

# 2023 POSNA Annual Meeting

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

## Final Program

**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

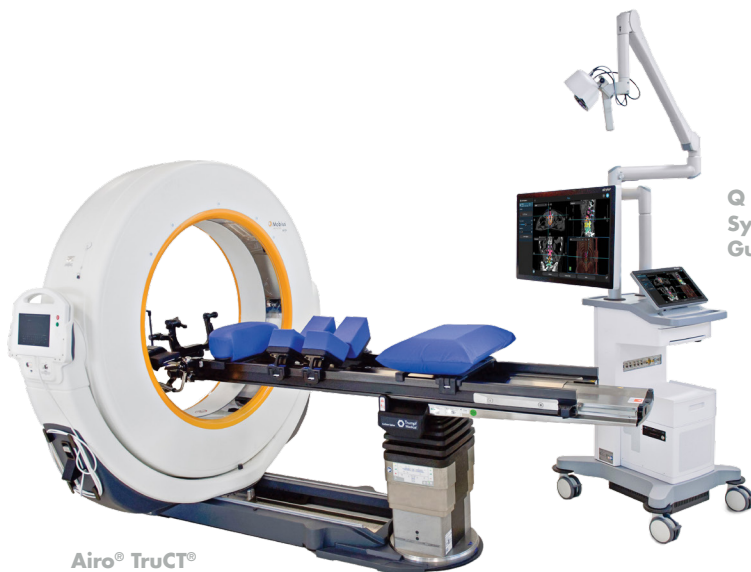


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# PROGRAM COMMITTEE AND SESSION PLANNERS

## PROGRAM COMMITTEE

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

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Michael Jofe, MD  
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Raymond Liu, MD  
Megan Lomax, PA-C

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Jeanne Franzone, MD  
Hilton Gottschalk, MD  
Simon Kelley, MD  
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Brandon Ramo, MD  
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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.

# POSNA APP

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Locate the Events tab to access the Annual Meeting







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*The Pediatric Orthopaedic Society of North America  
gratefully acknowledges **Stryker** as the 2023 Sponsor of the  
Annual Meeting Final Program*





# PRESIDENTIAL WELCOME

What a difference a year makes. Less than a year ago our last POSNA meeting in Vancouver was the first international meeting since COVID began. Now, one year later, Nashville, hustling and bustling with activity, people, and entertainment, will be the host city, and it is shaping up to be an outstanding educational and social meeting. A special thank you to our industry partners for their unwavering support as we emerge from some very uncertain times into a post-COVID environment.

I would like to congratulate Dr. Nick Fletcher and the Program Committee for organizing an outstanding scientific program. Also, thank you to Dr. Anthony Riccio and our Subspecialty Day planners who have put together a great combination of original research, panel discussions, and expert instruction for their sessions.

We are kicking this year's meeting off with a new format. We will have more scientific content, a shorter meeting with sunset of the Pre-Course, and ending of the program on Friday night. This will deliver the same outstanding educational content but allow participants to get home to their families or to stay and explore Nashville for the weekend. The structural changes also will make us more competitive, cost-effective, and sustainable. True to Nashville's deep musical roots, the opening night reception will kick off at the Musicians Hall of Fame where there are plenty of interactive events that will allow you share your musical talents with friends and colleagues.

One of the greatest honors of being the POSNA President is being able to choose the guest lecturers for the meeting. The Steel Lecturer will be Dr. Patrick Bisher, former Navy SEAL, Doctor of Ministry and Leadership Coach. He will share his amazing journey to inspire us as individuals and as an organization. The Presidential Guest Speaker will be the former ABOS, AAOS, and POSNA President, Dr. James H. Beaty, who is a personal and life-long mentor to me and many others. I am sure his wisdom, experience, and wit will make this a memorable experience. This year, we also are launching the Lead Like Lori Lecture, co-sponsored by POSNA and Texas Scottish Rite Hospital, on Thursday, April 27, in memory of Dr. Lori Karol, the 33rd and first female POSNA President. The inaugural speaker will be Commander, NORAD and Commander, US Northern Command (May 2016-May 2018), Commander, Pacific Air Forces (Oct 2014-May 2016) Lori Robinson. We are grateful to Drs. Lindsay Andras, Dan Sucato, and many others for making this lecture series a reality.

A special thanks also goes to our local hosts, Dr. Gregory Mencio, Dr. Jeffrey Martus, and Dr. Jonathan Schoenecker, for assisting in organizing our social activities. Last but not least, I would like to thank our EPOS guests who have traveled a long way to participate. We are excited about this year's program and continued planning of our second EPOSNA meeting in National Harbor, MD in 2024.

On a personal note, it has been an honor to serve as the 39th POSNA President. I have had the privilege to observe first-hand the tremendous energy, passion, and desire that members and all volunteers have to improve musculoskeletal care in children. It is truly inspiring, and it is what makes POSNA special. If this is your first POSNA meeting, welcome. We are glad you are here, and this meeting will be one that you will always remember. If this is not your first POSNA meeting, welcome back, and thank you for contributing to this amazing organization. Welcome to Nashville. Welcome to my home state of Tennessee. We are truly glad you are here.



Jeffrey R. Sawyer, MD  
President, POSNA





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The Pediatric Orthopaedic Society of North America gratefully acknowledges the following for their generous financial support during 2023.

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

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# WELCOME FROM YOUR LOCAL HOSTS

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!

We are delighted to welcome you to the 2023 POSNA Annual Meeting, taking place in beautiful Nashville, Tennessee. Our meeting will be held at the Music City Convention Center, in the heart of downtown Nashville. This time of year is especially lovely in Nashville, with the spring bloom in full effect. The program committee has done a truly outstanding job in creating an academic and scientifically rigorous agenda that covers all aspects of children's musculoskeletal care. With its comprehensive range of topics and speakers, the agenda promises to be highly informative and engaging and provides an opportunity to gain valuable insights into the latest developments in pediatric orthopaedic surgery.

Nashville is known for its vibrant music scene, with endless possibilities for live music. Whether you're in the mood for country, rock, blues, or jazz, you'll find it in Nashville. You can also explore the city's many historical sites and landmarks, such as Fort Negley, the Battle of Nashville Monument, and the Tennessee State Capitol. If you're looking for a more relaxed activity, take a stroll through the city's beautiful parks, such as Centennial Park and Shelby Park. In addition to its many attractions, Nashville is home to some of the best restaurants in the South. From classic Southern-style comfort food to innovative new dishes, the city has something for everyone. Whether you're looking for a casual bite or an upscale dinner, you'll find it in Nashville. Here are some of the top things to do while in Nashville: take a tour of the Ryman Auditorium, the original home of the Grand Ole Opry; take a scenic riverboat cruise on the Cumberland River; enjoy the views from the historical Parthenon, a full-scale replica of the original in Athens; visit the Country Music Hall of Fame and Museum and explore the history of country music.

We look forward to seeing you in April for POSNA 2023. We know it will be an amazing event, and we can't wait to celebrate the accomplishments and look to the future of pediatric orthopaedic surgery with you.

Your Local Hosts,

Jeffrey Martus, MD; Gregory Mencio, MD; and Jonathan Schoenecker, MD, PhD





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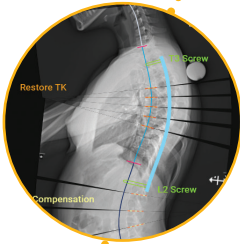
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# PRIVACY POLICIES AND TRANSPORTATION

## 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.

## 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.



# 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

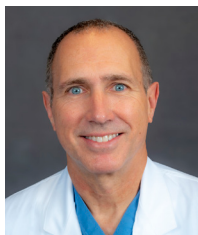
## POSNA MEMBERSHIP REQUIREMENT

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.





# JEFFREY SAWYER, MD PRESIDENT



Jeffrey R. Sawyer, MD, was born in Rochester, New York, and attended college at Rochester Institute of Technology, and Medical School at the University of Rochester School of Medicine, where he graduated with Distinction in Research and spent an additional year as a Howard Hughes Research Fellow. He completed residency at the Hospital of the University of Pennsylvania in Philadelphia and with the mentorship of Denis Drummond, MD, and others at CHOP, discovered his passion for pediatric orthopaedics. He then completed a clinical fellowship at the Campbell Clinic under Drs. Terry Canale, James

Beaty, and William Warner Jr., which included a month as an OREF International Traveling Fellow in Malawi, Africa, where he taught and performed surgery.

Dr. Sawyer began clinical practice at Rush University in Chicago and continued his international work in both Nigeria and the UAE. In 2005, he returned to the Campbell Clinic where his clinical focus has been pediatric trauma and spinal deformity, areas in which he is considered a national/international expert and earned the ranking of "Top Doctor" by Castle and Connolly and Memphis magazine. His work has appeared in *USA Today* and *Parents Magazine*.

Dr. Sawyer has held leadership positions at the Campbell Clinic, including several terms on the Board of Directors as well as on the Board of the Campbell Clinic Foundation. In addition to the institutional leadership roles, he also completed the AOA Apex Leadership Program in conjunction with the USC Marshall School of Business.

With over 125 peer-reviewed publications, 30 book chapters, and over 200 presentations at national/international meetings, he also serves on the editorial board of several orthopaedic journals. Most recently, he has been involved in the evolution of JPOSNA® becoming the official journal of POSNA. His numerous research projects include long-term outcomes of early onset scoliosis patients and the pediatric orthopaedic workforce/diversity. Dr. Sawyer has challenged long-held beliefs in practice regarding the role of spiral femur fractures in non-accidental trauma and the surgical treatment of posterior sternoclavicular dislocations. He has received several POSNA and industry-supported grants. Currently, he serves on the Board of the Pediatric Spine Foundation.

In addition, Dr. Sawyer is directly involved in education at all levels of training and has served as the fellowship director at Campbell Clinic and frequently as faculty at IPOS® and Top Gun. He is one of the co-founders of the Pediatric Orthopedic Surgical Techniques (POST) course focusing on surgical skill development.

Within POSNA, Dr. Sawyer has served on and chaired numerous committees, including Practice Management, Membership, and the Traveling Fellowship committees and was one of the founders of the Mentorship Committee. As an EPOS/POSNA traveling fellow, his strong relationships with his EPOS colleagues still exist today. He was the half day course chair at the first EPOSNA meeting in 2017 in Barcelona and the program chair for the 2018 POSNA Annual Meeting in Austin, Texas. For his work in the Pediatric Orthopaedic Workforce, he was awarded the POSNA Special Effort and Achievement Award in 2015.

Personally, Dr. Sawyer receives the greatest satisfaction from spending time with his wife, Julie, and their three sons—Lucas, Zac, and Jake (ages 8-14). He enjoys outdoor activities such as hiking, mountain biking, boating, skiing, fishing, and chasing their two highly energetic rescue dogs. He participates in Ironman competitions and has completed four Full Ironman and 13 Half-Ironman Triathlons. Being in the top 10 percent in his age group worldwide, he is currently ranked as an Ironman Bronze All-World Athlete.

