Shirley Ryan Abilitylab

Pediatric Gait Analysis & Orthotic Management:

An Optimal Segment Kinematics & Alignment Approach to Rehabilitation (OSKAR)

Oct. 10 to Dec. 12, 2025
Flex Course: Virtual & On-demand

The Academy is the educational arm of Shirley Ryan AbilityLab, a non-profit rehabilitation hospital in Chicago that has been ranked number one by US News and World Report since 1991. The Academy (formerly RIC) offers a wide range of accredited programs with the common goal of improving patient outcomes through clinical excellence. Our commitment to sharing the best evidence and rehabilitation practice with clinicians around the globe has always been an integral part of our mission.

The Academy is committed to creating an inclusive, authentic and comfortable learning environment that celebrates and supports all learners. We are dedicated to providing the highest-quality teaching and believe that everyone should feel safe, respected and welcomed when attending our programs at the hospital or online. We encourage the sharing of experiences and perspectives so we can learn from one another, and from our varied points of view.

Course Description:

This 10-session virtual course provides a unique in-depth exploration of the observation and analysis of standing and walking. Optimal Segment Kinematics and Alignment approach to Rehabilitation (OSKAR) principles give equal emphasis to segments and joints, crucial for understanding standing, walking, rehabilitation, and orthotic management. The course covers the alignments, kinematics and kinetics of typical and atypical patterns of standing, stepping, and walking with full gait cycles, emphasizing the application of OSKAR principles to orthotic management and rehabilitation programs. Discover clinical algorithms and tools for collaborative decision-making, including a Pictorial Tool that facilitates family-centered goal setting for orthotic management in all areas of the International Classification of Functioning Disability and Health (ICF), and a Dosage Tool.

Participants will learn to maximize biomechanical outcomes using footwear, ankle-foot orthoses, and their combinations, refine their clinical decision-making through video vector gait laboratory case studies focusing on conditions like cerebral palsy, neural tube defects, stroke, and apply OSKAR rehabilitation programs for enhanced mobility. The course, applicable to both pediatric and adult cases, culminates in participants being able to directly integrate these principles and techniques into their clinical practice, supported by a comprehensive over 600-page manual.

Location and Delivery Method:

This is a flex course designed to accommodate your busy schedule. Feel free to mix and match live and recorded sessions according to what best fits your needs, ensuring you have the flexibility to learn at your own pace while still benefiting from real-time interactions and resources.

Who Should Attend:

Orthotists, Pediatric Physical Therapists, Physical Therapists working with acquired or childhood-onset disability in adulthood, Orthotic Assistants, Physical Therapist Assistants, Orthotic Technicians, Orthotic Fitters, Pedorthists, Physicians and Surgeons (not offering CME). Other professionals working in pediatrics have also found the content relevant and valuable.

Successful Completion:

Participants will complete 47.0 hours of content comprised of 30.5 hours of self-study and 16.5 hours live contact hours, which is also available on-demand. The course will start with foundational content and conclude with a series of case studies which integrate the course materials.

MODULE ONE Fundamental Principles		MODULE TWO Standing & Walking: Typical Kinematics & Kinetics		MODULE THREE Atypical Walking Goal Setting Tools AFO & Footwear Biomechanics		MODULE FOUR Clinical Algorithms For Designing & Aligning AFOs & Footwear		MODULE FIVE Case Studies	
Session One Self-study 10 hours Available Aug 29th	**Session Two** Live Oct 10th 2 hours Recording released same day	**Session Three** Self-study 7 hours Available Oct 10th	**Session Four** Live Oct 24th 2 hours Recording released same day	**Session Five** Self-study 6 hours Available Oct 24th	**Session Six** Live Nov 7th 2 hours Recording released same day	**Session Seven** Self-study 6.5 hours Available Nov 7th	**Session Eight** Live Nov 21st 3.5 hours Recording released same day	**Session Nine** Live Dec 5th 3.5 hours Recording released same day	**Session Ten** Live Dec 12th 3.5 hours Recording released same day

Self-study will consist of on-demand viewing of lectures, reading assignments and optional activities. Participants will complete an assessment at the end of each module. It is *highly recommended* that participants attend at least one live session from modules 1–4 and one live session from module 5. We strongly encourage you to attend the case study live sessions, as learners have consistently found this portion of the course invaluable for integrating the material. A community discussion board operates throughout the course, where participants who are not able to attend live sessions may post questions to faculty.

