2011 Edition

Core Curriculum for Pedorthics

Appendix B of the *Standards and Guidelines for the Accreditation of Educational Programs in Pedorthics*

National Commission on Orthotic and Prosthetic Education (NCOPE) &
the Committee on Accreditation of Pedorthic Education (CAPE)

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2011 Edition

Pedorthic Curriculum

A.1.0 ENTRY-LEVEL COMPETENCIES

The graduate entering the profession must effectively demonstrate competence in the following constructs.

A.1.1 Understand and demonstrate the role of the pedorthist in providing ethical patient-centered care by applying the appropriate Code of Professional Responsibilities.

A.1.2 Use sound judgment in regard to safety of self and others, and adhere to safety procedures throughout the delivery of pedorthic services.

A.1.3 Have an awareness of the humanity and dignity of all patients within a diverse multicultural society.

A.1.4 Understand and demonstrate the collaborative role of the pedorthist along with the other members of the interdisciplinary rehabilitation team in providing patient-centered care.

A.1.5 Demonstrate skill in clinical and technical procedures necessary for pedorthic practice.

Professional Curriculum

The professional curriculum portion is the academic "core" of the curriculum and is designed to provide the student with the knowledge, skills and behaviors required for entry into the practice of pedorthics.

All learning experiences, didactic and clinical, must be accompanied by instructional objectives. These objectives must clearly outline the educational expectations in measurable outcomes while delineating the responsibilities of the learning facilitator and the student participant.

B.1.0 BASIC SCIENCES

The following basic sciences are needed as a foundation for the pedorthist. Therefore, the basic science curriculum must include appropriate content in:

B.1.1 Human anatomy and physiology
B.1.2 Biomechanics/Kinesiology
B.1.3 Gait analysis (normal and pathological gait)
B.1.4 Clinical pathology as it relates to pedorthics

Each sponsoring educational institution may determine whether these content areas will be incorporated into their professional curriculum or whether they will be required prior to entry into the program.

C.1.0. CURRICULUM CONTENT AREAS

The following content areas *related to pedorthics* must be included in the curriculum:

C.1.1 Material science
C.1.2 Shoe theory and fitting
C.1.3 Orthotic theory as it relates to foot and ankle
C.1.4 Practice/Business management
C.1.5 Pedorthic Professional Issues, i.e., organizations, licensure, accreditation and certification

The student must demonstrate the ability to complete the following essentials of the patient evaluation process competently.

C.2.0 PATIENT EVALUATION/ASSESSMENT

C.2.1 Perform a comprehensive assessment of the patient using standardized assessment tools and skills to obtain an understanding of patient's pedorthic needs. These include:

a. History
b. Patient Assessment
    1. Manual Muscle Testing (MMT)
    2. Range of Motion (ROM)
    3. Sensory testing
    4. Joint stability
    5. Observational gait analysis
    6. Cognitive ability
    7. Skin integrity
    8. Proper foot size measurements
    9. Leg measurement (length and circumference)
    10. Plantar foot pressure analysis
c. Consultation with other health care professionals and caregivers

C.2.2 Determine appropriateness and method for referring patient to other health care professionals.

C.2.3 Document services using established record-keeping techniques to record patient assessment and treatment plans, communicate manufacturing requirements and meet standards for reimbursement and regulatory agencies.

C.2.4 Effectively communicate with the patient and/or caregiver regarding recommended pedorthic treatment plan.

C.3.0 FORMULATION OF A TREATMENT PLAN

C.3.1 Interpret evaluation findings to formulate a pedorthic treatment plan.

C.3.2 Develop a comprehensive pedorthic treatment plan to meet the needs and goals of the patient.

C.3.3 Discuss the indications for and uses of pedorthic devices.

C.3.4. Identify design, materials and components to support the pedorthic treatment plan.

C.3.5 Demonstrate the ability to educate the patient, caregiver and family in the use and care of pedorthic devices.

C.3.6 Effectively interact through written, oral and nonverbal communication with the patient, family, caregiver and other health care professionals in a professionally appropriate manner.

C.4.0 IMPLEMENTATION OF A TREATMENT PLAN

C.4.1 Demonstrate the ability to use appropriate techniques to obtain accurate impressions and measurements.

C.4.2 Perform the necessary procedures using accepted techniques, tools and equipment to provide appropriate pedorthic services.

C.4.3 Demonstrate an understanding of indications/contraindications of current pedorthic components and materials.