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Back row from left to right:

**William C. Warner, Jr., M.D.** | **Derek M. Kelly, M.D.**  
**James H. Beaty, M.D.** (President of POSNA 2000-2001)  
**Jeffrey R. Sawyer, M.D.** (Current President of POSNA)

Seated from left to right:

**Benjamin W. Sheffer, M.D.** | **David D. Spence, M.D.**

# DANIEL SUCATO, MD, MS

## INCOMING PRESIDENT



Daniel J. Sucato, MD, MS, is the Chief of Staff at Scottish Rite for Children and Professor of Orthopaedic Surgery at The University of Texas Southwestern Medical Center in Dallas, TX.

He was born and raised in Buffalo, NY, where he graduated magna cum laude from Canisius College. He continued his education at the State University of New York School of Medicine at Buffalo, receiving his medical degree and later a Master's in Biophysics. Remaining in Buffalo at the School of Medicine, he completed his general surgery internship, orthopaedic residency, and basic science research fellowship. During residency, he was strongly influenced by Bob Gillespie, MBChB, who inspired him to continue on into pediatric orthopaedics. He completed the Dorothy and Bryant Edwards Fellowship in Pediatric Orthopaedics and Scoliosis at Scottish Rite for Children under Tony Herring, MD, and subsequently the Hip-Preservation Fellowship at the University of Bern, Switzerland, under Professor Reinhold Ganz. He stayed on at Scottish Rite following his fellowship taking on his "dream job" as one of the staff orthopaedic surgeons in 1998. In 2003, he was selected as one of three International Traveling Fellows for the Scoliosis Research Society (SRS), traveling throughout Europe for 3 weeks.

Dr. Sucato's clinical practice focuses primarily on spinal deformity and hip conditions with an emphasis on complex cases and reconstructions. He has presented and written extensively on a number of these techniques in the form of invited lectures, review papers, and video supplements. He holds multiple patents for spinal implant devices.

He is involved in education at all levels of training including medical school and residency and has served as the fellowship director at Scottish Rite for 10 years. He consistently participates as faculty at IPOS® and in webinars and ICLs associated with POSNA, SRS, and AAOS.

His research focuses on clinical studies primarily but also those involving improved operative techniques. Dr. Sucato has published over 220 scientific peer-reviewed articles, and 50 book chapters, given over 300 presentations at national/international meetings and 45 visiting professorships. He has been awarded the Angelo S.M. Kuo Memorial Award, the Best Clinical Paper Award through POSNA, and both the Russell A. Hibbs and Louis A. Goldstein Award at the SRS meetings. He is a member of several research study groups, including ANCHOR (Academic Network of Conservational Hip Outcomes Research) and the Fox and Harms Study Groups. He chaired the Pediatric Section of the Spine Deformity Study Group (SDSG) during its last 3 years.

Within POSNA, Dr. Sucato has served on numerous committees, including chairing the Industry Relations, Program, and QSVI Education Committees and has been both a junior and senior member-at-large on the Board of Directors prior to joining the Presidential Line. At the SRS, he has chaired the Program and Website Committees and the Education Council for 3 years and has been an at-large member on the Board. He has also served on the Advisory Board of the United States Golf Association Resource Center for Individuals with Disabilities.

Personally, Dr. Sucato loves spending time with his wife, Lisa, and their three children: Emma, 20, Daniel, 18, and Matthew, 17. He enjoys any and all activities with the family, especially accompanying Emma on the piano when preparing for auditions and coaching the boys in their younger days on the soccer field and basketball court. His hobbies include golf, running, skiing, reading, piano playing, and anything Buffalo.







# CONGRATS, DR. SUCATO!

Beloved by his patients and highly respected and admired by his colleagues, Scottish Rite for Children celebrates Dr. Sucato's installment as POSNA President. His unwavering dedication and enduring leadership inspires one-of-a-kind patient care, groundbreaking research and unparalleled education. He is the fourth Scottish Rite for Children orthopedic surgeon to serve in this role.



**SCOTTISH RITE**



# REGISTRATION FEES

## REGISTRATION

Tuesday, April 25	3:00 PM–6:00 PM
Wednesday, April 26	7:00 AM–5:00 PM
Thursday, April 27	7:00 AM–12:00 PM
Friday, April 28	7:00 AM–2:00 PM

## EXHIBIT HALL

Join your colleagues in the Exhibit Hall for fellowship and the discovery of new pediatric orthopaedic products and services. Meals and breaks will be served in the Exhibit Hall located in **Karl Dean Ballroom A**.

Wednesday, April 26	6:30 AM–7:00 PM
Thursday, April 27	7:00 AM–12:00 PM
Friday, April 28	7:00 AM–5:00 PM

## SPEAKER READY ROOM

POSNA requires all live electronic presentations, including concurrent sessions, to be uploaded using the central computer system. No laptop computers will be allowed. The Speaker Ready Room is located in **Room 401**.

Tuesday, April 25	3:00 PM–6:00 PM
Wednesday, April 26	6:30 AM–7:00 PM
Thursday, April 27	7:00 AM–12:00 PM
Friday, April 28	7:00 AM–5:00 PM

## POSNA MEMBERSHIP REQUIREMENT

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

## PRE REGISTRATION FEES

(US DOLLARS)

POSNA MEETING REGISTRATION	
POSNA Member	\$ 850
Non-Member	\$ 1650
Resident/Fellow*	\$ 650
RN/PA/Allied Health	\$ 650
Active Military	\$ 650
Delegates from Reduced Rate Countries: Low Income	\$ 450
Accompanying Person**	\$ 400
Senior Members	\$ 475
Children 6-12, per child	\$60
Children 13-17, per child	\$150
SUBSPECIALTY DAY REGISTRATION***	
Wednesday AM Only–Member	\$ 320
Wednesday AM Only–Non-Member	\$ 370
Wednesday AM Only–Allied Health	\$ 265
Wednesday AM Only–Resident/Fellow	\$ 265
Wednesday AM Only–Active Military	\$ 265
OPENING NIGHT EVENT	
Offsite: Musicians Hall of Fame	\$ 110

**PLEASE NOTE THAT PRE-REGISTRATION ENDS ON APRIL 24, 2023. AFTER THIS DATE, ALL REGISTRATION OPTIONS WILL INCREASE BY \$50.**

\* 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.

\*\* Accompanying Persons must be registered to attend any function, including optional events.

\*\*\* Subspecialty Day registration is Wednesday only and includes breakfast and sessions.





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# PROGRAM AT A GLANCE

## TUESDAY, APRIL 25

Registration	3:00 PM–6:00 PM	CC Level 4
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## WEDNESDAY, APRIL 26

Registration	7:00 AM–5:00 PM	CC Level 4
Breakfast/Exhibits	6:30 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
Presidential Welcome	1:40 PM–2:06 PM	Karl Dean Ballroom BC
Scientific Program	2:07 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
Opening Night Event	7:30 PM–11:00 PM	Musicians Hall of Fame & Museum

*\*Program subject to change*

### 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 4
Breakfast/Exhibits	7:00 AM–8:00 AM	Karl Dean Ballroom A
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Omni-Cumberland 1/2
Lead Like Lori Lecture	8:00 AM–9:00 AM	Karl Dean Ballroom BC
Scientific Program	9:05 AM–12:00 PM	Karl Dean Ballroom BC
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 4
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 1/2
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 Dr. James Beaty	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	3:20 PM–3:40 PM	Karl Dean Ballroom A
Closing Reception	5:00 PM–6:30 PM	The Marty Dickens Terrace

### ACCOMPANYING PERSONS BREAKFAST

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



# 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



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## PHYSICIANS (ACCME) CREDIT DESIGNATION

Amedco LLC designates this live and enduring material for **15.5** live **AMA PRA Category 1 Credits™**, and **10.75** enduring **AMA PRA Category 1 Credits™**. This activity has a maximum of **26.25 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## 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. Any drug or medical device is being used "off label" if the described use is not set forth on the product's approval label.

◆ Indicates a presentation in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an "off label" use).





# SAFETY INFORMATION

## EMERGENCY NOTIFICATION LINE

1300 During Normal Business Hours

## FIRE, POLICE, AMBULANCE

911 During Non-Business Hours

## MAIN BUILDING SECURITY

(615) 401-1300

## NEAREST HOSPITALS

### **Centennial Hospital: 0.6 Miles**

2300 Patterson St., Nashville, TN 37203  
(615) 342-100

### **Ascension Saint Thomas Hospital: 1.6 Miles**

2000 Church St., Nashville, TN 37236  
(615) 284-555

## NON-EMERGENCY CARE

### **Complete Health Partners**

301 Church St., Nashville, TN 37201  
(615) 255-7902

### **Carenow Urgent Care**

1020 Dr. MLK Jr. Blvd., Nashville, TN 37203  
(615) 622-4644

## PHARMACY

### **Walgreens Pharmacy**

226 5th Ave. N, Nashville, TN 37219  
(615) 256-4600  
M-F 8:30 AM–5:00 PM

### **CVS Pharmacy**

426 21st Ave., Nashville, TN 37203  
(615) 321-2590  
M-F 8:00 AM–8:00 PM, Sa 9:00 AM–6:00 PM,  
Su 10:00 AM–6:00 PM

## LOST AND FOUND

POSNA Registration Desk

## NURSING MOTHER'S LOUNGES

Levels 1 And 3

## FAMILY RESTROOMS

Levels 3M And 3



# EPOSNA

# MAY 8-11, 2024

## GAYLORD NATIONAL HARBOR, MD

*The 2024 annual meetings of EPOS and POSNA will be combined into a single meeting that seeks to foster global pediatric orthopaedic education and scholarly exchange.*



# 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

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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*

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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*

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8:15 AM–8:23 AM

Discussion

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**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 Iknow, MD*

9:07 AM–9:30 AM

**Panel Case Discussion**

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9:35 AM–9:55 AM

Coffee Break/Exhibits

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# 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

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**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*

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**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*

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10:46 AM–10:54 AM

Discussion

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**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

7:51 AM–7:59 AM Discussion

**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*

**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*

**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*

8:15 AM–8:23 AM

Discussion

## 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

### Early Surgical Treatment is Indicated

*Emily Dodwell, MD*

9:14 AM–9:21 AM

### Observe! No Surgical Treatment is Necessary

*Meghan Imrie, MD*

9:22 AM–9:30 AM

### Case Discussion with Polling, Audience Questions, & Wrap-Up

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

### Anterior Approach for Open Reduction and Internal Fixation (ORIF) of Acute Unstable Slipped Capital Femoral Epiphysis

