

16th Annual International Congress
on Early Onset Scoliosis and the Growing Spine
Sheraton Parco de' Medici Hotel, Rome, Italy
November 16–18, 2022

Wednesday, November 16, 2022

1:00 pm	ICEOS Registration	Sala Visconti (Foyer)
	<u>Pre-Course: The EOS Graduate</u>	Loggia Dei Signori
2:30	Welcome	J. Flynn, MD
Session 1:	The EOS Graduate	Mod: J. Flynn, MD
2:35-2:44	EOS Graduation: Our decision-making journey in the past 20 years	C. Johnston, MD
2:45-2:54	Stop lengthening! Who, when, and why	M. Oetgen, MD
2:55-2:59	Discussion	
3:00-3:04	I'm happy to stop lengthening and follow (non-MCGR)	D. Marks, MD
3:05-3:09	I'm happy just leaving MCGR and follow	P. Sponseller, MD
3:10-3:14	I prefer final fusion for all	B. Yaszay, MD
3:15-3:19	Discussion	
3:20-3:29	How to know when observation is not working	C. Hasler, MD
3:30-3:39	3 stage graduation: Removal, HGT, final fusion	M. Glotzbecker, MD
3:40-3:44	Discussion	
3:45-4:09	Refreshment Break and Exhibits	Sala Visconti
Session 2:	Technical Pearls for Graduation Surgery	Loggia Dei Signori
		Mod: J. Smith, MD
4:10-4:19	Level selection: case examples	A. McIntosh, MD
4:20-4:29	Managing the PJK: case examples	M. Erickson, MD
4:30-4:34	The role of osteotomies across lengthy auto fusion	R. Stueker, MD
4:35-4:39	How much should we be cleaning up the MCGR debris?	C. Nnadi, MD
4:40-4:44	Revision surgeries following definitive fusions	M. Vitale, MD
4:45-4:49	Discussion and surgeon therapy session	J. Smith, MD
4:50-5:14	Cases for panel and audience discussion	

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Tech Updates

5:15-5:21	#1 MAGEC X Technology Update by NuVasive	Toby Jacobs
5:22-5:28	#2 Novel Materials in Pediatric Spinal Deformity by DePuy Synthes	Chris Burke
5:29-5:30	Discussion	
5:30	Adjourn	

ICEOS Opening Session

Loggia Dei Signori

Session 3: Campbell Award & Smith Family Lecture

Mod: B. Yaszay, MD

5:40	Welcome	B. Yaszay, MD
5:41-5:44	Introduction of the Robert Campbell, Jr. Award	B. Yaszay, MD
5:45-5:55	Acceptance Speech	
5:56-5:59	Introduction of the Smith Family Annual Lecture	J. Smith, MD
6:00-6:20	Smith Family Lecture	Gorgio Colutta Francesco Trimani
6:20	Adjourn	
6:20	Welcome Reception and Wine Tasting Experience	Sala Visconti
7:15	Adjourn	

Thursday, November 17, 2022

6:45-7:25 am	Breakfast and Exhibits	Sala Visconti
7:30	Welcome	B. Yaszay, MD
Session 4:	EOS - Back to the Basics	Loggia Dei Signori Mod: J. Sanders, MD
7:35-7:43	Understanding spinal growth	A. Dimeglio, MD
7:44-7:52	EOS is a 3D deformity	S. Parent, MD
7:53-8:01	Growth-friendly implants: The effects on growth and 3D correction	R. Castelein, MD, PhD
8:02-8:12	Discussion	
8:13-8:21	Pulmonary function now, and where it will be in 5 years	G. Redding, MD
8:22-8:30	Classifying EOS and its guide to treatment	M. Vitale, MD
8:31-8:39	Understanding EOSQ and measuring outcomes	B. Ramo, MD
8:40-8:50	Discussion	