The course requirements must be completed by Dec. 30, 2025, to receive credit. Course rosters will be sent to ABC (for orthotists) at this time. Participants will have extended access to view materials through March 12, 2026, for review purposes only.

Learner Outcome:

Upon completion of this course, participants will be able to:

- Apply Pictorial, Table and Dosage Tools for collaborative goal setting across the International Classification of Functioning Disability and Health (ICF)components of body structures, body functions, activities and participation for children who use ankle-foot orthoses

- Demonstrate six clinical algorithms for determining optimal orthotic designs, alignments and dosage in order to implement an Optimal Segment Kinematics and Alignment approach to

Rehabilitation (OSKAR). The algorithms consider not only the ankle-foot orthosis but the entire AFO Footwear Combination

Faculty:

Elaine Owen, MBE, MSc, SRP, MCSP

This course is presented by Elaine Owen, who has developed the Optimal Segment Kinematics and Alignment approach to Rehabilitation (OSKAR). Elaine has been practicing as a physical therapist since the 1970's, working in and managing interdisciplinary multi-agency childhood onset disability services. She has postgraduate training in all areas of pediatric therapy, and qualifications in lower limb orthotic biomechanics and clinical gait analysis. Her MSc in rehabilitation studies included a thesis about orthotic management of neurological conditions, normal standing and gait. She is European Society for Movement Analysis in Adults and Children (ESMAC) trained in Clinical gait analysis. For over 30 years, she has used a video vector gait laboratory for gait analysis, and orthotic and physical therapy management of children and adults, during this time OSKAR was developed. She has peer-reviewed publications and has regularly been invited to teach her course and lecture internationally. Through her own courses these principles have been presented at the International Society for Prosthetics and Orthotics (ISPO) World Congress, American Academy for Cerebral Palsy and Developmental Medicine (AACPDM), American Academy of Orthotists and Prosthetists (AAOP) and the European Society of Movement Analysis of Adults and Children (ESMAC). She has received a UK national award Member of the Order of the British Empire (MBE) for Services to Children with Disability and in 2019 AAOP awarded her the Clinical Creativity Award. She has experience as a caregiver of a child with a disability.

The Principles of OSKAR: an Optimal Segment Kinematics & Alignment Approach to Rehabilitation of Standing & Walking

Goal-setting & OSKAR Principles

- **Describe and discuss** the potential short and long-term goals, across the International Classification of Functioning Disability and Health (ICF), for children who use AFOs, and use of Pictorial and Table Tools for collaborative goal-setting
- **Describe and discuss** the essential concepts of the Optimal Segment Kinematics and Alignment Approach to Rehabilitation (OSKAR)
- **Describe and discuss** the biomechanical and neuro-biomechanical effects of optimally aligned and designed AFO Footwear Combinations that may contribute to positive outcomes for bones and joints, muscles, motor control of standing and walking, pain and tissue viability
- **Describe** OSKAR functional gait training and motor learning programs for standing and walking with AFO's and Footwear, and other OSKAR therapy interventions

