"Billi" brings you 50 years of clinical practice, study and training that began in earnest with below-knee casting.

You don't want to miss this opportunity to engage with real clinical expertise on the subject of pediatric equinus deformity!

PEADIATRIC EQUINUS DEFORMITY DEVELOPMENT & MANAGEMENT IN CHILDREN WITH CP & HABITUAL TOE WALKING: PRINCIPLES & STRATEGIES

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

Part 1: A 2-Day Didactic Program - October 3 & 4, 2022

Part 2: A 3-Day LAB Program - October 5, 6 & 7, 2022

PEADIATRIC EQUINUS DEFORMITY DEVELOPMENT & MANAGEMENT IN CHILDREN WITH CP & IDIOPATHIC TOE WALKING

PRINCIPLES & STRATEGIES

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

Part 1: A 2-Day Didactic Program - October 3 & 4, 2022

TARGET AUDIENCE: Registered ISCP/CORU physiotherapists, orthotists, and rehabilitation physicians working with children with orthopedic and neuromotor dysfunction and registered with ISCP/CORU.

LEVEL: Intermediate; Pre-course readings are assigned.

ENROLLMENT: Limited only by seating space.

Part 2: A 3-day LAB Program - October 5, 6 & 7, 2022

Enrollment: Limited to a maximum of 12 Part-1 participants only. No exceptions. Lab seats fill on a first-come, first-served basis.

COURSE ORGANIZER: Ragu Rajaram, Senior Pediatric Physiotherapist
Brain & Spine Physiotherapy Clinic, Clonmellon, Navan, County Meath, Ireland

COURSE VENUE: Ardboyne Hotel, Dublin Road, Navan, County Meath

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COURSE DESCRIPTION

Part 1, the didactic program, features range of topics related to foot function and development; postural control acquisition & influence on foot development; gait development & gait pathology related to foot mechanics; physiologic adaptation of lower limb muscle to routine use, both ideal & pathologic; and contributions of postural control deficits to equinus deformity development.

A review of musculoskeletal assessment procedures introduces participants to the features of the foot and ankle that warrant orthotic attention. Instructor then presents principles, properties and methods of optimizing below-knee casts and orthoses and of implementing them in neuromotor re-education.

The didactic program includes lectures, videos and analysis. Participants will be provided course hand-outs and access to a selection of casts and orthoses and flexible skeletal foot models.

Part 2 features supervised lab sessions in which participants undertake equinus-deformity-related assessment procedures; apply the assessment findings to the determination of the ideal ankle angle and to posting strategies for orthoses and casts; evaluate a child with equinus deformity in a team of three; apply posting principles for this child if appropriate.

Orthotic optimization principles and methods are implemented in the fabrication & biomechanical optimization of a below knee cast that is made to be removed without a motorized cutter.

COURSE OBJECTIVES

Participants completing the didactic portion of this course are expected to be able to:

- Describe, in plane-based terminology, the motions of the joints & various bones of the foot in the open & closed kinematic chains.
- Describe the role of the foot & ankle load receptors in the achievement & maintenance of postural control in standing & gait.
- Describe the location of the whole-body center of gravity (COG) in infants & preschoolers.
- Relate body weight distribution on the foot to ankle & foot joint function & development.
- Relate body weight acceleration to gait development – typical & pathologic.
- Discuss the vertical tibia period in typical gait development.

- Relate excessive pronation to equinus deformity development.
- Discuss the validity of the prevailing presumption that spasticity causes equinus deformity.
- Discuss the growing evidence of muscle tissue pathology resulting from any Botox-A injection.
- Define & discuss the physiology & functional significance of R1 (“first-catch”) end range of motion inthe triceps surae muscles.
- Discuss the evidence that R1 end range in passive extensibility testing indicates the presence of spasticity.
- Explain the physiologic & structural changes that are known to occur in LE muscles & surrounding tissues following a history of routine, tonic recruitment for upright posture maintenance.
- Distinguish between hypertonic muscle dominance & muscle strength.
- Describe the method of detection of R1A end range in assessing passive ankle dorsiflexion range of motion with knee extended (PDFROM-KE).
- Explain the functional relevance of R1A end range PDFROM-KE.
- Discuss the application of R1A end range to the design of a below-knee cast or AFO.
- Upon discovering a dominant gastrocnemius muscle, name 3 related areas of clinical concern.
- Discuss the evidence of the effectiveness of manual stretching in equinus deformity management.
- Explain the process of progressively casting an equinus deformity by beginning with the ankle plantarflexed & the heel supported, vs. setting the ankle in dorsiflexion in the initial casts.
- Describe orthotic posting in sagittal & frontal planes.
- Name 3 objectives of posting below-knee casts & orthoses.
- Explain the biomechanical rationale for modifying a post-casting AFO with extreme varus posting.
- Discuss the purposes of weight line training in equinus deformity management.
- Name 5 features that identify excessive foot pronation in the closed chain.
- Name 5 features that identify excessive foot supination in the closed chain.
- Determine whether an equinus deformity meets the criteria for intervention with heel-posting orthoses made in ankle plantarflexion or with serial casting,
- Explain the rationale for instituting strengthening & night splinting after restoring soft tissue extensibility to the triceps surae muscles & fascia.