C.4.4 Select appropriate materials and components for the pedorthic device based on patient needs.

C.4.5 Modify the positive model using accepted practices and techniques.

C.4.6 Describe the possible interaction between the device and the patient with respect to corrective and accommodative treatment.

C.4.7 Use mechanical principles such as mechanical advantage, multiple point force systems, and torque to address pathomechanical problems in pedorthic device design.

C.4.8 Demonstrate current and accepted fabrication and assembly procedures in order to prepare for fitting and delivery of pedorthic device.

C.4.9 Review quality and structural stability of the pedorthic device based on the needs and goals of the patient.

C.4.10 Evaluate the fit and function of the pedorthic device as used by the patient and adjust as necessary to obtain optimal function.

C.4.11 Demonstrate knowledge in the use of ground reaction force vectors during ambulation with and without the pedorthic device.

C.4.12 Use appropriate and safe patient transfer methods during sessions.

C.4.13 Provide appropriate instruction to patients, families and caregivers on care, use, maintenance, donning and doffing procedures, skin care and wearing schedules for pedorthic interventions.

C.4.14 Document services using established record-keeping techniques and meeting standards for reimbursement and regulatory agencies.

C.4.15 Document patient and caregiver understanding of instructions.

C.5.0 FOLLOW-UP TREATMENT PLAN

C.5.1 Develop a long-term follow-up plan for comprehensive pedorthic care that includes: periodic evaluation for pedorthic interventions and modifications as needed to maintain optimal fit and function.

C.6.0 PRACTICE/BUSINESS MANAGEMENT

C.6.1 Demonstrate proper documentation and billing techniques.

C.6.2 Demonstrate knowledge of common business policies and procedures for pedorthic practice. (i.e., facility accreditation, premise/product/professional liability insurance, inventory management)

C.6.3 Demonstrate awareness and an understanding of federal regulations pertaining to pedorthic practices.

SECTION D: SPECIFIC PEDORTHIC CONTENT AREAS

D.1.0 Common Pathologies in Pedorthic Practice

Students must identify the clinical aspects of common diseases, pathologies and deformities that involve the foot and ankle. These must include, but are not limited to:

1. Abnormal pronation
2. Abnormal supination
3. Convex pes valgus
4. Talipes calcaneovalgus
5. Posterior tibial tendon dysfunction
6. Metatarsalgia
7. Metatarsus adductus
8. Hallux rigidus
9. Hallux abducto valgus
10. Hallux adducto varus
11. Metatarsus adductus
12. Forefoot varus
13. Rearfoot varus
14. Forefoot valgus
15. Rearfoot valgus
16. Plantar flexed first ray
17. First ray insufficiency
18. Toe deformities
19. Tarsal coalitions
20. Plantar fasciitis
21. Morton's neuroma
22. Hindfoot osteoarthritis
23. Midfoot osteoarthritis
24. Diabetic ulcerations
25. Musculoskeletal: fractures, post-surgical procedures
26. Neuromuscular: hereditary sensory motor disorders, spinal cord injuries, polio
27. Charcot changes in the diabetic neuropathic foot
28. Rheumatoid arthritis
29. Overuse syndromes
30. Pediatric disorders
31. Diabetes mellitus
32. Peripheral vascular disease
33. Trauma
34. Pediatric and congenital etiologies
35. Osteoarthritis in the foot and ankle

Treatment Modalities

D.2.0 Over-the-counter (OTC) Shoes

The student must demonstrate the ability to:

a. Perform the expected performance criteria outlined in **Section C.2.0-C.6.0**

b. Perform a lower limb assessment (refer to C.2.1) including a detailed foot assessment (rearfoot and forefoot alignment, subtalar and midtarsal stability and function) to obtain information for formulating a treatment plan.

c. Apply knowledge of normal anatomy, normal and abnormal biomechanics of the lower limb in combination with a foot assessment to develop a treatment plan.

d. Identify the clinical considerations for use of off the shelf shoes for managing relevant pedorthic pathologies. (refer to D.1.0).

e. Explain the indications and contraindications for use of the commonly used shoe designs and materials with relation to patient diagnosis and clinical presentation.

f. Demonstrate competency in footwear material and design selection and fit assessment and improvement.