*Katherine Wood; Thomas Lewis, MD*

*University of Oklahoma Health Science Center, Oklahoma City, OK*

20

10:05 AM–10:09 AM

### Proportion of Obesity in Stable SCFE is Higher Than in Unstable SCFE: A Multicentre, International Prospective Registry Study

*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*

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

21

10:10 AM–10:14 AM

### Outcomes of Modified Dunn Procedure Versus Delayed Imhauser Osteotomy for Moderate to Severe Stable Slipped Capital Femoral Epiphysis

*Michael Chau; Lauren Osborne; Laura Mayfield, MPH;*

*Chan-Hee Jo, PhD; William Morris, MD; David Podeszwa, MD;*

*Daniel Sucato, MD, MS*

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

10:15 AM–10:23 AM

Discussion



## SUBSPECIALTY DAY PROGRAM

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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*

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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*

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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*

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10:39 AM–10:47 AM

Discussion

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**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**

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11:36 AM–11:40 AM

Discussion

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# 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

7:30 AM–7:35 AM Welcome & Remarks

**25**

7:36 AM–7:40 AM

#### The Modified Fels Knee Skeletal Maturity System in Prediction of Leg-Length Discrepancy

*Dylan Kluck, MD; Marina Makarov; David Podeszwa, MD; Raymond Liu, MD; Chan-Hee Jo, PhD; John Birch, MD; Ryan Furdock Texas Scottish Rite Hospital for Children, Dallas, TX*

**26**

7:41 AM–7:45 AM

#### The Reliability of the Modified Fels Knee Skeletal Maturity System

*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 Rainbow Babies and Children's Hospital, Case Western Reserve University, Cleveland, OH*

**27**

7:46 AM–7:50 AM

#### Skeletal Maturity System Agreement: A Comparison of 7 Different Systems

*Kallie Chen; Amog Mysore; Ryan Furdock; Michael Glotzbecker, MD; Raymond Liu, MD University Hospitals/Case Western University, Cleveland, OH*

7:51 AM–7:59 AM

Discussion

**28**

8:00 AM–8:04 AM

#### Achondroplasia: The Ruse of Rhizomelia

*Aaron Huser, DO; Craig Robbins, MD; Dror Paley, MD; David Feldman, MD The Paley Orthopedic and Spine Institute, West Palm Beach, FL*



# 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 Physis**

*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**

*Anthony Cooper, FRCSC*

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

♦ Indicates a presentation in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an “off label” use).



## 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

♦ Indicates a presentation in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an "off label" use).



# 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 Niiler; 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 Rolwing; 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–10:54 AM **Introduction**  
*Rachel Thompson, MD*

10:55 AM–11:05 AM **Surgical Technique: Patellar Tendon Advancement for Crouch Gait in CP**  
*Andrew Georgiadis, MD*

11:06 AM–11:16 AM **Surgical Technique: Patellar Tendon Shortening for Crouch Gait in CP**  
*Paulo Selber, MD*

11:17 AM–11:26 AM **Discussion**  
*Rachel Thompson, 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 (Q&A from Audience)

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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 Miyajji, 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 Miyajji, 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 Bobby; 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*

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# SUBSPECIALTY DAY PROGRAM

60

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*

10:39 AM–10:47 AM Discussion

## 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*

11:31 AM–11:40 AM Discussion



# 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

#### Intermediate-Term Functional Outcomes after Posterior Cruciate Ligament Injury in Pediatric and Adolescent Patients: Isolated Injury Portends Improved Outcomes

*Garrett Rupp; Katherine Adrian; James Bomar, MPH; Justin Chau; Andrew Pennock, MD; Eric Edmonds, MD  
Rady Children's Hospital - San Diego, San Diego, CA*

**62**

7:41 AM–7:45 AM

#### Parent and Child PROMIS Scores Differ for Athletes

*Corinna Franklin, MD; Emily Nice; Jeremy Bauer, MD  
Shriners Children's Philadelphia, Philadelphia, PA*

**63**

7:46 AM–7:50 AM

#### Biologic Augmentation in Anterior Cruciate Ligament Reconstruction: What Matters? ♦

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

7:51 AM–7:59 AM

Discussion

**64**

8:00 AM–8:04 AM

#### Functional Outcomes of Non-Operative Management of First-Time Patellar Dislocation in the Pediatric Population

*Soroush Baghdadi, MD; Alexandria Debasitis; Kathryn Segal; Steven Henick; Jayson Lian; Mauricio Drummond, MD; Leila Mehraban Alvandi, PhD; Eric Fornari, MD  
Children's Hospital at Montefiore, Bronx, NY*

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# 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

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9:15 AM–9:30 AM Panel Discussion

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9:35 AM–9:55 AM Coffee Break/Exhibits

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## SUBSPECIALTY DAY – SPORTS (CONTINUED)

### Period 2: 10:00–11:40

**67**

10:00 AM–10:04 AM

**Activity Influences Location and Characteristics of OCD of the Capitellum**

*Sharon Huang; Charles Wyatt, NP; Benjamin Johnson; Henry Ellis, MD; Philip Wilson, MD*

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

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**68**

10:05 AM–10:09 AM

**A Comparison of Outcomes in the Surgical Stabilization of Adolescents With Glenolabral Articular Disruption Versus an Isolated Bankart Lesion**

*Caitlin Orner, MD; Tracey Bastrom, MA; Andrew Pennock, MD; Eric Edmonds, MD*

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

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**69**

10:10 AM–10:14 AM

**A Predictive Model for Mobile vs. Immobile Osteochondritis Dissecans Lesions of the Knee**

*Matthew Milewski, MD; Patricia Miller, MS; Ryan Coene; Marc Tompkins; Greg Myer*

*Boston Children's Hospital, Boston, MA*

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10:15 AM–10:23 AM

Discussion

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**70**

10:24 AM–10:28 AM

**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**

*Kunhyung Bae; Amaal Aldosari; Michael Kang*

*Asan Medical Center, Seoul, Republic of Korea*



## 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*

72

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

**73**

7:36 AM–7:40 AM

#### Validation of the Patient/Parent Reported Outcome Measure of Fracture Healing (PROOF-UE ) Questionnaire for Upper Extremity Fractures in Children

*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*

**74**

7:41 AM–7:45 AM

#### Does Shorter Time to Treatment of Pediatric Supracondylar Humerus Fractures Impact Clinical Outcomes?

*Mikaela Sullivan; Brian Wahlig; Samuel Broida; A. Noelle Larson, MD; Todd Milbrandt, MD  
Mayo Clinic, Rochester, MN*

**75**

7:46 AM–7:50 AM

#### If One Is Good, Two Must Be Better: Re-Fractures Rates among Both-Bone-Forearm Fractures in Operatively Treated Cases

*Akbar Syed; Leta Ashebo; J. Todd Lawrence, MD, PhD  
Children's Hospital of Philadelphia, Philadelphia, PA*

7:51 AM–7:59 AM

Discussion

**76**

8:00 AM–8:04 AM

#### Regional Anesthesia as an Alternative to Procedural Sedation for Forearm Fracture Reductions

*Carmen Sulton; Joshua Murphy, MD; Nicholas Fletcher, MD; Scott Gillespie; Amanda Artis; Rebecca Burger  
Children's Healthcare of Atlanta, Atlanta, GA*



# 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 Ebersson, 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

79

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 Rashwala; 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; Cortney 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



## SPEAKERS AND AWARDS

11:50 AM–1:30 PM **Member Business Meeting**  
Room: 104

### PRESIDENTIAL WELCOME

Room: Karl Dean Ballroom BC

**1:40 PM–2:06 PM**

1:40 PM–1:42 PM **Welcome and Introduction of Distinguished Guests**  
*Jeffrey Sawyer, MD*

1:43 PM–1:45 PM **Presentation of the St. Giles Young Investigator Award**  
*Jeffrey Sawyer, MD*

1:46 PM–1:48 PM **Presentation of the Arthur H. Huene Award**  
*Jeffrey Sawyer, MD*

1:49 PM–1:54 PM **Presentation of Angela S.M. Kuo Memorial Award**  
*Ken Kuo, MD and Christina Kuo, MD*

1:55 PM–1:59 PM **Presentation of the Special Effort and Excellence Award**  
*Jeffrey Sawyer, MD*



Marcella R. Woiczik, MD, is a pediatric orthopaedic surgeon at Shriners Hospitals for Children, Salt Lake City, and the University of Utah. Dr. Woiczik grew up in Buffalo, NY. She graduated from the Medical College of Ohio and completed her orthopaedic surgery residency at the Medical College of Wisconsin. Her pediatric orthopaedic fellowship training was completed at the University of Utah, and she spent some additional time learning advanced hip preservation techniques in Bern, Switzerland in 2010.

Dr. Woiczik has nearly 15 years of clinical experience, with a focus on trauma, clubfoot, and hip disorders from infancy through young adulthood. She served as the fellowship director of the University of Utah program for 8 years. She has served on multiple committees within the AAOS (American Academy of Orthopaedic Surgeons) and POSNA (Pediatric Orthopaedic Society of North America) throughout her career, with specific leadership roles as chair of the AAOS Emerging Professionals Committee and the POSNA Fellowship Training and Qualifications Committee. Her goals have been to support and promote optimal fellow education and training.

Whenever possible, Marcella spends time hiking with her husband, Tim, and two Labradors, Addie and Lucy.



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1. DePuy Synthes. Altalyne Calculation of Rod Bending Yield Strength and Stiffness Memorandum, June 7, 2022. Adaptiv #103782175 Rev. B

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## SPEAKERS AND AWARDS

2:00 PM–2:06 PM

### Presentation of the Humanitarian Award

*Jeffrey Sawyer, MD*



Jacob Heydemann, MD, is a board-certified orthopaedic surgeon with over 40 years of experience. He earned his medical degree in 1979 from Texas Tech School of Medicine in Lubbock, TX, and completed his residency in orthopaedic surgery in 1984 at the University of Arkansas Medical School, Little Rock, AR. Subsequently, he completed a fellowship in pediatric orthopaedics in 1985 at the Hospital for Sick Kids in Toronto, Ontario, Canada.

Dr. Heydemann established his private practice in El Paso, TX, in 1985. Two years later, in partnership with Hospital De La Familia Foundation, he developed a pediatric orthopaedic clinic across the border in Ciudad Juarez, Chihuahua, Mexico. Over the last 33 years, he and a team of volunteers have served tens of thousands of children and young adults facing severe adversity and who would otherwise be unable to access the level of care they need. His humanitarian work continues to this day.

In 2005, in appreciation of his efforts, the Mexican government granted him the highest decoration of honor awarded to foreigners: The Mexican Order of the Aztec Eagle.

Dr. Heydemann has also served as Chief of Staff and Chief of Orthopedics at Providence Memorial Hospital in El Paso, founding member of the Border Children Health Clinic in El Paso, and President of the Paso del Norte Health Foundation. He has received several awards, including Distinguished Alumni for Texas Tech University Health Sciences, “Rene Mascarenas Miranda” International Excellence Award, and La Rosa del Desierto Award, which commemorates extraordinary individuals in the El Paso/ Ciudad Juarez region.







