

ABC PEDORTHIST

Pre-Certification Course Approval Standards

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ABC PEDORTHIST PRE-CERTIFICATION COURSE APPROVAL STANDARDS

ABC has established these standards for the development, evaluation and self-analysis of Pedorthic pre-certification education courses in order to structure the delivery and content of the courses and to provide guidance to program instructors. The standards ensure that the didactic and lab portions of the course are representative of current pedorthic practice. The mechanisms used to formulate the standards include review of previous standards, stakeholder input and subject matter expert committees.

Course Requirements

Pedorthic pre-certification educational courses are intended to give the student a sufficient body of knowledge to assure entry level competence to enter the field of Pedorthics. This includes lectures, laboratory work and demonstrated clinical interventions. Course provider resources must be sufficient to ensure compliance with these standards. Resources must include but are not limited to: course syllabus, adequate faculty and support staff, physical and/or virtual classrooms, laboratory equipment and supplies appropriate for the number of students enrolled.



Description of the Profession

Pedorthics is a specialized healthcare profession, whose Scope of Practice combines a blend of clinical and technical skills to care for patients with disabling conditions of the foot and ankle, requiring patient evaluation, formulation of treatment plans, fabrication, fitting and adjustment of pedorthic devices.

All ABC approved pedorthist pre-certification courses are approved for a three-year term. The application fee is \$800.

The course must be structured to include both didactic content and in-person lab experiences. The course must be a minimum of 120 hours, with a minimum of 80 hours of didactic instruction and 40 hours of in-person laboratory. The didactic portion can be delivered using a combination of on-line and in-person instruction. The lab portion must be delivered in-person.

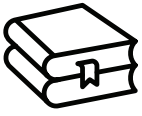
The primary instructor(s) of both the didactic and lab instruction must be either a certified or licensed pedorthist or orthotist and be in good standing with their credentialing body. Other instructional staff must be appropriately credentialed for the content area being taught. All instructors must also be: knowledgeable in the subject matter through training and experience, effective in teaching their assigned subjects and exhibit professional behavior in student/teacher interaction.

Announcements, catalogs, publications, and advertising must accurately reflect the program offered and must describe what is required for completion of the program. All activities associated with the program must be non-discriminatory and in accord with federal and state statutes, rules, and regulations. The health and safety of patient models, students, and faculty associated with the course must be adequately safeguarded.

The sponsor must report substantive change(s) to ABC in a timely manner, including:

1. Change/addition/deletion of content that represents significant departure in approved course content;
2. Change in method of course delivery;
3. Substantial increase/decrease in requirements for successful completion of course;
4. Changes in chief executive officer and required program personnel including faculty.

ABC reserves the right to inspect the physical lab facility used to complete the lab portion of the course. This inspection may be in-person or virtually. Course providers agree to provide ABC representatives with access to the lab facilities upon request.



DIDACTIC CONTENT • minimum 80 hours

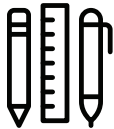
Students must have comprehensive exposure to all nine content areas outlined in the Competency Guidelines section.

Course content outside of the *ABC Pedorthist Scope of Practice* is not recognized and will not be counted towards the minimum time required for the course.



DELIVERY FORMAT

Didactic – course content may be delivered synchronously (live online or in-person) or asynchronously (on-demand). On-demand coursework is acceptable if the course provider offers opportunity for student/instructor communication during regular business hours (e.g., via instant messaging, video conferencing, email, phone, etc.) to ensure comprehension.



DIDACTIC ASSESSMENT

Each student must be assessed to determine if they have obtained the required base set of competencies related to pedorthic patient care during and at the completion of the course.

Student Assessment Guidelines

- The use of case studies is encouraged to reinforce treatment concepts.
- A final graded exam is required at the conclusion of the course. Open book tests are not allowed.
- A maximum of six months can elapse between completion of the didactic portion and the beginning of the lab portion of the course.



LAB CONTENT • minimum 40 hours

Students must have access to adequate lab space, equipment, hand tools and supplies to sufficiently complete all fabrication requirements outlined in the Competency Guidelines and Appendix A (e.g., shoe grinders, vacuum press, etc.) The maximum ratio allowed is one instructor to ten students.



LAB ASSESSMENT

Each student must be assessed in person to determine if they have obtained the necessary skill in evaluation, measurement, fabrication, fitting and proper use and function of pedorthic devices listed in the Competency Guidelines.

Student Assessment Guidelines

Upon completion of the course, students must have a basic knowledge of the content areas, have been assessed in their understanding of each area and have demonstrated their ability to perform all measuring, casting/scanning, fabrication and fitting skills as they relate to pedorthic patient care.