D.3.0 Over-the-Counter (OTC) Arch Supports and Foot Care Products

The student must demonstrate the ability to:

a. Perform the expected performance criteria outlined in **Section C.2.0-C.6.0**

b. Perform a lower limb assessment (refer to C.2.1) including a detailed foot assessment (rearfoot and forefoot alignment, subtalar and midtarsal stability and function) to obtain information for formulating a pedorthic treatment plan.

c. Apply knowledge of normal anatomy, normal and abnormal biomechanics of the lower limb in combination with a foot assessment to develop a pedorthic treatment plan.

d. Identify the clinical considerations for use of OTC arch supports and foot care for relevant pedorthic pathologies. (refer to D.1.0).

e. Explain the indications and contraindications for use of the common designs and materials with relation to patient diagnosis and clinical presentation.

f. Demonstrate competency in device selection, measurement acquisition, and material and component selection for various functional and accommodative designs.

g. Demonstrate competency in fit assessment and improvement of these devices.

h. Understand the clinical indications and uses of both prefabricated and custom foot orthoses to enhance function and mobility.

i. Use knowledge of shoe wear and modifications in the pedorthic treatment plan to optimize outcomes.

D.4.0 Custom Foot Orthoses

The student must demonstrate the ability to:

a. Perform the expected performance criteria outlined in **Section C.2.0-C.6.0**

b. Perform a lower limb assessment (refer to C.2.1) including a detailed foot assessment (rearfoot and forefoot alignment, subtalar and midtarsal stability and function) to obtain information for formulating a pedorthic treatment plan.

c. Apply knowledge of normal anatomy, normal and abnormal biomechanics of the lower limb in combination with a foot assessment to develop a pedorthic treatment plan.

d. Identify the clinical considerations for use of custom foot orthoses for relevant pedorthic pathologies. (refer to D.1.0).

e. Explain the indications and contraindications for use of the common designs and materials with relation to patient diagnosis and clinical presentation.

f. Demonstrate competency in device selection, impression and measurement acquisition (casting, foam impression), material and component selection and current fabrication processes for various functional and accommodative designs.

g. Demonstrate competency in fit assessment and improvement of custom foot orthoses.

h. Understand the clinical indications and uses of both prefabricated and custom foot orthoses to enhance function and mobility.

i. Use knowledge of shoe wear and modifications in the pedorthic treatment plan to optimize outcomes.

D.5.0 Custom Molded Shoes

The student must demonstrate the ability to:

a. Perform the expected performance criteria outlined in **Section C.2.0-C.6.0**

b. Perform a lower limb assessment (refer to C.2.1) including a detailed foot assessment (rearfoot and forefoot alignment, subtalar and midtarsal stability and function) to obtain information for formulating a treatment plan.

c. Apply knowledge of normal anatomy, normal and abnormal biomechanics of the lower limb in combination with a foot assessment to develop a treatment plan.

d. Identify the clinical considerations for use of custom molded shoes for relevant pedorthic pathologies. (refer to D.1.0).

e. Demonstrate competency in impression and measurement acquisition, and material and component selection.

f. Demonstrate competency in fit assessment and improvement of custom molded shoes.

D.6.0 Shoe Modifications

The student must demonstrate the ability to:

a. Perform the expected performance criteria outlined in **Section C.2.0-C.6.0**

b. Perform a lower limb assessment (refer to C.2.1) including a detailed foot assessment (rearfoot and forefoot alignment, subtalar and midtarsal stability and function) to obtain information for formulating a treatment plan.

c. Apply knowledge of normal anatomy, normal and abnormal biomechanics of the lower limb in combination with a foot assessment to develop a treatment plan.

d. Identify the clinical considerations for use of shoe modifications for relevant pedorthic pathologies. (refer to D.1.O).

e. Demonstrate competency in safe use of equipment, material and component selection and current fabrication processes for various shoe modifications.

D.7.0 UCBL Orthoses

The student must demonstrate the ability to:

a. Perform the expected performance criteria outlined in **Section C.2.0-C.6.0**

b. Perform a lower limb assessment (refer to C.2.1) including a detailed foot assessment (joint mobility, rearfoot and forefoot alignment, subtalar and midtarsal stability and function) to obtain information for formulating a pedorthic treatment plan.

c. Apply knowledge of normal anatomy, normal and abnormal biomechanics of the lower limb in combination with a foot assessment to develop a pedorthic treatment plan.

d. Explain the indications and contraindications for use of the common designs and materials with relation to patient diagnosis and clinical presentation.

e. Demonstrate proficiency in design selection, casting and measurement acquisition, material selection and fabrication processes for UCBL’s.

f. Demonstrate competency in fit assessment and improvement of UCBL's.

g. Understand the clinical indications and use of UCBL's to enhance function and mobility.

h. Use knowledge of shoe wear and modifications in the pedorthic treatment plan to optimize outcomes.