**FDA Pending**

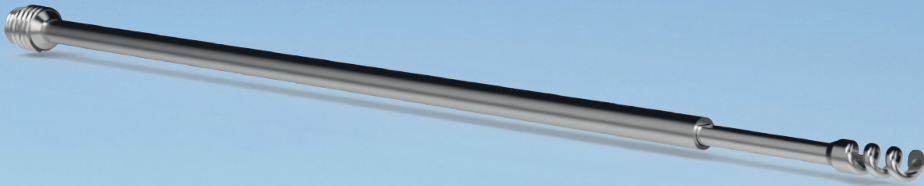
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# SCIENTIFIC PROGRAM

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

Room: Karl Dean Ballroom BC

Moderators: *Gregory Mencio, MD and Virginia Casey, MD*

**2:07 PM–3:30 PM**

2:07 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*

**87**

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

89

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

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**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*

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**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*

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**96**  
4:10 PM–4:14 PM      **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*

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4:15 PM–4:23 PM      Discussion

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**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*

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**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

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**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*

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4:39 PM–4:47 PM

Discussion

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**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*

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**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*

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**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*

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5:03 PM–5:11 PM

Discussion

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# POSNA HALL OF FAME

Until the 1960s, no orthopaedist limited their practice to children. The POSNA Hall of Fame provides an enduring history to honor those POSNA members who have displayed dedication to the Pediatric Orthopaedic Society of North America, teaching and mentoring, studying musculoskeletal conditions in children, and caring for children with musculoskeletal conditions. Nominations for members are accepted each fall and selected by the Awards Committee and members of the Hall of Fame.

Hall of Fame Categories: Leadership, Diversity, Teacher, Humanitarian, Hero, Triumph over Adversity, Pioneer, Contributions to Literature, Home Person (one who does the real work while others go to meetings), Foxhole Buddy (reliable person when the stakes are high), Exceptional Clinician, POSNA Service

Eligibility: POSNA member for at least 15 years, Minimum age of 60 years

## 2023 INDUCTEES



### LEADERSHIP

**Peter F. Armstrong, MD**

*"One of the great joys in pediatric orthopaedics is to have wonderful friends all over the world who have the same passion for helping children with orthopaedic disorders and injuries to maximize their potential. Dr. Salter would frequently quote Louis Pasteur who said: 'When I look upon a child, I am filled with admiration for that child – not so much for what it is today, as for what it may become.' I believe that describes why we do what we do."*

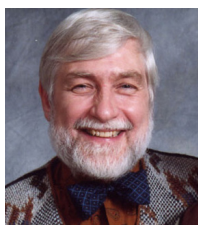


### LEADERSHIP

**Morris A. Duhaime, MD**

*"In addition to providing outstanding care for thousands of patients, [Dr. Duhaime] has always been a staunch supporter of academics and resident education. He has been a mentor for many Canadian Pediatric Orthopaedic Surgeons and his legacy will remain."*

*- Thierry Benaroch, MD, FRCS(C)*



### PIONEER

**Freeman Miller, MD**

*"Make a plan for your career and follow your passion doing the things you enjoy, and limit as much as possible those things you do not enjoy."*



# POSNA HALL OF FAME

## 2023 INDUCTEES CONTINUED



### PIONEER/CONTRIBUTIONS TO LITERATURE

**Vincent S. Mosca, MD**

*"Mentor the next generation. If what we do was easy, anyone would do it – but it isn't easy. We need to help the next generation acquire the almost exponential increase in knowledge and skills that, frankly, we didn't need to acquire at the start of our careers. Early in your career, find mentors and meet with them regularly. Then become a mentor to others in pediatric orthopaedics, life balance, and the pursuit of happiness."*



### HERO

**J. Andy Sullivan, MD**

*"Learn from your mistakes and seek help when needed from other colleagues and other professionals. Don't let production numbers rule your life. We are in one of the most rewarding specialties possible. Volunteer your services locally, nationally, and internationally."*



### LEADERSHIP

**Stephen J. Tredwell, MD**

*"To those who are the future of our specialty: You have inherited a most challenging and most rewarding discipline – enjoy the ride."*



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

**John Vorhies, MD**, April 26,  
Spine Subspecialty Program



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

**Kevin Shea, MD**, April 28,  
Scientific Program



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

**Stephanie Pun, MD**, ePoster 23

Dr. Pun is also the co-chair of the hip subspecialty program.

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# OPENING CEREMONY

6:00 PM–6:05 PM

## Welcome

POSNA President: *Jeffrey Sawyer, MD*  
Local Hosts: *Jeffrey Martus, MD; Gregory Mencio, MD; Jonathan Schoenecker, MD*

6:06 PM–6:14 PM

## Introduction of Hall of Fame Inductees

6:15 PM–6:25 PM

## Recognition of Industry Sponsors

*Jeffrey Sawyer, MD*

6:26 PM–6:29 PM

## Introduction Steel Lecturer

*Jeffrey Sawyer, MD*

6:30 PM–7:00 PM

## 2023 Steel Lecture: GRIT

*Dr. Patrick Bisher*



Dr. Patrick Bisher is a former Navy SEAL who served in combat in the Middle East. After his time at SEAL team three and team seven, he was hand selected to implement a distinct scenario-based training blueprint for Naval Special Warfare's (NSW) Foreign Language Program. Patrick led as the liaison officer for the Foreign Language Program for all of NSW while stationed at the Advanced Training Center in Coronado, CA.

After his active-duty time was fulfilled, he was a contracted SEAL Mentor running the NSW selection program (SEAL, SWCC, EOD, Diver, AIRR) for the Navy. For 6 years, he mentored over 1,000 candidates through his program teaching his G.R.I.T. Method mental toughness strategy. He was rated the #1 Navy SEAL Mentor in the Nation. During this time, he received his Doctorate of Ministry in Christian Leadership and wrote *No Surrender* and *Warrior of God*.

Currently, Dr. Bisher lives and works in Orlando, FL, with his wife and children, running his company GRIT ACADEMY. His full-scale mentorship program offers team building, leadership development, and one-on-one coaching to transform his client's mentality, mindset, culture, and leadership style.

7:30 PM–11:00 PM

## Opening Night Event at Musicians Hall of Fame & Museum



WEDNESDAY, APRIL 26

## OPENING NIGHT EVENT

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### WEDNESDAY, APRIL 26

7:30 PM	DOORS OPEN
7:30 PM–9:00 PM	DINNER
7:30 PM–9:00 PM	JENNY TEATOR BAND
9:00 PM–10:00 PM	LINE DANCING
10:00 PM–11:00 PM	JENNY TEATOR BAND

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## LEAD LIKE LORI LECTURE



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.

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Proudly serving the Austin community since 1990, **Central Texas Pediatric Orthopedics** provides comprehensive care for pediatric and adolescent patients.



**Hilton Gottschalk, MD** (Hand & Upper Extremity), **Ryan Murdock, MD** (Spine & Hip),  
**Jay Shapiro, MD** (Spine), **John Williams, MD** (Spine), **Robert Dehne, MD** (Foot & Ankle), **Catherine Sargent, MD** (Sports Medicine), **Brian Kaufman, MD** (Spine & Neuromuscular), **Matt Ellington, MD** (Sports Medicine), **Chris Souder, MD** (Limb Lengthening & Hip), **Kirsten Ross, MD** (Spine & Neuromuscular)

## SCIENTIFIC PROGRAM

### LEAD LIKE LORI LECTURE

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; Yuhan 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

### Hemiepiphysiodesis 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*

♦ Indicates a presentation in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an "off label" use).





## SCIENTIFIC PROGRAM

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10:45 AM–10:53 AM Discussion

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**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*

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**113**

10:59 AM–11:03 AM

### **Metabolic Impacts on Post-Surgical Outcomes after Hemiepiphysiodesis for Hypophosphatemic Rickets**

*Ian Marpuri; Irene Chen; Chelsey Grimbley; Anna Ryabets-Lienhard; Oussama Abousamra, MD  
Children's Hospital Los Angeles, Los Angeles, CA*

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**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*

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11:09 AM–11:17 AM Discussion

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**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*

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**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

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**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*

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11:33 AM–11:41 AM

Discussion

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**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*

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**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*

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**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*

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11:57 AM–12:05

Discussion

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# 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

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8:00 AM–8:04 AM Welcome & Remarks

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**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*

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**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*

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8:17 AM–8:25 AM Discussion

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**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*

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**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*

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8:36 AM–8:43 AM Discussion

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## SCIENTIFIC PROGRAM

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**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

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**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 Mencio, MD; Craig Louer Jr., MD; Byron Stephens, MD, MSCI*  
Vanderbilt University Medical Center, Nashville, TN

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8:56 AM–9:03 AM

Discussion

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**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

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**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

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9:14 AM–9:21 AM

Discussion

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**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      **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**  
*Benton Heyworth, MD; Yi-Meng Yen, MD; David Spence, MD; Joshua Pang; Dennis Kramer, MD; Mininder Kocher, MD, MPH  
Boston Children's Hospital, Boston, MA*

9:34 AM–9:42 AM      Discussion

**131**  
9:43 AM–9:47 AM      **Detrimental Effects of Chlorhexidine on Articular Cartilage Viability, Matrix, and Mechanics**  
*Maziar Moslehyazdi; Benjamin Bielajew; John Schlechter, DO; K. Athanasiou; Dean Wang  
University of California Irvine, Irvine, CA*

**132**  
9:48 AM–9:52 AM      **Mesenchymal Stromal Cell Exosomes Enhance Primary Repair Of Rabbit Anterior Cruciate Ligament**  
*James Hui; Gin Way Law; Keng Lin Wong; Barry Tan; Dexter Seow; Shipin Zhang; Sai Kiang Lim; Wei Seong Toh  
National University of Singapore, Singapore, Singapore*

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 Wudbhav Sankar, MD*

**Period 2 : 10:30 AM–11:29 AM**

**133**  
10:30 AM–10:35 AM      **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**  
*Kyle Chan; Daniel McBride; Jacob Wild; Jonathan Samet; Romie Gibly, MD  
Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL*



## SCIENTIFIC PROGRAM

**134**

10:36 AM–10:41 AM

### Changes in Foot Posture Over the Course of Childhood in Ambulatory Youth with Cerebral Palsy

*Chris Church; Nancy Lennon, MS, PT, DPT; Madison Lennon; John Henley; Thomas Shields; Timothy Niiler; Daveda Taylor; M. Wade Shrader, MD; Freeman Miller, MD  
Nemours Children's Hospital, Delaware, Wilmington, DE*