COMPETENCY GUIDELINES

The student shall understand and demonstrate basic knowledge in foot and ankle anatomy, biomechanics, common foot pathologies and pedorthic interventions. The competency areas must include but are not limited to the following:

1. Basic Anatomy, Biomechanics, Pathology and Medical Terminology
2. Shoe Construction Theory
3. Shoe Fitting
4. Shoe Modifications
5. Custom Molded Shoes
6. Custom and Prefabricated Foot Orthoses
7. Subtalar Control Foot Orthoses (SCFO)
8. Partial Foot Prostheses
9. Practice Management



Basic Anatomy, Biomechanics, Pathology and Medical Terminology

The student will develop an understanding of medical terminology, anatomy of the foot, biomechanics and gait, and foot pathologies and treatment options.

1. The student will understand basic medical and pedorthic terminology, including the following:

Anatomical

- Ankle joint
- Arch
- Cuboid
- Fascia
- Post tibial tendon

Pathology

- Arthritis
- Atrophy
- Charcot foot
- Claw toe
- Equinovarus
- Fasciitis
- Hallux valgus (Bunion)
- Hammer toe
- Lymphedema

Medical

- Abduction/Adduction
- Anterior/Posterior
- Bilateral
- Dorsiflexion/Plantar flexion
- Genu varum/valgum
- Inversion/Eversion
- Medial/Lateral
- Pronation/Supination
- Superior/Inferior
- Valgus/Varus

Pedorthic

- Blucher
- Buttress
- Counter, long
- Elevation
- Harris mat
- Heel drop
- Heel pad
- Toe spring

2. The student will understand basic anatomy of the foot; identify and name:

- a. the bones of the foot
- b. the major muscles, tendons, ligaments and nerves of the lower leg and foot and their function
- c. the three anatomic divisions of the foot
- d. the bones of the hindfoot
- e. the bones of the midfoot
- f. the bones of the forefoot

3. The student will understand basic biomechanics as it relates to foot function, including planes of motion, phases of gait and foot joint motions and positions.

- a. Cardinal planes: sagittal, frontal, transverse
- b. Motions and positions in cardinal planes:
 - Abduction/Adduction
 - Dorsiflexion/Plantar flexion
 - Inversion/Eversion
 - Varus/Valgus
- c. Combined motions: Pronation/Supination
- d. Phases of the gait cycle, including functional rockers

4. The student will understand the following foot pathomechanics and systemic diseases and how they are treated using foot orthoses, prefabricated AFOs and other pedorthic modalities.

- a. Achilles tendinitis
- b. Plantar fasciitis
- c. Calcaneal apophysitis
- d. Posterior tibial tendonitis
- e. Ankle equinus
- f. Lateral and medial ankle sprains
- g. Limb length inequality
- h. Hallux limitus and rigidus (structural and functional)
- i. Morton's neuroma
- j. Metatarsal and toe deformities
- k. Metatarsalgia (all forms)
- l. Diabetic foot ulcers
- m. Peripheral neuropathies including Charcot-Marie-Tooth (CMT) disease

5. Understand treatment options to address basic foot pathologies and when foot orthoses, shoe modifications or custom-molded shoes should be indicated.

- a. Bunions/Hallux abducto valgus
- b. Calluses, Corns
- c. Hammer/Claw/Mallet toes
- d. Heel pain
- e. Metatarsal pain (Metatarsalgia)
- f. Over Supination/Pronation
- g. Diabetic complications
- i. Charcot arthropathy/joint disease
- j. Peripheral neuropathy and ulcerations
- h. Arthritic complications



Shoe Construction Theory

The student will develop an understanding of shoe anatomy, shoe construction and shoe component design properties.

1. Identify and describe the primary sections and basic components of the shoe.

- | | | |
|-------------|------------|------------------------|
| a. Quarter | f. Outsole | k. Counter |
| b. Top line | g. Throat | l. Insole |
| c. Vamp | h. Heel | m. Inlay |
| d. Welt | i. Midsole | n. Stitching and seams |
| e. Toe box | j. Shank | |

2. Identify and describe the basic construction of a shoe including last, patterns and functions of last shapes.

- types of adhesives used, welt process, basic shoe assembly
- common shoe materials

Shoe Fitting

The student will develop an understanding of goals and techniques for measuring feet and demonstrate the ability to properly fit shoes. This includes:

- Proper measuring techniques using the Brannock device (and others).
- Understanding shoe sizing; US, UK, Euro.
- Proper techniques for checking shoe fit.
- Proper techniques for fitting over an AFO (plastic).
- Proper techniques for fitting with foot orthoses.
- Fitting pediatric, adult, diabetic, geriatric and athletic patients.
- Fitting asymmetrical feet by understanding different foot shapes and basic pathology.
- Develop an understanding of when custom molded shoes should be indicated.
- Proper fitting techniques using minor modification tools.
- Using stretching tools to properly soften leather and shoe components.
- Adding tongue pads, met pads, heel pads, scaphoid pads, etc.