Standing & Walking: an OSKAR Approach

- **State** the relevance of segment alignment and proportion to stable standing and walking, and orthotic prescriptions
- **Describe** optimum segment alignment, proportion and kinetics of stable standing
- **Differentiate** between and explain the subdivisions and temporal events of a gait cycle
- **Differentiate** between and explain stepping walking and full gait cycle walking
- **Describe** kinematics of the subdivisions of the gait cycle of typical walking, with equal emphasis on movements of the joints and movements of the segments relative to the vertical and horizontal
- **Describe** kinetics of the subdivisions of the gait cycle of typical walking, and the interaction of kinematics with kinetics
- **Describe** muscle actions of the subdivisions of the gait cycle of typical walking
- **Describe** the kinematics and kinetics of stepping walking
- **Discuss** how the intersegmental coordination of maturing typical gait patterns changes with age
- **Describe** the kinematics and kinetics of atypical gait patterns, deviations at segments and joints, and Owen's categorization by segment deviation

Ankle-foot Orthosis Footwear Combinations: Design, Alignment & Effects

- **Describe** the essential lower limb physical examinations required for gait analysis and orthotic management and differentiate typical and atypical values for all ages
- **Distinguish and discuss** the biomechanical effects of a variety of AFO and footwear designs and AFO Footwear Combinations
- **Describe** the biomechanical optimization of AFO Footwear Combination designs and alignment, and their refinement by tuning to optimize standing, stepping and walking with full gait cycles
- **Distinguish** static and dynamic alignment of AFO Footwear Combinations
- **Demonstrate** the use of six clinical algorithms for designing, aligning and tuning AFO Footwear Combinations, to determine optimum prescriptions for each atypical gait pattern, to optimize standing, stepping and walking with full gait cycles
- **Describe** the potential benefits of stepping walking with AFO-FCs, compared to full gait cycle walking with AFO Footwear Combinations
- **Demonstrate** the use of a clinical algorithm for determining whether a dorsiflexion-free AFO design is appropriate
- **Distinguish** the assessments required to determine the optimum alignment of the ankle in an AFO and demonstrate the use of a clinical algorithm for determining the optimum ankle angle
- **Demonstrate** the use of a clinical algorithm for determining metatarsal phalangeal joints free or fixed AFO design

Clinical Application

- **Integrate** AFO Footwear Combination design, proportion, alignment and tuning concepts with patient case examples
- **Demonstrate** kinematic and kinetic gait analysis, from video vector images of sagittal and coronal planes
- **Use** digital video, to obtain quality sagittal and coronal plane views of standing and walking, to perform 2D kinematic gait analysis

Agenda:

Module One: Fundamental Principles

Session One
Self-study: Available Aug. 29, 2025
Watch pre-recorded lectures and complete reading covering the following:

- Terminology and definitions: kinematics, kinetics; segment and joint alignments; segment proportion, base of support; orthoses, footwear, AFO footwear combinations
- Clinical assessment; muscle properties and adaptation
- Introduction to kinetics; ground reaction force, joint forces and moments
- Introduction to Tools for orthotic Interventions: Pictorial and Table Tools for collaborative family-centered goal setting; Dosage Tool

Session Two
Live: Oct. 10, 2025
Two Hour Live Session: 8–10 am CST or 3–5 pm CST (10-minute break at 8:50 am or 3:50 pm)
Complete quizzes, games and discussion of session one content.
A recording of live session will be made available in the learning portal within 24 hours of its airing

Module Two: Standing And Walking.Typical Kinematics And Kinetics

Session Three
Self-study: Available Oct. 10, 2025
Watch pre-recorded lectures and complete optional activities covering the following:

- An OSKAR approach to typical standing and walking, including temporal events and divisions of full gait cycle walking and stepping walking
- Segment and joint alignments, kinematics, kinetics, and interaction
- Muscle actions; segment proportion, base of support
- Conditions for stable standing and walking; gait maturation

Session Four
Live: Oct. 24, 2025
Two Hour Live Session: 8–10 am CST or 3–5 pm CST (10-minute break at 8:50 am or 3:50 pm)
Complete quizzes, games and discussion of session three content.
A recording of live session will be made available in the learning portal within 24 hours of its airing

Module Three: Atypical Walking, Goal Setting Tools, AFO & Footwear Biomechanics

Session Five
Self-study: Available Oct. 24, 2025

Watch pre-recorded lectures and complete optional activities covering the following:

- Goal Setting with the Pictorial Tool. The influence of OSKAR in achieving goals and outcomes for bones, joints, muscle, motor control, activities, participation, pain and tissues. OSKAR Functional Gait Training and motor learning programs. Dosage Tool
- An OSKAR approach to categorization of atypical gait patterns, by shank segment alignment. Segment and joint alignments, kinematics and kinetics
- Biomechanics of Ankle-Foot Orthoses and Footwear. Sagittal, coronal, transverse and triplanar considerations, including alignment, proportion, stiffness, profile, and the influence of footwear designs. Orthotic Conditions for Stable Standing, Stable Stepping, Stable Full Gait Cycles

Session Six
Live: Nov. 7, 2025

Two Hour Live Session: 8–10 am CST or 3–5 pm CST (10-minute break at 8:50 am or 3:50 pm)
Complete quizzes, games and discussion of session five content.
A recording of live session will be made available in the learning portal within 24 hours of its airing

Module Four: Clinical Algorithms for Designing & Aligning AFO's & Footwear

Session Seven
Self-Study: Available Nov. 7, 2025

Watch pre-recorded lectures and complete optional activities covering the following:

- Clinical Algorithms for designing, aligning and tuning AFOs & Footwear, for full gait cycles, stepping and standing. Includes algorithms for determining optimal AFO design, and optimal ankle angle alignment
- Guidelines for optimal Shank to Vertical Angle static alignments and heel and sole designs, for each atypical gait category when walking with full gait cycles, stepping or standing
- Toolkit for capturing quality two-dimensional videos and optimizing AFO Footwear Combinations
- Optional Toe Walking Webinar

Session Eight
Live: Nov. 21, 2025

Four Hour Live Session: 8 am–12 pm (10-minute breaks at 8:50 am, 9:50 am and 10:50 am)
Complete quizzes, games and discussion of session seven content.
A recording of live session will be made available in the learning portal within 24 hours of its airing

Case studies:

- Video Vector Gait Laboratory demonstration of atypical gait pattern
- Review of clinical assessment chart
- Setting, short and long-term goals using pictorial tool
- Use of algorithms to determine the optimal orthotic prescription
- Use of goals, Pictorial tool and Dosage Tool to determine AFO-FC dosage and frequency of use
- Demonstration of short and long-term outcomes

Module Five: Case Studies

Session 9
Live: Dec. 5, 2025

Four Hour Live Session: 8 am–12 pm (10-minute breaks at 8:50 am, 9:50 am and 10:50 am)
A recording of live session will be made available in the learning portal within 24 hours of its airing

Case studies with small group discussions will cover the following:

- Video Vector Gait Laboratory demonstration of atypical gait pattern
- Review of clinical assessment chart
- Setting, short and long-term goals using pictorial tool
- Use of algorithms to determine the optimal orthotic prescription
- Use of goals, Pictorial Tool and Dosage Tool to determine AFO-FC dosage and frequency of use
- Demonstration of outcomes, short and long-term

Session 10
Live: Dec. 12, 2025

Four Hour Live Session: 8 am–12 pm (10-minute breaks at 8:50 am, 9:50 am and 10:50 am)
A recording of live session will be made available in the learning portal within 24 hours of its airing

Case studies with small group discussions will cover the following:

- Video Vector Gait Laboratory demonstration of atypical gait pattern
- Review of clinical assessment chart
- Setting, short and long-term goals using Pictorial Tool
- Use of algorithms to determine the optimal orthotic prescription
- Use of goals, Pictorial Tool and Dosage Tool to determine AFO-FC dosage and frequency of use
- Demonstration of short and long-term outcomes

Registration Fee:

Early Bird Registration Fee until July 31, 2025	$650
Registration Fee After July 31, 2025	$750

Cancellation Policy:

All cancellations must be requested by sending an email to academy@sralab.org. Refunds less a 20% administrative charge will be given until 30 days before the start date of the course. If the cancellation notice is received less than 30 days from the start date of the course, a credit towards a future continuing education program would be applied for one year from the start date of the canceled course. The Academy reserves the right to cancel or change any programs for due cause. The cancellation of a program by the Academy will result in a full refund of tuition.