10:42 AM–10:50 AM

Discussion

**135**

10:51 AM–10:55 AM

### The Biology of Spinal Fusion: A New Paradigm Suggesting Transdifferentiation of Chondrocytes Derived from the Periosteum of the Spinal and Transverse Processes

*Atsuyuki Kawabata; Michael Benvenuti, MD; Takuya Oyaizu; Rachel McKee; J. Court Reese; Satoru Egawa; Jonathan Schoenecker, MD, PhD; Stephanie Moore-Lotridge, PhD  
Vanderbilt University Medical Center, Nashville, TN*

**136**

10:56 AM–11:00 AM

### High dietary Glutamine suppresses the severity of enchondromatosis

*Benjamin Alman, MD, FRCSC  
Duke, Durham, NC*

11:01 AM–11:08 AM

Discussion

**137**

11:09 AM–11:14 AM

### Does glenoid anteversion osteotomy stiffen the shoulder in brachial plexus birth palsy?

*Deeptiman James; Alison Anthony; Kristen Davidge; Howard Clarke; Sevan Hopyan, MD  
The Hospital for Sick Children, Toronto, ON, Canada*

**138**

11:15 AM–11:20 AM

### Health-related quality of life in Idiopathic toe walkers: A multicentre prospective study

*Eileen Morrow; Yael Gelfer, MD, PhD; Jennifer Harris; John Cashman; Alpesh Kothari, MA, BM, BCh, AFHEA, MSc, DPhil, FRCS  
Oxford University Hospitals NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom*

11:21 AM–11:29 AM

Discussion



## SPEAKERS AND AWARDS

11:30 AM–11:31 AM

### Introduction of Distinguished Achievement Award

Jeffrey Sawyer, MD

11:32 AM–11:45 AM

### Distinguished Achievement Award



Scott Mubarak, MD, was Surgeon in Chief at Rady's Children's Hospital (2015-2021), Professor of Orthopedics at the University of California, San Diego (UCSD), and Emeritus Chief of the Division of Pediatric Orthopedics at Rady Children's Hospital, San Diego, before he retired in July 2021.

He graduated from the University of Wisconsin School of Medicine (Madison) as an Alpha Omega Alpha Honor Society member, where he met his bride-to-be, Sandy, a nurse.

His orthopedics training was at the University of California, San Diego, and his Pediatric Orthopedic Fellowship was at the Hospital for Sick Children in Toronto, Canada, under the leadership of Robert Salter and Norris Carroll.

Dr. Mubarak is a member of the Pediatric Orthopaedic Society of North America (POSNA), European Paediatric Orthopaedic Society (EPOS), American Academy of Orthopaedic Surgeons (AAOS), Scoliosis Research Society, and International Pediatric Orthopaedic Think Tank (IPOTT).

He has received numerous awards, including:

1. The AAOS Kappa Delta Award for research on compartment syndromes and muscle pressure measurement, 1987.
2. POSNA Walter P. Blount Pioneer Award for outstanding clinical scientific paper on muscular torticollis, 1991.
3. President of POSNA, 2004-2005.
4. POSNA Presidential Guest Speaker, Hawaii, 2010.
5. Nicolas Andry Lifetime Achievement Award for work on Compartment Syndromes, 2020.

Dr. Mubarak's research interests are infant hip dislocation, foot deformities, tarsal coalition, muscular dystrophy, cerebral palsy, trauma, and compartment syndromes. He has authored 176 peer-review journal articles, 43 book chapters, and a textbook, *Compartment Syndromes and Volkmann's Contracture*. Some of his publications include (1) Pitfalls of the Pavlik Harness for DDH, (2) San Diego Pelvic Osteotomy, (3) 3C Osteotomies for valgus foot deformities, and (4) Treatment of Tarsal Coalitions. He has described more than 27 procedures or techniques useful in orthopaedic surgery.

After 44 years of pediatric orthopaedic surgery, he is enjoying retirement with his wife of 54 years, Sandy, traveling from their Old Coach Vineyards ranch outside San Diego to Maui and the South Pacific, and entertaining their two sons, their wives, and five granddaughters. In his spare time, he writes about South Pacific artists under his pen name of CJ Cook. He has published two award-winning biographies of the year, *Tyree, Artist of the South Pacific* (2017) and *Leeteg* (2021), with a third book out later this year, *Beauty in the Beasts, Flora, Fauna, and Endangered Species of artist Ralph Burke Tyree* available at [www.SouthPacificDreams.com](http://www.SouthPacificDreams.com).



## SPEAKERS AND AWARDS

11:46 AM–11:51 AM **2024 Meeting Announcements**  
*Matthew Oetgen, MD, MBA*

11:52 AM–11:58 AM **Award Announcements**  
*Nicholas Fletcher, MD*

11:59 AM–12:19 PM **Presidential Speaker**



James H. Beaty, MD  
Professor and Chairman UT-Campbell Clinic

A Georgia native, a graduate of Washington and Lee University in Lexington, VA, and the University of Tennessee College of Medicine in Memphis, TN, James H. Beaty, MD, is currently Professor and Chairman of the UT-Campbell Clinic Dept. of Orthopaedic Surgery and Past Chief of Staff of The Campbell Clinic.

Active in numerous professional organizations, Dr. Beaty has formerly served as President of the American Board of Orthopaedic Surgery, the Pediatric Orthopaedic Society of North America, the Mid-America Orthopaedic Association, the Tennessee Orthopaedic Society, and The Orthopaedic Learning Center at the AAOS.

He served in multiple leadership roles in the American Academy of Orthopaedic Surgeons and was the 75th President in 2007-2008.

Dr Beaty also served as Chairman of the Board of the Journal of Bone and Joint Surgery. He is on the editorial board for the Journal of Pediatric Orthopaedics, the American Journal of Orthopaedic Surgery, the Journal of the Southern Orthopaedic Association, and the Journal of Orthopaedic Trauma.

Dr. Beaty has edited nine editions of textbooks, including Fractures in Children and Campbell's Operative Orthopaedics, authored 60 book chapters, and published more than 75 peer-reviewed scientific articles. He has given numerous scientific presentations and held visiting professorships both nationally and internationally.

The recipient of several honors and awards, Dr. Beaty was selected to complete the American Orthopaedic Association North American Traveling Fellowship in 1984 and the American Orthopaedic Association's prestigious American-British-Canadian Traveling Fellowship in 1991. He received the Distinguished Alumnus Award for the University of Tennessee Health Sciences Center and the Distinguished Achievement Award from POSNA.

His family includes his wife, Terry (BSN), son, Eric (Business Banking), and daughter, Meredith (BSN -MBA in Research at St Jude).

12:20 PM–12:30 PM **Presidential Transfer**





# SCIENTIFIC PROGRAM

## 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 Bobby; Michael Vitale, MD, MPH; Benjamin Roye, MD*  
*Columbia University Medical Center - Children's Hospital of New York, New York City, NY*
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- 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

3:20 PM–3:40 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

## CLOSING RECEPTION

Room: The Marty Dickens Terrace

**5:00 PM–6:30 PM**





# 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*



## SCIENTIFIC PROGRAM

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*

162

2:34 PM–2:38 PM

### **A Prospective, Multicenter Study of Developmental Dysplasia of the Hip: What Can Patients Expect After Open Reduction?**

*Sara Kiani; 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*  
*Children's Hospital of Philadelphia, Philadelphia, PA*

2:39 PM–2:47 PM

Discussion

163

2:48 PM–2:52 PM

### **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**

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

164

2:53 PM–2:57 PM

### **Long-term Patient Reported Outcomes and Satisfaction Following In Situ Epiphysiodesis for Stable Slipped Capital Femoral Epiphysis: a Multi-center Retrospective Cohort Study**

*Camille Sullivan; Lei Zhao; Molly Uchtman; Robert Bardsley; Lukas Keil; Joseph Stone, MD; Courtney Selberg, MD; Patrick Whitlock, MD, PhD*  
*Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

165

2:58 PM–3:02 PM

### **How Are Adults with Perthes Disease Functioning After a Total Hip Replacement? Results of an International Web-based Survey**

*Michael Millis, MD; Bella Vakulenko-Lagun; Roi Almakias; Harry Kim, MD*  
*Texas Scottish Rite Hospital for Children, Dallas, TX*



## SCIENTIFIC PROGRAM

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3:03 PM–3:11 PM Discussion

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3:20 PM–3:40 PM Coffee Break/Exhibits

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### CONCURRENT SESSION – SPORTS

Room: 101

Moderators: *Benton Heyworth, MD and Crystal Perkins, MD*

Period 2 : 3:45 PM–5:00 PM

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**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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**167**

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*

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**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*

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4:00 PM–4:08 PM

Discussion

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**169**

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*

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## SCIENTIFIC PROGRAM

**170**

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

**172**

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

## CLOSING RECEPTION

Room: The Marty Dickens Terrace

**5:00 PM–6:30 PM**





# 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

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## 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*

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## 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*

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## 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*

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## HAND & UPPER EXTREMITY

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## 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*

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## 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*

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## 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*

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## 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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# ePOSTERS

## 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



# ePOSTERS

## 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*

♦ Indicates a presentation in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an "off label" use).





# ePOSTERS

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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

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## ePoster 29

### Anxiety and Depression treatment in Pediatric Sarcoma Patients

Mikayla Roof; Alexandra Callan

UT Southwestern Medical Center, Dallas, TX

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## LOWER EXTREMITY & DEFORMITY

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## 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

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## 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

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## 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

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## 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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# ePOSTERS

## ePoster 34

### 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 Rolwing; David Bade, MD; Anthony Cooper, FRCS*

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

## ePoster 35

### 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*

## ePoster 37

### 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

## ePoster 38

### 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*



# ePOSTERS

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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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# ePOSTERS

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## ePoster 47

### 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 Roye, 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





# ePOSTERS

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## ePoster 54

### 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

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## 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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## ePoster 56

### 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

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## 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

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## SPORTS

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## 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

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## 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



# ePOSTERS

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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*



# ePOSTERS

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## ePoster 67

### 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

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## 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

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## 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

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## TRAUMA

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## 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

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## ePoster 71

### 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

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## ePoster 72

### 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 73

### 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

# ePOSTERS

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## ePoster 74

### 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 75

### 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 76

### 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 77

### 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 78

### 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 79

### 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*

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## AAP YOUNG INVESTIGATOR AWARD WINNERS

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## ePoster 80

### Epidemiology of Preschool Age Children Presenting to the Orthopaedic Clinic with Limping

*Blair Stewig, BS; Megan Hannon, MD; Lois Lee, MD, PhD*

*Boston Children's Hospital, Boston, MA*





# 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*

## 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 Dashboards in Epic: Increasing Efficiency and Identifying Successful Workflows

*Randolph Cohen, MD*

### Tips on Physician Hiring from Two Perspectives

*Michael Jofe, MD*

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- **Lower-Extremity Orthopedic Conditions** like clubfoot, limb-length discrepancy and limb differences, rotational and alignment issues, such as femoral anteversion and tibial torsion, skeletal dysplasia and more
- **Hip Conditions** like developmental dysplasia of the hip, adolescent dysplasia of the hip, femoroacetabular impingement, Legg-Calvé-Perthes disease and more
- **Spine Conditions** like Scheuermann's disease, scoliosis (idiopathic, neuromuscular, and congenital), spondylolysis, and spondylolisthesis
- **Upper-Extremity Orthopedic Conditions** like birth brachial plexus injuries, syndactyly, macrodactyly and congenital amputations, limb-length discrepancy, and limb differences
- **Sports Injuries** like fractures, recurring injuries, ACL or MCL tears and more
- **Trauma and Infections**

Learn more: [gillettechildrens.org](http://gillettechildrens.org)  
Speak with a Gillette expert: 651-325-2200





# Redefining Orthopedic Care

Nemours Children's Orthopedics goes well beyond standard medical care to help kids get back to being kids. Our comprehensive team of experts is committed to developing leading-edge research, innovation and treatments to provide life-changing, holistic care for children.