Shoe Modifications

The student will design and fabricate footwear modifications using materials selected to meet pedorthic objectives. They will evaluate and make necessary modifications or adjustments. The student will demonstrate an understanding of current shoe styles and constructions that are appropriate for specific shoe modifications. The student will demonstrate the safe use of equipment and hand tools (e.g., shoe machinery (grinders), sewing machines, hammers and knives, adhesives, etc.)

1. Perform upper shoe modifications utilizing closure conversion techniques (straps with D-rings or matching lace stays and Velcro® closures) and know when to select this type of modification technique (e.g., upper extremity involvement, rheumatoid arthritis, hemiplegia, etc.)
2. Describe the application of heel counter modification techniques (reinforcement of the inside or outside), selection of appropriate materials and know when this type of modification is required.
3. Identify the various types of rocker soles, describe their function, biomechanical effects and pedorthic applications.
4. Differentiate between the terms initial contact, midstance, terminal stance and rocker angle, relevant to rocker soles.
5. Fabricate two of the following types of rocker soles: mild, heel-to-toe, negative heel and double.
6. Perform midsole and/or outsole modifications fabricating elevations for leg length discrepancy (LLD).
7. Describe the function and application of flares and stabilizers (buttress), both lateral and medial.
8. Fabricate one type of stabilization: flares or stabilizers, lateral or medial.
9. Describe the function and application of an extended steel or carbon fiber shank.
10. Describe the function and application of wedges and fabricate a shoe modification utilizing a wedge.
11. Describe the function and application of customizing uppers (e.g., adding to the quarters of a low top shoe, converting it to a high-top shoe, extending the opening anteriorly in order to facilitate doffing and donning, etc.)
12. Describe sole splitting in order to add shoe modifications.
13. Conduct a trial fitting of a shoe modification, evaluate and make necessary adjustments.



Custom Molded Shoes

The student will demonstrate an understanding of goals when custom molded shoes are indicated and demonstrate the ability to conduct various casting techniques to capture an accurate impression/image of the foot and ankle.

- a. Identify conditions and disorders that create a need for custom molded shoes.
- b. Identify treatment goals for custom molded shoes.
- c. Record two-dimensional data, including foot printing and tracing.
- d. Provide a description of measuring considerations, including for prosthetic feet.
- e. Record three-dimensional data by measuring the foot length, width and circumference.
- f. Demonstrate knowledge of fabrication and ordering parameters for fabrication of custom molded shoes.

**Please see Appendix A for casting knowledge and skills*

Custom Foot Orthoses

The student will design and fabricate custom foot orthoses, both, an accommodative and functional design for a patient, using materials selected and evaluate and make necessary modifications or adjustments by understanding the implementation of pedorthic problem-solving techniques. The student will demonstrate and understand the safe and proper use of equipment and hand tools (e.g., vacuum formers, shoe machinery, grinders, hammers and knives, adhesives, etc.)

Students will:

- a. State the pedorthic objectives of orthoses for treatment of the diabetic foot or insensate foot.
- b. Conduct an evaluation of lower limb biomechanics.
- c. Conduct a physical assessment of the foot. Select the proper technique for taking a foot impression as determined by the condition of the patient's foot and the desired function of the orthosis, (i.e., weightbearing, semi-weightbearing or non-weightbearing.)
- d. Identify areas of excessive plantar pressure utilizing a floor reaction system: imprint type or computerized models.
- e. Obtain a model of a foot by taking an impression, demonstrating two of the three principal techniques when taking a foot impression including: a slipper cast, impression foam and scanning.
- f. Describe the two basic types of foot orthoses, (i.e., accommodative and functional) as well as UCBLs and when each type of intervention is indicated, based on the pedorthic evaluation.
- g. Select appropriate orthosis materials (e.g., soft, semi-flexible, rigid, etc.)
- h. Describe material applications for a single, double and tri-layer orthosis.
- i. Produce a positive model of a patient's foot and fabricate an orthosis.
- j. Describe additive manufacturing (3-D printing) related to pedorthic practice.
- k. Describe intrinsic and extrinsic modifications.
- l. Conduct a trial fitting of an orthosis, evaluate and make necessary modifications.
- m. Perform adjustment techniques by gathering information to achieve maximum results in the adjustment of the orthosis (e.g., medial or lateral, anterior or posterior posting, metatarsal pads, adjusting arch heights, etc.)