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8:51	Debate: 2-year-old with a small curve – Cast vs. Brace	Mod: M. Glotzbecker, MD
8:52-8:57	Cast is best for the patient, parent, and surgeon	Y. Li, MD
8:58-9:03	Brace is best for the patient, parent, and surgeon	J. Brooks, MD
9:04-9:09	Combination of brace and cast is the best of both worlds	M. Oetgen, MD
9:10-9:19	Discussion	
Session 5:	Scientific Papers – Back to the Basics	Loggia Dei Signori
		Mod: M. Crostelli, MD & A. McIntosh, MD
9:20-9:24	Spirometry Outcomes in an Orthopedic Clinic Setting vs Pulmonary Function Laboratory for Children with EOS	K. White, MD
9:25-9:29	Growth Friendly Surgeries Increase 3D True Spine Length at 2-Years Post-Operative	J. Brown, MD
9:30-9:34	Weight Gain and Nutritional Improvement After Magnetically Controlled Growing Rod Surgery in Early Onset Scoliosis: An Analysis of 68 Patients	H. Turner, MD
9:35-9:39	Children with Presumed Early-Onset Idiopathic Scoliosis and Treated in Cast May Have Delayed Ambulation	M. Glotzbecker, MD
9:40-9:44	Discussion	
9:45-9:49	Definition of Tweener: Consensus Among Experts in Treating Early Onset Scoliosis	H. Matsumoto , MD
9:50-9:54	Clinical Utility of Ultrasonography for the Assessment of Skeletal Maturity Based on the Sanders Radiological Classification in Patients with Juvenile Idiopathic Scoliosis	T. Bas, MD
9:55-9:59	Parent Requests to STOP Spine-Lengthening Treatment and Impact on EOSQ-24 Scores	J. Anari, MD
10:00-10:04	Is Spine Straightness Correlated with Mental Health in Early-Onset Scoliosis Patients Treated with Growing Rods? Psychological Assessment in Graduated Patients	M. Yazici, MD
10:05-10:09	Discussion	
10:10-10:40	Refreshment Break and Exhibits	
Session 6:	Scientific Papers	Loggia Dei Signori
		Mod: Y. Li, MD & R. Castelein, , MD, PhD
10:41-10:45	There Is No Magic to It: Lengthening Behavior of Magnetically Controlled Growing Rods in Early Onset Scoliosis	J. Heyer, MD
10:46-10:50	The Magic Behind the Magnets in the Magnetically Controlled Growing Rods	S. Eiskjaer, MD

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10:51-10:55	Establishing Parameters for Future EOS Lengthening Devices: High Resolution Electronic Detection of Force, Displacement and Stiffness During Expansion Surgeries	J. Anari, MD
10:56-11:00	The Evaluation of Serum Metal Ion Levels and Metallosis in Patients with Magnetically Controlled Growing Rods	F. Alberghina, MD
11:01-11:05	Discussion	
11:06-11:10	Lower Instrumented Vertebra Selection in Growing Rod Surgery and the Risk of Adding On	S. Hwang, MD
11:11-11:15	Growth Guidance Surgery with Fusion at Upper Foundation and Segmental Guidance Screwing at Lower Foundation (modified Shilla Surgery) for Early-onset Scoliosis: Evaluation at Least 2 Years Follow Up	M. Ito, MD
11:16-11:20	The Spring Distraction System for Growth-friendly Surgical Treatment of Early-onset Scoliosis: A Preliminary Report on Clinical Results and Safety after Design Iterations in a Prospective Clinical Trial	R. Castelein, MD, PhD
11:21-11:25	Risk Factors for and Impacts of Autofusion in Early Onset Scoliosis Fusionless Growing Constructs	P. Sturm, MD
11:26-11:30	Discussion	
11:31-11:35	Growth Modulation Significantly Increases the Chance of Postoperative Success Following Vertebral Body Tethering	D. Hoernschemeyer, MD
11:36-11:40	Intraoperative Correction Associated with VBT Success at 2-Year Follow-Up	N. Larson, MD
11:41-11:45	Major Cobb Angle Did Not Decrease in 92% of Patients After Vertebral Body Tethering (VBT) Surgery Following First Erect Radiograph	L. Andras, MD
11:46-11:50	Differential Vertebral Growth Is Maintained 4 Years After Vertebral Body Tethering Surgery for Idiopathic Scoliosis	R. El-Hawary, MD
11:51-11:55	Discussion	
11:56-12:00	A Five-Year Look at Pulmonary Function After Both Index and Revision VBT	S. Plachta, MD
12:01-12:05	Back Pain in Children Younger Than 10 Years with Spine Concerns	B. Ramo, MD
12:06-12:10	Self Sliding Growth Guidance for Early-Onset Scoliosis: Clinical and Radiological Results After a Minimum of Six Years (6-14) of Follow-up	M. Enercan, MD
12:11-12:15	Self Growing Rods Modern Luque Trolley in Treatment of Early Onset Scoliosis , 3.5 Years Follow Up	J. Ouellet, MD
12:16-12:25	Discussion	