Well Beyond Medicine®

# 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://www.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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# 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 Badkoobehi, 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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# EXHIBITOR LISTING



## AMERICAN BOARD OF ORTHOPAEDIC SURGERY

Founded in 1934 as a private, voluntary, nonprofit, autonomous organization, the American Board of Orthopaedic Surgery (ABOS) exists to serve the best interest of the public and the medical profession by establishing educational standards for orthopaedic residents and by evaluating the initial and continuing qualifications and competence of orthopaedic surgeons.



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Biedermann is a mid-sized, international, family owned and operated group of companies with headquarters in the Black Forest, Germany (Villingen-Schwenningen) and the USA (Miami). Our focus is on the development, production and distribution of innovative implants and instruments for spinal and extremity surgery. We research, develop, manufacture and distribute high-quality implant systems in collaboration with healthcare professionals, technology partners, scientific institutions and specialist companies with the goal of achieving improved clinical outcomes.



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We are distinct in that our team of specialists is singularly focused on the development of innovative calcium compounds for surgical use. Our innovative

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BioMarin remains steadfast to its original mission – to bring new treatments to market that will make a big impact on small patient populations. These conditions are often inherited, difficult to diagnose, progressively debilitating, have few, if any, treatment options, and are usually ignored. Visit [www.biomin.com](http://www.biomin.com) to learn more.

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#### CHILDREN'S HOSPITAL LOS ANGELES

Children's Hospital Los Angeles is the No. 1 pediatric hospital in California, No. 1 on the West Coast and among top 10 in the nation ranked by U.S. News & World Report. Care is led by world-class physicians who are faculty members of the Keck School of Medicine of USC.

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#### CURE INTERNATIONAL

CURE International is a Christian nonprofit organization that operates a global network of pediatric surgical hospitals that serve children with disabilities. Patients

at CURE children's hospitals suffer from conditions that can limit mobility, opportunities for education, and employment such as cleft lip/palate, neglected clubfoot, bowed legs, burn contractures, spina bifida, or conditions that are life-threatening such as brain tumors and hydrocephalus. In addition to world-class clinical service, CURE intentionally ministers to the emotional and spiritual needs of our patients and their communities. Since its inception in 1996, CURE has conducted more than 5 million patient visits.

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#### CURVEBEAM AI

CurveBeam AI designs and manufactures weight bearing CT imaging systems for the orthopedic specialties. CurveBeam's HiRise, for the first time, provides 3D functional views for indications including hip dysplasia and flat foot.

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#### DEPUY SYNTHES

DePuy Synthes, the Orthopaedics Company of Johnson & Johnson, provides one of the most comprehensive orthopaedics portfolios in the world that helps heal and restore movement for the millions of patients we serve.



# EXHIBITOR LISTING



## GILLETTE CHILDREN'S

Gillette Children's is a global beacon of care for patients who have brain, bone, and movement conditions that start in childhood. Unlike most children's hospitals, Gillette Children's focuses on conditions and injuries affecting musculoskeletal and neurological systems.

Gillette Children's hospital and clinics have earned national and world recognition for excellence in the treatment of cerebral palsy, gait and motion analysis, pediatric orthopedics, pediatric neurology and neurosurgery, and pediatric rehabilitation medicine. Through innovative research, treatments, and supportive technologies, Gillette Children's enables every child to lead a life defined by their dreams, not their diagnoses.

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## GLOBUS MEDICAL

Globus Medical, a leading musculoskeletal solutions company, is driving significant technological advancements across a complete suite of products ranging from spinal, trauma, and joint reconstruction therapies to imaging, navigation, and robotics. Founded in 2003, Globus' single-minded focus on advancing spinal surgery has made it the fastest growing company in the history of orthopedics. Globus is driven to utilize high-level engineering and technology to achieve pain-free, active lives for all patients with musculoskeletal disorders.

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## GREEN SUN MEDICAL

Green Sun Medical LLC. is a Colorado company dedicated to developing transformative bracing technology to prevent spinal deformity surgery. We have assembled a world class surgeon advisory board of scoliosis thought leaders and veteran industry executives. The innovative and flexible design of the

Whisper Brace lets patients remain active and move naturally. Our tech enabled dynamic brace will provide precise corrective pressure to patients. Green Sun Medical and the Whisper Brace are changing the lives of adolescents with scoliosis.

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Med One Group is an authorized distributor of the Turner Smart-C Mini C-Arm. The Smart-C offers a lightweight, cordless, and battery-operated system with a sophisticated imaging algorithm, improving visualization and portability. The Smart-C provides a flexible option for physicians with real-time fluoroscopic visualization and a collapsible design for storage and transportation.

# EXHIBITOR LISTING



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We lead global healthcare technology and boldly attack the most challenging health problems facing humanity by searching out and finding solutions. Our Mission — to alleviate pain, restore health, and extend life — unites a global team of 90,000+ passionate people. Powered by our diverse knowledge, insatiable curiosity, and desire to help all those who need it, we deliver innovative technologies that transform the lives of two people every second, every hour, every day. Expect more from us as we empower insight-driven care, experiences that put people first, and better outcomes for our world.

In everything we do, we are engineering the extraordinary.



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Merete demonstrates a passion for solutions. Our stated aim is to discover and react to market demands at any time. As a manufacturer, the health and the mobility of the patient is top priority. Our latest innovation for simpler and faster guided growth and growth arrest is PediatrOS FlexTack™ and RigidTack™. These novel staples work on the same tension-band principle of a plate to correct leg length discrepancies and angular deformities. Furthermore, Merete's PediatrOS staples offer a safer and more effective alternative for your patients. [www.MereteUSA.com](http://www.MereteUSA.com)

### The MHE Research Foundation



Wings of HOPE as we REACH for the CURE to Multiple Hereditary Exostoses

### MHE RESEARCH FOUNDATION

The MHE Research Foundation is a nonprofit 501(c)(3) organization dedicated to the support of Researchers, Physicians & Families dealing with Multiple Hereditary Exostoses Syndrome (MHE) Multiple Osteochondroma Syndrome (MO) a rare genetic bone disease. The MHE Research Foundation Five point mission is to REACH, advance and support the following. RESEARCH: to assist

and support researchers in order to one day discover a treatment / cure for MHE. Our foundation works hand in hand with researchers and physicians from around the world in this mission.

EDUCATION: to provide vital clinical informational guides & accompanying video benefiting both families and physicians.

ADVOCACY: bring awareness about this disease throughout the world. CLINICAL: to provide resources directly to families enabling them to locate the medical care they require. HOPE: the research being conducted on MHE/MO/HME & the informational resources will bring a better quality of life to the families affected by this disease around the world.

# EXHIBITOR LISTING



## BEAR<sup>®</sup> Implant

### MIACH ORTHOPAEDICS

Miach Orthopaedics is leading a shift in the treatment of anterior cruciate ligament tears from reconstruction to restoration. The company's Bridge-Enhanced ACL Restoration (BEAR) Implant is the first medical technology

to demonstrate with Level 1 clinical evidence that it enables the body to heal its own torn ACL. The BEAR Implant is indicated for a broad range of tear types and is implanted with an easy, bone-sparing technique.

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### NUVASIVE

NuVasive is a world leader in minimally invasive, procedurally integrated spine solutions. From complex spinal deformity to degenerative spinal conditions, NuVasive is transforming spine surgery with innovative technologies designed to deliver reproducible and clinically proven surgical outcomes.

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### nVIEW MEDICAL

nView medical is an imaging start-up focused on "what's best for patients". nView's imaging and guidance system, the nView s1 + true-map navigation™, is a breakthrough 3D imaging system that provides instant 3D imaging in the operating room with very low levels of radiation. It is a fully integrated AI-enabled imaging and navigation solution. The nView s1 + true-map navigation™ is FDA cleared, has been used in more than 100 surgeries, and is commercially available.

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### ORTHO CARE CASTING, LLC

Ortho Care Casting, LLC is a US manufacturer of a full line of waterproof liners and casting products. Our full line allows healthcare providers to fulfill all of their casting needs in one place. Founded by a manufacturer of orthopedic products with over 10 years of experience,

Ortho Care Casting is committed to providing the most up to date technology and products in the waterproof casting market. We are a woman owned enterprise who services leading hospitals as well as health care clinics and private practices.

# EXHIBITOR LISTING

## **ORTHOFIX®** ORTHOFIX

Orthofix Medical Inc. is a global medical device company with a spine and orthopedics focus. The Company's mission is to deliver innovative, quality-driven solutions as we partner with health care professionals to improve patient mobility.

With the most comprehensive portfolio of limb reconstruction products, Orthofix Orthopedics addresses the most challenging pediatric orthopedic conditions worldwide including bone deformity, trauma, and limb lengthening procedures. Focused on the complete patient pathway, we support clinicians and patients through continuous innovation of hardware and enabling digital solutions, clinical evidence and industry- leading medical education programs.

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## **ORTHOPEDIATRICS CORP.**

Founded in 2006, OrthoPediatrics is an orthopedic company focused exclusively on advancing the field of pediatric orthopedics. As such it has developed the most comprehensive product offering to the pediatric orthopedic market to improve the lives of children with

orthopedic conditions. OrthoPediatrics currently markets 46 surgical systems that serve three of the largest categories within the pediatric orthopedic market. This product offering spans trauma and deformity, scoliosis, and sports medicine/other procedures. OrthoPediatrics' global sales organization is focused exclusively on pediatric orthopedics and distributes its products in the United States and over 70 countries outside the United States. For more information, please visit [www.orthopediatrics.com](http://www.orthopediatrics.com).