Prefabricated Foot Orthoses

The student will develop an understanding of the proper fitting techniques for prefabricated foot orthoses, including the following:

- a. Differences and benefits of $\frac{3}{4}$ -length vs. full-length.
- b. Differences and benefits among rigid, semi-rigid and accommodative.
- c. Basic level of modifying techniques for foot orthoses and heat-molding for diabetic inserts to ensure optimal fit and comfort.



Subtalar-Control Foot Orthoses (SCFO)

The student will demonstrate an understanding of goals when a custom SCFO is indicated and the knowledge of proper fitting and modifying techniques of a SCFO and shoes and/or shoe modifications that may be required.

1. Define a SCFO, and understand the:
 - disorders or conditions that may cause a need for a SCFO
 - various applications and design options of a SCFO
 - *Scope of Practice* parameters for a certified pedorthist
 - treatment goals for a SCFO, including the primary goal and relief of bony prominences
2. Knowledge of fabrication and ordering parameters for fabrication of a SCFO.
3. Proper donning and doffing of a SCFO.
4. Describe various fitting challenges (e.g., needing larger size shoe, additional shoe modifications. such as rocker soles, possible in-shoe lift for opposite side, etc.).
5. Demonstrate modifying techniques that can be done to a SCFO:
 - Heating and expanding areas of pressure
 - Padding techniques
 - Trimming away areas that may irritate (e.g., dorsum closure, anterior plantar edge, etc.)

**See Appendix A for casting knowledge and skills*

Partial Foot Protheses

The student will design and fabricate a transmetatarsal or distal partial foot/toe filler prosthesis for a patient, evaluate the fit and make any necessary modifications or adjustments. The student will demonstrate and understand the safe use of equipment and hand tools (e.g., vacuum formers, shoe machinery, grinders, hammers and knives, adhesives, etc.)

- a. State the pedorthic objectives of orthoses for treatment of the residual foot.
- b. Identify areas of excessive plantar pressure utilizing a floor reaction system, imprint type or computerized models.
- c. Conduct a physical assessment of the residual foot and evaluate lower limb biomechanics.
- d. Select appropriate orthosis materials (e.g., soft, semi-flexible, rigid, etc.)
- e. Describe material applications for double and tri-layer prosthesis.
- f. Produce a positive model of a patient's foot and fabricate partial foot prosthesis.
- g. Demonstrate knowledge of adjustment techniques to optimize fit and function.

**See Appendix A for casting knowledge and skills*

Practice Management

The student will demonstrate an understanding of:

- a. Appropriate documentation procedures.
- b. Policies and procedures regarding privileged healthcare information (HIPAA).
- c. Roles and responsibilities associated with other healthcare professions.
- d. Reimbursement protocols (i.e., CMS, PDAC, HCPCS codes).
- e. Universal/standard precautions and infection control.
- f. ABC Scope of Practice of the certified pedorthist.
- g. ABC Scope of Practice of other orthotic and prosthetic credentials.
- h. Federal and state rules, regulations and guidelines (e.g., FDA, ADA, licensure, etc.).
- i. OSHA guidelines to ensure personnel safety, including ventilation, PPE and first aid kit.
- j. Safe and proper use of equipment and hand tools.



APPENDIX A

Casting Techniques for Custom Molded Shoes, Partial Foot Prostheses and SCFOs

1. Describe casting equipment, accessories and materials needed for casting or scanning for custom molded shoes, partial foot prostheses and SCFOs.
 - a. Describe a variety of casting positions and special considerations
 - b. Provide a description of measuring considerations including tracing the foot
 - c. Describe understanding of scanning options for shape capture
 - d. Casting materials and equipment:
 - Synthetic casting socks, plaster rolls and synthetic material rolls
 - Casting stockinette for plaster or synthetic roll, poly plastic for casting socks
 - Casting platform/board/cushion
 - Marking pencil
 - Interface protection for removal of cast
 - Scissors and cast saw

2. Show competency in the following skills and knowledge related to casting:
 - a. The options for a casting chair, platforms and positions
 - b. Weight bearing vs. semi-weight bearing
 - c. Techniques for maintaining correct casting position of the:

• Foot and ankle	• Ankle joint
• Knees	• Midtarsal joint
• Tibia and lower leg	• Digits
 - d. Identify and correctly mark all bony prominences
 - e. Perform the following casting techniques: spiral wrap using plaster bandages and synthetic material, synthetic casting socks and bivalve techniques
 - f. Demonstrate safe cast removal techniques

3. Understand special considerations for:

• Protection of the skin	• Edematous feet
• Rigid feet	• Casting over an orthosis or prosthetic foot
• Hypermobility/flaccid feet	