

DEVELOPMENTAL ORTHOPAEDICS OF THE TRUNK & LOWER EXTREMITY IN CEREBRAL PALSY
A REVIEW OF OPERATING PROCESSES WITH IMPLICATIONS FOR MANAGEMENT

A 2-Day Didactic Program

FACILITATOR: Beverly Cusick, PT, MS, NDT, COF/BOC

Sep. 15-16th, 2021 - Navan, County Meath, Ireland



Target Audience: Registered ISCP/CORU physiotherapists, occupational therapists, orthotists, and pediatric physicians working with children with orthopedic and neuromotor dysfunction.

Level: Intermediate; Pre-course readings are assigned.

Enrolment: Limited only by seating space.

LAB SESSION: Sep. 17th, 2021. Completion of the didactic program qualifies participants for enrolment in Day 3. LAB enrolment is limited to a maximum of 15 participants and 5 auditors (observers). Demand might warrant offering a second lab day on September 18.

Local Course Organizer- Ragu Rajaram, Senior Pediatric Physiotherapist
Brain & Spine Physiotherapy Clinic, Navan, County Meath, Ireland

Course Venue: Ardboyne Hotel, Dublin Road, Navan, Co. Meath

COURSE DESCRIPTION

The didactic program features an overview of the processes that contribute to pediatric orthopaedic development and deformities, and pertains particularly to children with cerebral palsy, hypotonia, and lower limb alignment issues. The facilitator illuminates the significance of postural control and the somatosensory system as factors in deformity prevention, development, and management and offers management strategies. The course will include lectures, videos and analysis. Participants will be provided course hand-outs and 2 piece femur bone pen to use as a learning tool.

COURSE OBJECTIVES

Participants completing this course are expected to be able to:

- Describe these features of normal, postnatal immaturity of skeletal structure and alignment: Thoracolumbar kyphosis, hip flexion contracture, increased femoral ante version, increased femoral ante torsion, coxa valga, genu varum, and medial thigh-foot angle.
- Distinguish between strain and load and apply this distinction to the skeletal modeling process and to modeling potential in an aging child.
- Discuss the sources and the significance of the achievement of bilateral, symmetrical, antigravity neck and trunk extension by age 4 months.
- Describe how the normal neonatal hip flexion contracture influences the early modeling of the spine in the sagittal plane.
- Relate ideal, full-term neonatal posture and lower limb joint alignment to postural control acquisition in prone, supine, sitting, and standing positions.
- Relate ideal, full-term neonatal posture and lower limb joint alignment to the acquisition of skilled transitions between quadruped and sitting positions.
- Describe the apparent relationship between postural control status and limb muscle extensibility.

- Explain the relationship between frontal-plane weight shift skill, the swing limb torque generator in gait, and long bone torsion reduction in the lower extremities.
- Explain the potential impact of Level 1 (basic) direction-specific postural responses on the development of common contractures in ambulatory children with cerebral palsy and “Idiopathic” toe walking.
- Referring to the active and passive muscle length-tension relationships, describe a muscle imbalance, and differentiate between muscle dominance and muscle strength.
- Differentiate between femoral anteversion and femoral antetorsion and explain the relevance of the distinction to the safe use of orthotic interventions.
- Explain why measurements of “hip” medial and lateral rotation range of motion (ROM) do not represent hip joint motions.
- Discuss the rationale and effectiveness of passive manual muscle stretching in terms of Sahrman’s approach to contracture management.
- Explain the potential somatosensory and therapeutic benefits of optimizing the postural base of support and functioning joint alignments in daily life.

DIDACTIC PROGRAM SCHEDULE

Day 1 – Sep.15

Start	Topic	Contact hours
8:45	Register and settle in
9.00	An Overview of Developmental Changes in the Spine and Lower Extremities	.50
9.30	Strain and Load: Shaping Bones and Joints with Skeletal Modeling	1.00
10.30	Break	00
11.00	Proximal Before Distal: The Contributions of Postural Control Acquisition & Maintenance to Orthopedic & Neuromotor Development	1.25
12.15	Lunch	00
1.30	Biomechanical Advantages of Full-Term Gestation	1.25
2.45	Short break	00
3.00	Body Weight Distribution in Neuromotor & Orthopedic Development	1.00
4.00	Ideal Lower Limb Soft-Tissue Extensibility - Evidence of Use History	.50
4.30	Short Break	00
4.45	Ideal Lower Limb Soft-Tissue Extensibility	.50
5.00	The Role of Postural Control Deficits in Deformity Development	.75
5.45	Questions and Discussion	.25
6.00	Adjourn	Didactic contact hrs: 7.00