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## **OXOS® MEDICAL**

OXOS® Medical is driving innovation in delivering and distributing medical imaging and radiographic diagnostics. With a low radiation profile, the OXOS smart devices provide outstanding image sharpness and clarity

in the smallest form factor, making X-ray available anywhere it is needed. The cloud-based OXOS® Platform offers growing capabilities for on-demand image management, telehealth collaboration, and delivery of AI diagnostics. Micro C®, the first portable Dynamic Digital Radiographic X-ray system has received U.S. Food and Drug Administration 510(K) clearance for radiographic imaging and DDR of the distal extremity in adults and children.



## EXHIBITOR LISTING



### PACIRA BIOSCIENCES, INC.

Pacira BioSciences, Inc. (Nasdaq: PCRX) is committed to providing a non-opioid option to as many patients as possible to redefine the role of opioids as rescue therapy only. The company is also developing innovative interventions to address debilitating conditions involving

the sympathetic nervous system, such as cardiac electrical storm, chronic pain, and spasticity. Pacira has three commercial-stage non-opioid treatments: EXPAREL® (bupivacaine liposome injectable suspension), a long-acting, local analgesia currently approved for postsurgical pain management; ZILRETTA® (triamcinolone acetonide extended-release injectable suspension), an extended-release, intra-articular, injection indicated for the management of osteoarthritis knee pain; and iovera®, a novel, handheld device for delivering immediate, long-acting, drug-free pain control using precise, controlled doses of cold temperature to a targeted nerve. To learn more about Pacira, including the corporate mission to reduce overreliance on opioids, visit [www.pacira.com](http://www.pacira.com).



### PATHKEEPER SURGICAL

PathKeeper has developed a disruptive, real-time, radiation-free spine navigation system that provides physicians with a sub-millimeter level of surgical accuracy. The system incorporates a proprietary laser-guided 3D camera that tracks each vertebra and the surgeon's tools independently throughout the procedure. The images are analyzed using proprietary 3D camera technology and software that integrates them with a pre-surgery

CT scan of the patient. The system continuously adjusts the anatomical map to reflect spinal movement and surgeon manipulation; enabling physicians to achieve sub-millimeter accuracy for optimal surgical outcomes. It's fast, (30 second set up and registration time), accurate, (continuous dynamic tracking enables sub-millimeter accuracy), radiation-free intra operatively, portable, (compact and mobile - ideal for small ORs) and affordable, (compared to expensive, static image robot and other navigation systems requiring intraoperative radiation).



### PEDITST- PEDIATRIC ORTHOPEDICS

PediTST is a brand of TST Orthopedics that is specialized in innovative pediatric orthopedic solutions. TST and PediTST have become global brands by producing innovative orthopedic implants since 1997. PediTST adopts as a principle of TST's strengths as quality-focused work discipline, innovative mindset, and commitment to customer services.

# EXHIBITOR LISTING



## RADY CHILDREN'S HOSPITAL

Rady Children's Hospital-San Diego is a nonprofit, 511-bed pediatric-care facility dedicated to excellence in care, research and teaching. We are the only hospital in the San Diego, California area dedicated exclusively to pediatric health care and the region's only designated pediatric trauma center.

In affiliation with the University of California, San Diego School of Medicine, we are the region's teaching hospital for the next

generation of pediatric physicians.

We are a major pediatric clinical research center, working in collaboration with world-renowned institutions, including UC San Diego and St. Jude Children's Research Hospital.

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## RUBIN INSTITUTE FOR ADVANCED ORTHOPEDICS

The physicians of the LifeBridge Health Center of Rubin Institute for Advanced Orthopedics Excellence located in Baltimore, Maryland, have earned a global reputation for their limb lengthening and deformity correction expertise as well as their innovative techniques for joint preservation and replacement. Physician education is central to the Rubin Institute's mission; we offer a 5-year orthopaedic surgery residency program, both clinical and research fellowships

in adult and pediatric orthopedics, and the annual Baltimore Limb Deformity Course ([www.DeformityCourse.com](http://www.DeformityCourse.com)). We created two apps (Bone Ninja and Multiplier – each with 75K+ downloads) and two The Art of Limb Alignment textbooks available on Amazon. Please visit [www.RubinInstitute.com](http://www.RubinInstitute.com) for additional information.

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**Shriners  
Children's™**

## SHRINERS CHILDREN'S

Shriners Children's is a leader in providing care for orthopedic conditions, burn injuries, spinal cord injuries and other spine disorders, rehabilitation, sports injuries and craniofacial conditions. We also

offer specialized services, including orthotics and prosthetics and motion analysis. We strive to provide the care and support our patients need to reach their goals and discover their full potential. All care and services are provided regardless of the families' ability to pay or insurance status.

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**STERIS**

## STERIS

When it comes to surgery, patients and their families count on the expertise of caring professionals, who count on STERIS. Our goal is to help ensure the Operating Room (OR) environment in hospitals and

ambulatory surgery centers allows every patient to receive vital care. Our offering, ranging from surgical equipment, OR technology and procedural surgical instruments and repair services, gives you the freedom to focus on what you do best - care for patients.

## EXHIBITOR LISTING



### STRYKER

Stryker is one of the world's leading medical technology companies and, together with its customers, is driven to make healthcare better. The company offers innovative products and services in Medical and Surgical,

Neurotechnology, Orthopaedics and Spine that help improve patient and healthcare outcomes. Alongside its customers around the world, Stryker impacts more than 100 million patients annually. More information is available at [www.stryker.com](http://www.stryker.com).

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WISHBONE  
MEDICAL

### WISHBONE MEDICAL

WishBone Medical is a global pediatric orthopedic company committed to providing highly differentiated pediatric implants, instruments, and solutions in single-use, sterile-packed procedure kits. Our kits are designed to prevent infection, reduce overall costs for customers, and achieve the best outcomes for children around the world who are still growing.

Surgeon-led Innovation | Designed for Kids | Engineered for Efficiency

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Wolters Kluwer

### WOLTERS KLUWER

Wolters Kluwer provides trusted clinical technology and evidence-based solutions that engage clinicians, patients, researchers, and the next generation of healthcare providers. With a focus on clinical effectiveness, research and learning, safety and surveillance, and interoperability and data intelligence, our proven solutions drive effective decision-making and consistent outcomes across the continuum of care.

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### ZIMVIE

ZimVie Spine is dedicated to restoring daily life for patients through comprehensive spinal solutions with a focus on education, training, and clinical support for surgeons. Along with cervical disc replacement, vertebral body tethering, comprehensive spinal fixation, and fusion implants, ZimVie Spine offers minimally invasive procedural solutions and a complete suite of biologic solutions.

# 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.

## REPRODUCTION POLICY

POSNA reserves any and all rights to materials presented at the Annual Meeting, including ePosters and any online content. Reproductions of any kind, by any person or entity without prior written permission from POSNA, are strictly prohibited. Prohibited reproductions include, but are not limited to, audiotapes, videotape, and/or still photography. Persons violating this policy may have their badge confiscated and be escorted from the meeting. No unapproved surveys, handouts, or literature may be distributed at the meeting.