Important Registration Information:

Registrations will be taken in the order in which they are received. We highly encourage you to register online as these are processed more quickly than mailed registrations. **Full tuition must accompany the registration form to confirm your place in this course.** Until you receive your confirmation letter, you are not officially registered for the course. For online registrations, you will receive email confirmation on the same day that you register. For registrations received by standard mail, the confirmation may take up to three weeks for processing. If you do not receive confirmation within this period, please call 312.238.6042. **One week prior to the course, only internet registrations that include an email will be accepted.** Please note that once the course has reached its maximum enrollment, no additional spots will become available.

Technology Requirements:

To participate, you will need access to a device with an Internet connection. Computers, laptops, iOS and Android devices are supported. High-speed broadband Internet access (LAN, Cable or DSL) is highly recommended. Additional requirements include the latest stable version of Chrome, Firefox, or Safari, JavaScript and Cookies enabled, Speaker and microphone, or headset with microphone, or phone to listen to webinar facilitators, Do NOT use Internet Explorer as it is not supported.

Accessibility:

Please contact the Academy if you require any special accommodation for this course.

Continuing Education Credit:

Early Intervention

We have applied for this event for 47.0 hours of EI credential credit from Illinois Early Intervention Training Program

Physical Therapy

This course has been approved by the Illinois Physical Therapy Board for 47.0 Contact Hours (30.5 Hours Self-Study 16.5 Live). Approval #216-000069

The Shirley Ryan AbilityLab is recognized by California and the New York State Education Department's State Board for Physical Therapy as an approved provider of physical therapy and physical therapist assistant continuing education. This 10-week course has been approved for 47.0 Contact Hours (30.5 Hours Self-Study, 16.5Live). California Contact Hours approved on January 31, 2025.

Many states accept continuing education contact hours recognized in other states, enabling professionals to use these hours to meet their licensing or certification requirements. Please consult your state regulations to see if this meets CEU requirements for your license.

Orthotics

This program has applied for up to 47.0 scientific credits through the American Board for Certification in O&P (ABC) for Orthotists, Orthotic Assistants, Orthotic Technicians and Orthotic Fitters and Pedorthists. Full participation in this program is required to be eligible for the full amount of credits.

Faculty Disclosures:

Elaine Owen has no relevant financial or non-financial disclosures.

Register online at sralab.org/pedsgait25 or complete the form below and return with payment.

Mail to: Academy
Shirley Ryan AbilityLab
355 E. Erie Street, Suite 12-West
Chicago, Illinois 60611

Early Bird Registration Fee until July 31, 2025	$650
Registration Fee After July 31, 2025	$750

Questions? Contact Melissa Kolski, at mkolski@sralab.org and 312.238.7731.

Please Type or Print your name and professional initials (MD, OT, PT, RN, etc.) as you would like them to appear on your continuing education certificate.

First Name _____ Last Name _____

Home Phone (_____) _____ Prof. Initials _____

Home Address _____

City _____ State _____ Zip _____

Organization/Facility _____

Work Address _____

City _____ State _____ Zip _____

Work Phone (_____) _____ Fax (_____) _____

Position _____

E-mail (required) _____

Please note: registration will not be processed without full payment.

Method of Payment: ☐ Check enclosed (Payable to: Shirley Ryan AbilityLab)

☐ Credit Card

Credit Card Users Must Complete the Following Information:

☐ MasterCard ☐ VISA ☐ American Express

Credit Card # _ _ _ _ - _ _ _ _ - _ _ _ _ - _ _ _ _

Expiration Date _ _ / _ _ CVV _ _ _ _ (security code on back of card)

Name on Card _____

Billing Address _____

City _____ State _____ Zip _____

Cardholder's Signature _____