Day 2 – Sep 16

Start	Topic	Contact hours
8:30	Arrive & Settle in
8:45	Clarifying Femoral Torsion and Version	.50
9.15	Developmental Changes in the Pelvis & Femur in the Transverse Plane	1.00
10.15	Break – 15 minutes	00
10:30	Developmental Changes in “Hip” Rotation ROM – Clinical Implications	.50
11:00	Assessing “Hip” Rotation Range of Motion (ROM)	.50
11.30	Assessing Femoral Torsion	.75
12:15	Lunch	00
1:15	Clinical Implications of Transverse-Plane Hip and Femur Findings	.75
2:00	Videotaped Case	.50
2:30	Short Break - 15 minutes	00
2.45	Developmental Changes in the Knee, Leg, & Foot in the Transverse Plane	1.00
3:45	Short Break - 15 minutes	00
4:00	Clinical Implications of Transverse-Plane Knee & Leg Findings	.50
4:30	Associating Foot Alignment with Orthopaedic Development in Diplegic CP	.75
5:15	Questions and Discussion	.25
5:30	Adjourn	Didactic Contact Hrs: 7.00
		Total didactic contact hours: 14.00

Day 3-LAB Program - Friday 17th Sept 2021



If demand warrants, a second lab day will be offered on Saturday, Sept 18.

Important: This programme is open to 15 participants who have completed the didactic program. Participants are to wear or bring lab clothing that permits easy palpation of the greater trochanter and lateral femoral epicondyle.

DESCRIPTION: Participants will execute 13 postural and lower-extremity musculoskeletal assessment procedures on each other under supervision. During a case presentation featuring a child volunteer with cerebral palsy, participants will execute at least one assessment procedure upon request and will explain the implications of the finding. Participants receive limited on-line access to videos of the assessment procedures, a detailed and illustrated manual, and a set of 4 assessment tools.

OBJECTIVES: Participants are expected to demonstrate novice-level skill in the execution of the 13 procedures reviewed in this program, and to be able to explain the clinical relevance of the findings.

LAB PROGRAM SCHEDULE

Start		Contact Hours
8:30	Sign in / Continental breakfast	
8:45	LAB: Assessment Procedures: Sacral Angle, Sahrman's 2-Joint Flexor Test, Knee Extension, Hamstring Length Test	1.25
10:00	Short Break – 15 minutes	00
10:15	LAB: Assessment Procedures, cont: Ankle DFROM-KE, Limb Length Difference, Pelvic Obliquity, Hip Abduction ROM, Knee Alignment (varum / valgum)	1.75
12:00	Lunch on your own.	00
1:00	LAB: Assessment Procedures, cont: Hip Rotation in Extension - Medial & Lateral, Modified Femoral Torsion Test, Thigh/Foot Angle	2.00
3:00	Short break – set up for case presentation	00
3:15	Case Presentation – Full assessment with an ambulatory child with cerebral palsy. Participants participate. Auditors audit.	2.50
5:45	Exchange course evaluations for certificates of completion & adjourn.	00
	Lab Contact Hours:	7.50

About the Instructor

Beverly (Billi) Cusick, PT, MS, COF/BOC is an internationally-known pediatric physical therapist whose specialty is the management of lower extremity deformity, particularly in children with cerebral palsy and other CNS deficits.



Ms. Cusick received her BS in PT from Bouve College at Northeastern University (Boston), and her MS in Clinical and College Teaching for Allied Health Professionals from the University of Kentucky in Lexington. She is an Associate Professor for the Rocky Mountain University of Health Professions - Pediatrics Program - Provo, Utah (2006-present) and is NDT basic- and baby-trained.

Since 1978 she has written or co-authored over a dozen publications.

WORK EXPERIENCE:

- 1 year - PT staff at (now) Spaulding Rehabilitation Center, Boston, MA
- 3 years - PT staff and Director for UCP Center, Lawrence, MA
- 9 years - PT staff at Children's Rehab. Center (now, Kluge Center), Charlottesville, VA.
- 3 years - PT Education faculty, College of Health-Related Professions at Medical University of South Carolina (MUSC) and Director of PT Services for the Division of Developmental Disabilities at MUSC, Charleston, SC.
- 1 year, consultant, Cardinal Hill Hospital's Head Trauma & Pediatrics teams - Lexington, KY.
- 4 years, assisting in the PT Department at Children's Hospital at Stanford, Palo Alto, CA.
- 31 years in private practice.