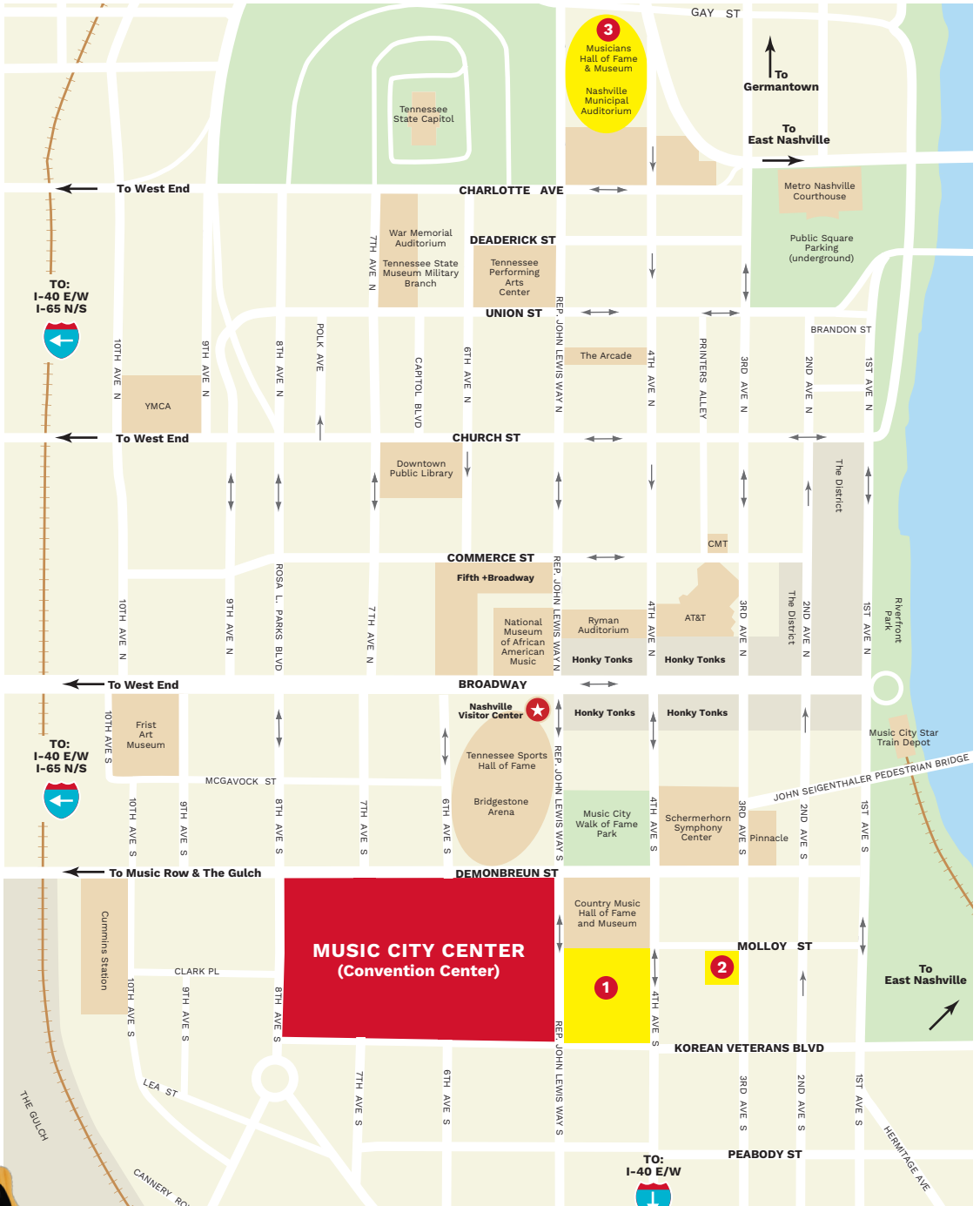
# HOUSING MAP & VENUE LOCATION

**1** Omni Nashville  
Adjacent

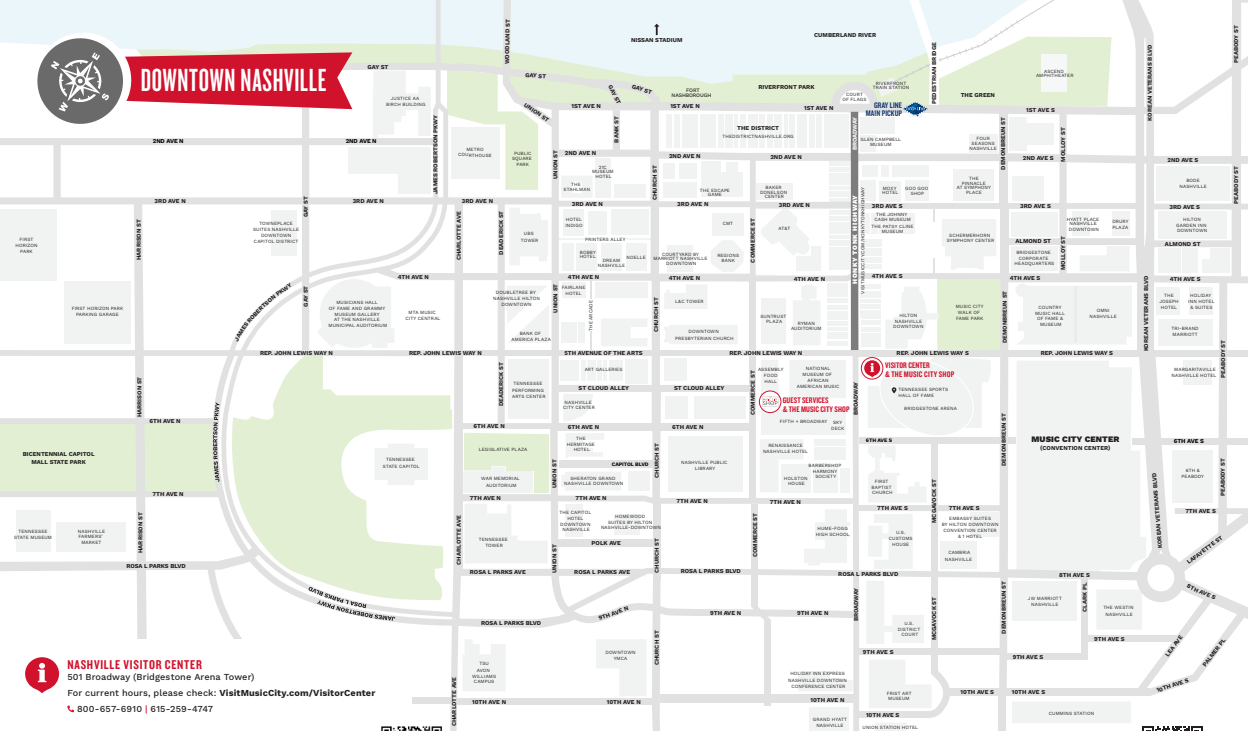
**2** Hyatt Place Nashville  
Downtown  
2 blocks

**3** Musicians Hall of Fame  
Welcome Reception  
Wednesday, April 26

\*Distance noted are in relation to Music City Center



# DOWNTOWN NASHVILLE



## DOWNTOWN NASHVILLE

**NASHVILLE VISITOR CENTER**  
 501 Broadway (Bridgestone Arena Tower)  
 For current hours, please check: [VisitMusicCity.com/VisitorCenter](http://VisitMusicCity.com/VisitorCenter)  
 800-657-6910 | 615-259-4747



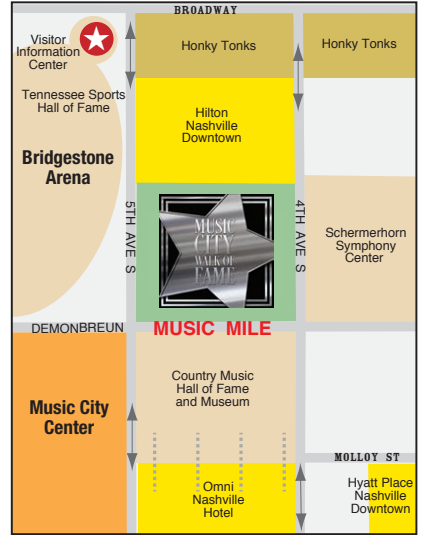
**VIEW TOURS & DEALS AT**  
[VisitMusicCity.com/GrayLine-Maps](http://VisitMusicCity.com/GrayLine-Maps)

**Nashville** MUSIC CITY     @VisitMusicCity

**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	86
3	5	10	15	20	25	30	35	48	57	62	67	72	77	82	87
4	8	13	18	23	28	33	42	55	60	65	70	75	80	85	89
							36	43	49						
							37	44	50						
							38	45	51						
							39	46	52						

Demonbreun St. between 4th and 5th Ave. Nashville, TN

[visitmusiccity.com/walkoffame](http://visitmusiccity.com/walkoffame)  
walkoffame@visitmusiccity.com

- |                              |                            |                          |                        |
|------------------------------|----------------------------|--------------------------|------------------------|
| 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 ANTITRUST POLICY

It shall be the policy of the Pediatric Orthopaedic Society of North America (POSNA) to be in strict compliance with all Federal and State Antitrust laws, rules, and regulations. Therefore, these policies and procedures apply to all membership, board, committee, and all meetings attended by representatives of POSNA.

Discussions at POSNA meetings often cover a broad range of topics pertinent to the interests or concerns of orthopaedic surgeons. As a general rule, except as noted below, discussions at POSNA meetings can address topics without raising antitrust concerns if the discussions are kept scrupulously free of even the suggestion of private regulation of the profession. However, a number of topics that might be (and have been) discussed at POSNA meetings may raise significant complex antitrust concerns. These include:

- Membership admissions, rejections, restrictions, and terminations;
- Method of provision and sale of POSNA products and services to non-members;
- Restrictions in the selection and requirements for exhibitors at the POSNA Annual Meeting or in CME activities;
- Collecting and distributing certain orthopaedic practice information, particularly involving practice charges and costs;
- Obtaining and distributing orthopaedic industry price and cost information;
- Professional certification programs;
- Group buying and selling; and
- Inclusions or exclusion of other medical societies in organizational activities or offerings.

When these and related topics are discussed, the convener or members of the POSNA group should seek counsel from its General Counsel.

POSNA urges its Board, committees, and other groups not to participate in discussions that may give the appearance of or constitute an agreement that would violate the antitrust laws. Notwithstanding this reliance, it is the responsibility of each POSNA Board or committee member to avoid raising improper subjects for discussion. This policy has been prepared to ensure that POSNA members and other participants in POSNA meetings are aware of this obligation.

The “Do Not’s” and “Do’s” presented below highlight only the most basic antitrust principles. POSNA members and others participating in POSNA meetings should consult with the General Counsel in all cases involving specific questions, interpretations, or advice regarding antitrust matters.

## Do Not’s

1. Do not, in fact or appearance, discuss or exchange information regarding:
  - a. Individual company prices, price changes, price differentials, mark-ups, discounts, allowances, credit terms, etc. or any other data that may bear on price, such as costs, production, capacity, inventories, sales, etc.
  - b. Raising, lowering, or “stabilizing” orthopaedic prices or fees;
  - c. What constitutes a fair profit or margin level;
  - d. The availability of products or services; or
  - e. The allocation of markets, territories or patients.
2. Do not suggest or imply that POSNA members should or should not deal with certain other persons or companies.
3. Do not foster unfair practices regarding advertising, standardization, certification or accreditation.
4. Do not discuss or exchange information regarding the above matters during social gatherings, incidental to POSNA-sponsored meetings.



# POSNA ANTITRUST POLICY

5. Do not make oral or written statements on important issues on behalf of POSNA without appropriate authority to do so.

## The Do's

1. Do adhere to a prepared agenda for all POSNA meetings. It is generally permissible for agendas to include discussions of such varied topics as professional economic trends, advances, and problems in relevant technology or research, various aspects of the science and art of management, and relationships with local, state, or federal governments.
2. Do object whenever meeting summaries do not accurately reflect the matters that occurred.
3. Do consult with General Counsel on all antitrust questions relating to discussions at POSNA meetings.
4. Do object to and do not participate in any discussions or meeting activities that you believe violate the antitrust laws; dissociate yourself from any such discussions or activities and leave any meeting in which they continue.

## Special Guidelines for Collecting and Distributing Information

The collection and distribution of information regarding business practices is a traditional function of associations and is well-recognized under the law as appropriate, legal, and consistent with the antitrust laws. However, if conducted improperly, such information gathering and distributing activities might be viewed as facilitating an express or implied agreement among association members to adhere to the same business practices. For this reason, special general guidelines have developed over time regarding association's reporting on information collected from and disseminated to members. Any exceptions to these general guidelines should be made only after discussion with General Counsel. These general guidelines include:

1. Member participation in a statistical reporting program is voluntary. A statistical reporting program should be conducted without coercion or penalty. Non-members should be allowed to participate in a statistical reporting program if eligible; however, if a fee is involved, non-members may be charged a reasonably higher fee than members.
2. Information should be collected via a written instrument that clearly sets forth what is being requested.
3. The data that is collected should be about past transactions or activities, particularly if the survey deals with prices and price terms (including charges, costs, wages, benefits, discounts, etc.), it should be historic, i.e., more than three months old.
4. The data should be collected by either POSNA or an independent third party not connected with any one member.
5. Data on individual orthopaedic surgeons should be kept confidential.
6. There should be a sufficient number of participants to prevent specific responses or data from being attributable to any one respondent. As a general rule, there should be at least five respondents reporting data upon which any statistic or item is based, and no individual's data should represent more than 25% on a weighted average of that statistic or item.
7. Composite/aggregate data should be available to all participants—both members and non-members. The data may be categorized, e.g., geographically, and ranges and averages may be used. No member should be given access to the raw data. Disclosure of individual data could serve to promote uniformity and reduce competition.
8. As a general rule, there should be no discussion or agreement as to how members and non-members should adjust, plan, or carry out their practices based on the results of the survey. Each member should analyze the data and make business decisions independently.







## FUTURE ANNUAL MEETINGS

EPOSNA

May 8-11, 2024 • National Harbor, MD

May 14-16, 2025 • Las Vegas, NV

## FUTURE IPOS® MEETINGS

December 5-9, 2023 • Orlando, FL

December 3-7, 2024 • Orlando, FL

CONNECT WITH POSNA DURING THE  
MEETING AND SHARE YOUR EXPERIENCES

#POSNA2023



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# POSNA

PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA

1 Tower Lane, Suite 2410  
Oakbrook Terrace, IL 60181  
p: (630) 478-0480 • f: (630) 478-0481  
e: posna@posna.org

# Nashville