Participants completing the <u>lab</u> portion are expected to be able to:

- Demonstrate competent and reliable execution of selected ankle and foot assessment procedures.
- Apply assessment findings to the planning and execution of modifications of an insole or orthosis undertaken to optimize foot alignment.
- Participate with 2 team members in the evaluation of and orthotic optimizations for a child with equinus deformity due to cerebral palsy or habitual toe-walking.
- Demonstrate novice-level skill in the effective use of plaster, semi-rigid cast tape, & rigid fiberglass cast tape.
- Demonstrate novice-level skill in the safe fabrication of a plaster & softcast combination cast, reinforced with fiberglass for immediate wear.
- Demonstrate novice-level skill in the assessment & posting of a cast and of the contralateral side to optimize alignment in the sagittal and frontal planes in standing & gait.
- Experience the effects of imposed limb length discrepancy while wearing a cast, & then the effect of lifting to level the pelvis.
- Experience standing, walking, & stair walking in a posted, specialized cast boot.
- Successfully remove a combination cast without a motorized cutter.

PROGRAM SCHEDULE

PART 1: DIDACTIC SESSIONS

DAY 1

Start	DESCRIPTION	Contact minutes
8:45	Arrive, sign in, settle in	--
9:00	Review of Functional Anatomy & Closed-Chain Function of the Subtalar & Midtarsal Joints Using Plane-Based Terminology	90
10:30	Short break – 15 minutes	--
10:45	Standing Lab	15
11:00	Contributions of Functioning Alignment to Foot Development & Function	45
11:45	Review of Planar Motions & Deviations in the Foot	15
12:00	Lunch PROVIDED	--
1:00	Ideal COG Acceleration & Ankle & Foot Function in Gait with Orthotic Tuning Implications	60
2:00	Short break – 15 minutes	--
2:15	Development & Significance of R1 End Range (the ”catch”) in Triceps Surae Extensibility	45
3:00	Influences of Functioning Alignment on Equinus Deformity Development in CP & ITW	45
3:45	Short Break – no food… 15 min	00
4:00	Highlights: Movement Systems Analysis in Pediatric Equinus Deformity Management	30
4:30	Limb Length Assessment & Posting Strategies	30
5:00	Questions & Discussion	15
5:15	Adjourn — Day 1 didactic contact hours (minutes):	6.50 (390 min)

DAY 2

Start	DESCRIPTION	Contact min
8:45	Arrive, sign in, settle in	--
9:00	Ankle Dorsiflexion ROM: Development & Assessment - Introducing R1A	60
10:00	Below-Knee Serial Casting Principles	45
10:45	Short break – 15 minutes	--
11:00	Sagittal Plane Orthotic Posting: Principles & Strategies	45
11:45	Anatomical & Functional Features of Typical Foot Development	30
12:15	Lunch PROVIDED	--
1:15	Foot Joints in Congruity – Relevance in Standing & Gait	45
2:00	Assessment to Management: Foot Pathomechanics & Posting Principles & Strategies	45
2:45	Short Break – 15 min	--
3:00	Highlights of Hypoextensibility Management Strategies & the Dark Side of Botox-A	45
3:45	Review of Planar Motions & Deviations in the Foot	5
3:50	DEMO video: Molding a Turtlebrace AFS into a Sleeping Splint for Use Post-Casting	25
4:15	Short Break – 15 min	--
4:30	DEMO: Using Posting & TheraTogs to Displace Body COG Back onto Heels > Forefeet	20
4:50	DEMO: Unilateral CP: Posting & TheraTogs to Increase COG Loading on the Affected Side	10
5:00	*Q & A/ Discussion – Complete didactic course eval & exchange for completion certificate*	15
5:15	Adjourn. — Day 2 didactic contact hours (min):	6.50 (390 min)
	Total didactic contact hours:	13.0

Part-1 Participants, thank you for joining us.

Safe travels home.

