POSNA. Now accepting original research submissions.
- POSNAcademy - POSNA's video education platform featuring webinars, tutorials, past meeting content, podcasts, and more!
- The Resident Review blog

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## FUTURE ANNUAL MEETINGS

EPOSNA

May 8-11, 2024  
Washington, DC

May 14-16, 2025  
Las Vegas, NV

## FUTURE IPOS® MEETINGS

December 5-9, 2023  
Orlando, FL

December 3-7, 2024  
Orlando, FL



**POSNA**  
PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA

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*Nashville*