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12:30-1:25	Lunch with Non-CME Workshops	
12:30-1:25	AIS Treatment: Non-Fusion Scoliosis Correction with REFLECT by Globus Medical	Sala Lorenzo M. Crostelli, MD
12:30-1:25	OR Efficiency: Patient Safety: Better Outcomes <i>Come see how ApiFix and 7D technologies can transform your practice</i> by OrthoPediatrics	Sala Guiliano J. Brooks, MD R. Fitzgerald, MD
12:30-1:25	Data and Patient-Specific Implants: How technology is changing my practice by Medtronic	Sala Cosimo N. Larson, MD M. Vitale, MD
1:30-3:00	Breakout #1 – The Role of Vertebral Body Tethering in 2022	Sala Cosimo
1:30-1:33	Introduction	Mod: N. Larson, MD
	Thoracic Spine	
1:34-1:40	VBT: Best for lumbar, minimal role for thoracic curves	A. Samdani, MD
1:40-1:46	Why VBT for thoracic curves	S. Parent, MD, PhD
	Growth	
1:46-1:52	VBT should be limited to the child with significant growth remaining	B. Yaszay, MD
1:52-1:58	VBT has a role for the older child without a lot of growth	D. Hoernschemeyer, MD
1:58-2:04	VBT vs. PDD, how do I choose, and what best facilitates spinal growth?	R. El-Hawary, MD
2:04-2:14	Panel rapid fire cases and discussion	Full Panel
2:14-2:20	Pulmonary function after VBT	J. Pahys, MD
2:20-2:26	Bone mineral density, BMI, and patient selection in VBT (how low is too low) and how does it impact patient selection	F. Miyanji, MD, FRCSC
2:26-2:32	Radiographic motion and disc disease after VBT	N. Larson, MD
2:32-2:38	Activity and HRQL after VBT	M. Welborn, MD
2:38-2:44	Complications after VBT	P. Cahill, MD
2:45-3:00	Discussion, Q&A, panel: Current state of affairs around the world, what needs to happen to drive the field forward in Europe, North America, and Asia	Full Session Panel

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1:30-3:00	Breakout #2 – Pre-surgical Optimization: Practical Steps to Really Prepare Kids for the EOS Surgical Journey	Sala Lorenzo
1:30-1:34	Introduction	Mod: M. Oetgen, MD
1:35-1:41	The US Perspective – Pathways/surgical homes/pre-op clinics	J. Murphy, MD
1:42-1:48	The OUS Perspective – The essentials of pre-op assessment to optimize surgical success	L. Miladi, MD
1:49-1:55	Pulmonary assessment for OR risk stratification	G. Redding, MD
1:56-2:06	Panel Q&A	
2:07-2:13	Infection/Nutrition	J. Sawyer, MD
2:14-2:20	Traction – When to consider and how to decide: pre-op halo gravity, intra-op, temp distraction rods	L. Andras, MD
2:21-2:27	Occipito-cervical fusions – Are there special considerations for these cases in the pre-op period?	R. Anderson, MD
2:28-2:34	The surgical chess match	J. Sanders, MD
2:35-3:00	Panel Q&A and case presentations	Full Session Panel
3:00-3:30	Refreshment Break and Exhibits	Sala Visconti
Session 7:	Case-Based Learning: My Ideal First Case	Loggia Dei Signori Mod: F. Perez-Grueso, MD
3:30-3:36	MCGR	L. Andras , MD
3:37-3:43	Traditional Growing Rods Associated with Rib-to-Rib Instrumentation	M. Crostelli, MD
3:44-3:50	VBT	S. Parent, MD
3:51-3:57	PDD	R. El-Hawary, MD
3:58-4:04	Shilla	S. Luhmann, MD
4:04-4:14	Discussion	
4:15-5:00	Cases – Ideally, I have tried everything, now what? Or, I should have chosen differently <i>Panel:</i> Andras, Erickson, Helenius, McCarthy, Miyanji, Skaggs, Yazici, Zhang	Mod: A. Samdani, MD
5:00	Adjourn	

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Friday, November 18, 2022

6:45-7:25 am	Breakfast and Exhibits	Sala Visconti
7:30	Welcome	B. Yaszay, MD
Session 8:	Master Techniques – Managing the Complex and their Complications	Loggia Dei Signori Mod: A. McIntosh, MD
7:35-7:43	Management of TL kyphosis	K. White, MD
7:44-7:52	Congenital cervicothoracic junction scoliosis	P. Sponseller, MD
7:53-8:01	Occipital-Cervical fusion	D. Brockmeyer, MD
8:02-8:10	Congenital spinal dislocations	Prof. M. Ruf
8:10-8:20	Discussion	
8:21-8:29	Severe pelvic obliquity	L. Miladi, MD
8:30-8:38	Infected implant	M. Welborn, MD
8:39-8:47	Management of SMA	P. Cahill, MD
8:48-8:56	Rigid kyphosis	I. Helenius, MD
8:57-9:07	Discussion	
Session 9:	Scientific Papers – Techniques	Loggia Dei Signori Mod: J. Anari, MD & C. Nnadi, MD
9:08-9:12	Can We Definitely Avoid Spinal Fusion Surgery for Progressive Early Onset Neuromuscular Scoliosis?	L. Miladi, MD
9:13-9:17	Over 10 Years Mean Follow up Results of Hemivertebra Resection and Spine Arthrodesis by Single-Stage Posterior Approach in Congenital Scoliosis and Kyphoscoliosis	M. Crostelli, MD
9:18-9:22	Risk Factors for Fusion Failure in Children Undergoing Occiput to C2 Rigid Instrumentation and Fusion	R. Anderson, MD
9:23-9:27	Is Spondylothoracic Dysplasia (Jarcho-Levin) a Core Surgical Indication for a V-osteotomy VEPTR Expansion Thoracoplasty of the Posterior Fused Ribs?	N. Ramirez, MD
9:28-9:32	Discussion	
9:33-9:37	Outcomes After Completing Growth-Friendly Surgical Treatment for Early-Onset Scoliosis in Patients with Skeletal Dysplasia	A. Saarinen, MD
9:38-9:42	Outcomes of Growth-friendly Instrumentation in Osteogenesis Imperfecta	D. Badin, MD
9:43-9:47	Complications Associated with Growing Rod Surgery for Scoliosis in Patients with Prader-Willi Syndrome at Minimum 4 Years	B. Ramo, MD