PROGRAM SCHEDULE

PART 2: LAB SESSIONS WITH CAST FABRICATION - 3 DAYS

Please bring or wear shorts or yoga pants & shoes with removable insoles

DAY 3 (5TH OCT.) - ASSESSMENTS (TEAMS OF 2) & CASE PRESENTATION

Start	Description	Contact Min
8:45	Arrive & settle in	--
	No formal breaks today. Graze at will….	--
9:00	Assess Limb Lengths in Prone Position	30
9:30	Execute Foot Joint Motions with Your Partner's Foot	15
9:45	Bring the Foot Joints into Congruency	30
10:15	Identify Forefoot Deviations in the congruent foot - Varus & Valgus	45
11:00	Measure Ankle DFROM-Knee extended- R1, R1A (if present) & R2	60
12:00	Lunch on premises PROVIDED – 30 min	
12:30	Measure Ankle DFROM - Knee Flexed - R1 & R2	30
1:00	Experience Various Posting Interventions	45
1:45	**DEMO:** Using Assessment Findings to Post an Insole or AFO to Optimize Foot	30
2:15	Short break – 15 minutes - & set up for cast presentation	--
2:30	**Case Presentation –** Instructor conducts a consultation session with a very congenial child with diplegic cerebral palsy, age 4, 5, 6, or 7 years, GMFCS Level II or III, with a focus on evaluating the ankles & feet & intervening to attempt to optimize existing AFOs or shoes.	180
5:30	Adjourn Lab contact hours (minutes):	7.75 (465 min)

DAY 4 (6TH OCT.) – SUPERVISED CASES & CAST FABRICATION & REMOVAL DEMONSTRATION

Start	DESCRIPTION	Contact Min
8:45	Arrive & settle in	
	No formal breaks today. Graze at will….	--
9:00	Supervised assessments of 4 ambulatory children with equinus deformity – GMFCS Levels I, II, or III - with interventions to attempt to optimize existing AFOs. Teams of 3.	180
12:00	Lunch PROVIDED	--
1:00	Video case presentation: Below-Knee Cast Fabrication & Posting Video	60
2:00	Review Serial Casting Documents & Materials	30
2:30	Rehearse Molding for Below-Knee Cast Fabrication with Child in Prone Position	30
3:00	**DEMO:** Plaster & Softcast Fabrication, Assessment, Posting & Removal	120
5:00	Adjourn Didactic contact hours:	1
	Lab contact hours (minutes):	7 hrs (420 min)

Continued…

Day 5(7th Oct) – CAST FABRICATION, ASSESSMENT, POSTING & REMOVAL– TEAMS OF 3

Please wear shorts or stretchy pants that you don't mind soiling temporarily with plaster.

Start	Description	Contact Min
8:45	Arrive and settle in	--
	No formal breaks this morning. Graze at will….	--
9:00	Fabricate, Assess, & Post a Plaster & Soft-Cast Combination Cast	90
10:30	Fabricate, Assess, & Post a Plaster & Soft-Cast Combination Cast	90
12:00	Lunch on premises PROVIDED	30
12:30	Fabricate, Assess, & Post a Plaster & Soft-Cast Combination Cast	90
2:00	Climb & Descend Stairs Wearing Casts - Take Group Photos!	30
2:30	Cast Removal Without a Motorized Cutter. *Retrieve crepe wedges & MTP pads*	45
3:15	Short Break – 15 minutes	--
3:30	Repeat application of the1st plaster bandage with new partners – left & right - until you feel confident in securing a close fit & patient comfort. (Teams of 3)	60
4:30	Repeat Ankle DFROM-KE Assessment - new partner	30
5:00	Group clean-up, complete lab course evals	--
6:00	Exchange completed course evaluations for certificates & adjourn.	---

Lab contact hours (min):	6.8 (410)
Total didactic contact hours:	14.0
Total lab contact hours:	21.6
Total contact hours:	35.6

About the Instructor

Beverly (Billi) Cusick, PT, MS, NDT, 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 on-call 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.

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 Nossa Casa Conference in Campinas, Brazil. She has presented more than 460 courses by invitation only in 19 countries.

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

Please complete the Registration Form below and e-mail to **brainspinephysio@gmail.com**
or post to: Brain & Spine Physiotherapy Clinic, Kilrush Lower , Kilrush Road, Clonmellon, C15XW44, Navan, County Meath, Ireland

REGISTRATION FORM

FEES: **Part 1:** €330 **Parts 1 & 2:** €620 (maximum of 12 seats ONLY). This course cost includes lunch, tea / coffee, printed notes for both Part 1 & Part 2.

REGISTRATION DEADLINE: 15th September 2022.

CONFIRMATION: Within 3 days of receipt of your completed registration form and course fee, you will receive confirmation via email.

NAME: _____
First Name ***Family Name***

PROFESSION: _____

HOME ADDRESS: _____

_____

PLACE OF WORK: _____

E-mail Work:_____ E-mail Private:_____

Mobile Phone:_____

Please check your program choice:

___2-Day Didactic @ €330 ___5-Day Didactic and Lab @ €620

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

[For payment via bank draft to Brain and Spine Physiotherapy Clinic-Children Services

Bank Details:
IBAN: IE15AIBK93218358036040
BIC: AIBKIE2D

Confirmation of payment via bank draft: _____]

Total amount enclosed or paid via bank draft: ___

Important: Please put a Reference (ideally family name) on your cheque, money order, or bank draft record, so we can clearly identify your payment.

If Part 2 fills without you, your Part 2 fee will be fully refunded to you at sign-in of the Part 1 program.