PUBLICATIONS:

- Help Patients Manage Equinus Deformity. *O&P Business News*, 2011; April: 74-77.
- Orthotic Management of Low-Toned Children: The Earlier the Better. (Co-author). *O&PEdge*. 2011; Apr: pp. 24-29.
- *Serial Casting and Other Equinus Deformity Management Strategies for Children and Adults with CNS Dysfunction*. 2010. Published by Progressive GaitWays.
- *Foot Talk*. 2009. A DVD of a 2-hour lecture on functional foot anatomy and closed chain biomechanics, accompanied by a CD with a set of Power Point handouts of the same lecture.
- *Serial Casting for the Restoration of Soft Tissue Extensibility in the Ankle and Foot (2007 and 2009)*.
- *Legs & Feet: A Review of Musculoskeletal Assessments (1997, revised 2015)*, an instructional DVD.
- *Lower Extremity Developmental Features*. 2000. A home study monograph for the APTA's Orthopedic Section.
- *Progressive Casting and Splinting for Lower Extremity Deformity in Children with Neuromotor Dysfunction* 1990. Published by Therapy Skill Builders.
- Several textbook chapters, articles for journals, conference proceedings, and professional newsletters, including a series (2006 and 2007) on Pediatric Orthopedics for the *NDTA Network*.

CLINICAL TEACHING:

Guest lecturer for annual conferences of the APTA, the NDTA, and the American Academy of CP and Developmental Medicine, in the US and Canada; the British Association of Prosthetists and Orthotists; the American Academy of Orthotics and Prosthetics, and the American Orthotic and Prosthetic Association; the ISPO Consensus Conference for Orthotics in CP; the International Conference on Cerebral Palsy in Sydney, Australia; a Pediatric Rehabilitation conference in Istanbul, and at the recent Nossa Casa Conference in Campinas, Brazil. Instructor of more than 460 courses by invitation only in 19 countries.

Ms. Cusick is the founder of Progressive GaitWays, LLC and the inventor, President, and Chief Medical Consultant for TheraTogs, Inc. A curriculum vitae is available upon request.

Developmental Orthopedics of the Trunk & Lower-Extremity in Children: A Review of Operating Processes with Implications for Management

Venue: Ardboyne Hotel, Dublin Road, Navan, County Meath, Ireland

Course Participant Criteria: Physiotherapists, occupational therapists, orthotists and paediatric physicians working with children with orthopedic and neuromotor dysfunction and registered with ISCP/CORU.

Course Participant Attendance: Enrolment in the didactic program is limited by seating space. Completion of the 2-day didactic program qualifies participants for enrolment in Day 3 (17th Sept 2021), the Lab Program. Day 3 enrolment is limited to 15 participants + then 5 auditors (observers) on a first come first served basis. If demand for lab participation warrants, a second lab day will be offered on September 18.

Tea, coffee, lunch, and snacks will be provided.

Course Fees:

€280 for the 2-day didactic program

€420 for 3 days - didactic and lab.

€350 for 3 days for 5 auditors who will be admitted only after lab enrollment is full.

The deadline for registration and payment is **13th August 2021**.

Confirmation: Upon receipt of the completed registration form and course fee, you will receive confirmation via email.

Course Organizer: Ragu Rajaram, Senior Physiotherapist

Brain and Spine Physiotherapy Clinic-Children Services, 9-10 Academy Street, Navan, **County Meath, Ireland**

e-mail: brainspinephysio@gmail.com; Ph: (087) 9883354

Cancellation policy: Should you cancel following registration/payment, a €100 fee will be applied for administrative costs. Unfortunately, no exception will be made.

Please complete the Registration Form below and e-mail to brainspinephysio@gmail.com

REGISTRATION FORM

Name:

First Name

Family Name

Profession:

(PT, OT, orthotist, Physician)

Home Address:

Place of Work:

E-mail Work:

Mobile Phone No:

E-mail Private:

Emergency Contact Details: (Name & phone number):

Receipt of a completed Registration Form and payment will secure a booking in the 2-Day didactic program.

Lab enrollment is limited and will close at 15 participants and 5 auditors.

Please check you program choice:

2-Day Didactic @ €280 3-Day Didactic and Lab @ €420 3-Day Didactic & Lab as Auditor @ €350

If demand warrants, would you participate in a second lab day on Saturday, September 18? _____

Payment type: (circle one): cheque money order bank draft

For payment via bank draft:

Bank Details: Brain and Spine Physiotherapy Clinic-Children Services

IBAN: IE15AIBK93218358036040

BIC: AIBKIE2D

Total Amount enclosed: _____

Important: Please put a Reference (ideally family name), so we can clearly identify the payment.

Please complete the Registration Form and e-mail to: brainspinephysio@gmail.com or post to the clinic address.