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9:48-9:52	Utility of a Risk Severity Scoring System to Predict Infections in Patients Undergoing Growth Guidance Surgery for Early Onset Scoliosis	S. Luhmann, MD
9:53-9:59	Discussion	
10:00-10:29	Refreshment Break and Exhibits	
Session # 10:	Scientific Papers, Best Paper Award, PSF Presidential Address, Keynote Address	Loggia Dei Signori Mods: L. Miladi, MD & B. Snyder, MD
10:30-10:34	Unplanned Return to the Operating Room (UPROR) Occurs in Half of MCGR Patients at 2.years After Initial Implantation	A. McIntosh, MD
10:35-10:39	Implant Related Revision Surgery in Spine Based MCGR Constructs: Is it Associated with Construct-Levels to Anchored-Levels Ratio, UIV or Rod Diameter?	F. Rios, MD
10:40-10:44	Complications of MCGRs and TGRs in the Management of EOS: A Multicenter Database Study of 800 Patients	M. Oetgen, MD
10:45-10:49	Proximal Junctional Kyphosis in Growth Guidance Systems for Early Onset Scoliosis	S. Luhmann, MD
10:50-10:54	Discussion	
10:55-10:59	Utilizing a Comprehensive Machine Learning Approach to Identify Patients at High Risk for Extended Length of Stay Following Spinal Deformity Surgery in Pediatric Patients with Early Onset Scoliosis	M. Vitale, MD
11:00-11:04	Outcomes of Interventions for Intraoperative Motor Evoke Potentials (MEP) Waveform Change in Early Onset Scoliosis(EOS) Surgery	T. Hashimoto, MD
11:05-11:09	Timing of Clinical and Intraoperative Neurophysiological Monitoring (IONM) Recovery After Termination of Pediatric Spinal Deformity Surgery Due to Loss of IONM Signals: When Is It Safe to Return to the OR?	R. Anderson, MD
11:10-11:14	Comparison of the Modified Clavien-Dindo-Sink System and Smith System for Classifying Complications Following Surgical Treatment of EOS	M. Vitale, MD
11:15-11:20	Discussion	
11:21-11:26	Money Can't Buy Happiness, but Can It Buy Less Complications and UPRORs in Growth Friendly Surgery?	J. Brooks, MD
11:27-11:31	Discussion and Presentation of the Behrooz A. Akbarnia Award for Best Paper	B. Yaszay, MD
11:32-11:40	PSF Presidential Address	J. Flynn, MD
11:41-11:43	ICEOS 2023	N. Larson, MD
11:44-11:47	Keynote Introduction	B. Yaszay, MD
11:48-12:00	Keynote	B. Akbarnia, MD

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12:00-12:05	Discussion	
12:10-1:00	Non-CME Workshops with Lunch	
12:10-1:00	Cone Beam Tomosynthesis: what we have learned after the first 100 clinical cases. A debrief on the evolution of the technology and an assessment of its clinical utility by nView Medical	Sala Cosimo B. Ramo C. Atria, CEO
12:10-1:00	VBT: Optimal indications that result in optimal outcomes by ZimVie <i>Panel:</i> D. Hoernschemeyer, F. Myanji, A. Samdani, M. Vitale	Sala Lorenzo
Session 11:	Mistakes Made/Lesson Learned: The Benefits of Experience	Loggia Dei Signori Mod: C. Hasler, MD
1:05-1:17	I should have delayed to a definitive fusion	C. Johnston, MD
1:18-1:30	Cases we still don't have solutions for	J. Flynn, MD
1:31-1:43	I should have gone to the front of the spine	D. Marks, MD
1:44-1:59	Discussion	
2:00-2:12	I should not have gone to the pelvis	J. Smith, MD
2:13-2:25	I should not have gone to the ribs	D. Skaggs, MD
2:26 -2:38	I should not have removed the implants	M. Yazici, MD
2:39-2:49	Discussion	
2:50	Closing Remarks; Adjourn	B. Yaszay, MD