



Pediatric In-toeing & Out-Toeing Management for Neuromotor Training

A Certified TheraTogs™ Fitter (CTF) Level II Course with Supporting Sciences & Strapping Strategies

7.75 contact hours • CEUs for PT's & Orthotists • **LEVEL:** Intermediate

PREREQUISITE: Posture & Torso Alignment (CFTF Level I)

COURSE SUMMARY

This program builds upon the foundation laid in the Posture & Torso Alignment (CTF Level I) workshop. It features a brief review of pediatric orthopedic lower-extremity (LE) skeletal and joint development as it occurs in the transverse plane – i.e. medial and lateral joint rotation and medial and lateral long bone torsion – and in relation to deviations in foot progression angle (FPA) – i.e. intoeing and out-toeing. Lecture content includes these topics:

- Transverse-plane (TP) LE skeletal and joint modeling events with rotation strapping precautions
- A review of elements of postural control acquisition and maintenance that pertain to TP LE bone and joint development and alignment
- An implementation of SA Sahrman's muscle balance theory in the context of the kinesiology of LE rotation strapping applications
- A review of three musculoskeletal assessment procedures used to identify sources of deviations in FPA and to document changes in a replicable manner.

In the first afternoon lab session, teams of three attendees learn and practice three LE musculoskeletal assessments that pertain to TP alignment and gait problems: hip rotation ROM in hip extension, modified Ryder's test, and the modified thigh-foot angle. At the conclusion of the first lab, attendees are evaluated on their ability to demonstrate these same assessments.

In the second lab, attendees will be guided through a series of donning and strapping applications using the TheraTogs Lower Extremity system to demonstrate the biomechanical principles and management techniques reviewed in the morning session. Strapping applications include those designed to improve functioning alignment of the femur at the hip joint, and of the leg at the knee joint. At the conclusion of the lab, attendees are evaluated on their ability to demonstrate these same procedures.

Attendees who successfully complete both on-site practicum exams will receive a Certified TheraTogs Fitter (CTF) Level II credential. Attendees also receive a complimentary copy of Beverly Cusick's DVD *Legs & Feet: A Review of Musculoskeletal Assessments*.

COURSE OBJECTIVES

Seminar participants are expected to be able to:

- Discuss the skeletal modeling process that influences long bone torsion, and explain the modeling "window of opportunity."
- Describe the ideal changes in growing bone design that occur in the transverse plane in the pelvis, femur, and tibiofibular segment in children born at full-term gestation.

- Relate foot position – pronation and supination - to body weight distribution on the feet in standing and walking.
- Relate toeing in and toeing out to body weight distribution on the feet in standing and walking, and to muscle recruitment strategies needed to maintain the upright position.
- Explain the role of the Iliotibial band (ITB) and the “deltoid of the hip” in maintaining pelvic alignment and postural control in gait.
- Describe the influence of a medially-rotated knee axis on ITB alignment and competence.
- Distinguish between femoral antetorsion and anteversion when using hip rotation strapping.
- Explain the precautions regarding the use of rotation strapping across the hip and knee joints in individuals aged seven years and older.

Lab participants seeking CTF Level II certification are expected to be able to:

- Demonstrate novice skill level in executing three musculoskeletal assessments: Hip rotation ROM in hip extension, Modified Ryder’s Test, and the Modified Thigh-Foot Angle.
- Demonstrate competence in donning an effective TheraTogs PTA system that improves upper trunk extension and reduces excess anterior pelvic tilt.
- Demonstrate competence in the application of seven trapping applications for improving functioning lower extremity alignment: Hip Extension with lateral rotation (LR), Hip abduction (2 ways), Hip LR, Hip medial rotation (MR), Leg LR, Leg MR.

COURSE SCHEDULE

Start	Topic
7:30	Register & settle in
8:00	Introduction (<i>cell phones off</i>)
8:15	Ideal lower extremity skeletal modeling mechanisms & events in the transverse plane
9:15	Short Break (15 minutes)
9:30	Review of musculoskeletal assessment procedures for hip & femur in the transverse plane - Ideal findings & implications
10:45	Review of musculoskeletal assessment procedures for knee & leg in the transverse plane - Ideal findings & implications
11:15	Case Presentation
11:30	Questions & Discussion
12:00	Lunch (60 min – on your own)
1:00	LAB 1: LE Musculoskeletal Assessments in the Transverse Plane.
3:00	Short break (15 minutes)
3:15	LAB 2: Candidates work in teams of 3 to demonstrate skills in improving torso postural alignment, increase loaded hip stability (enhance ITB function) during weight shifts; rotate the functioning femur medially and laterally; rotate the functioning leg (at the knee joint) medially and laterally.
5:15	Review of key principles

Start	Topic		
5:30	Clean up, turn in course evaluation forms & adjourn		
3.75	Didactic contact hours	4.0	Lab contact hours
		7.75	Total contact hours

TARGET AUDIENCE: Progressive GaitWays is committed to the fostering of collaborative and educated team management of people with complex neuromotor problems. Therefore, this course is open to a range of clinicians who are likely to work together to maximize physical function as a rehabilitation team, including physical therapists, orthotists, occupational therapists and speech pathologists.