D.8.0 Subtalar Control Foot Orthoses (SCFO)

A SCFO is defined as a custom device designed to manage the function of the anatomy distal to the ankle joint by primarily controlling the ROM of the subtalar joint; the proximal height does not extend beyond the junction of the gastrocnemius and the Achilles tendon. A SCFO is a method of treatment for conditions related to the foot demanding additional surface area to control forces.

The student must demonstrate the ability to:

a. Perform expected performance criteria outlined in Section C.2.0 through C.6.0.

b. Select and employ appropriate evaluation methods to obtain accurate information for use in formulating a comprehensive pedorthic treatment plan.

c. Apply knowledge of anatomy, biomechanics and pathomechanics to develop a comprehensive pedorthic treatment plan.

d. Formulate comprehensive pedorthic treatment plans to meet patient needs using subtalar control foot orthoses

e. Explain the indications and contraindications for use of the common SCFO designs and materials with relation to patient diagnosis and clinical presentation.

f. Demonstrate competency in impression and measurement acquisition, material selection, and knowledge of fabrication processes for SCFO designs

g. Demonstrate competency in fit assessment and improvement of SCFOs

h. Understand the use of SCFOs for enhancing function and/or decreasing pain.

i. Use knowledge of shoe wear and modifications in the pedorthic treatment plan to optimize outcomes.

j. Understand and explain the limitations of the pedorthic Scope of Practice and how it relates to the use of SCFO's in pedorthic treatment.

D.9.0 Toe-filler / Partial Foot Prosthetic Inserts

The student must demonstrate the ability to:

a. Perform expected performance criteria outlined in Section C.2.0 through C.6.0.

b. Perform a lower limb assessment (refer to C.2.1) including a detailed residual limb assessment (subtalar and talocrural joint range of motion; length assessment of the gastrocnemius, soleus and tibialis posterior; skin integrity; pressure/load tolerant and intolerant tissues and structures), prosthetic device history and activity level (past, current and future expectations) for use in formulating a pedorthic treatment plan.

c. Apply knowledge of kinesiology, biomechanics and pathomechanics to describe the force between the patient and the prosthesis during loading and unloading throughout gait. Explain the

biomechanical mechanism for development of an equinovarus deformity. Discuss biomechanical rationale for the addition of a rocker sole and shank to the shoe, including discussion of design principles for rocker placement. Compare and contrast the biomechanical differences between partial foot prosthesis designs that incorporate the ankle vs. designs that do not incorporate the ankle.

d. Demonstrate competency in impression and measurement acquisition, material and component selection, and knowledge of accepted techniques for the fabrication of the following partial foot designs (for transmetatarsal and more distal partial foot amputations):
   1. Partial foot orthosis / toe filler
   2. Rocker sole, sole stiffener and heel lift

e. Demonstrate competency in fit assessment and improvement of partial foot prosthetic inserts.

f. Explain the indications and contraindications for use of the common designs and materials relative to patient diagnosis and clinical presentation.

g. Use knowledge of shoe wear and modifications as part of the pedorthic treatment plan to optimize outcomes.

D.10.0 Prefabricated Ankle-Foot Orthoses (AFO)

The student must demonstrate the ability to:

a. Perform expected performance criteria outlined in Section C.2.0 through C.6.0.

b. Select and employ appropriate evaluation methods (MMT, ROM, sensory testing, gait analysis, postural evaluation) to obtain accurate information for use in formulating a comprehensive pedorthic treatment plan.

c. Apply knowledge of anatomy, biomechanics and pathomechanics to develop a comprehensive pedorthic treatment plan.

d. Formulate comprehensive pedorthic treatment plans to meet patient needs and achieve goals using the following prefabricated AFO devices (the goal of a pedorthic AFO device is the treatment of foot pathologies):
   1. Night splint
   2. Boot type AFO (pressure relief or pneumatic walker)

e. Demonstrate competency in measurement acquisition and design and size selection for these specified AFO designs.

f. Demonstrate competency in fit assessment and improvement of these devices.

g. Understand and explain the clinical indications and use of these AFOs for enhancing function.

h. Use knowledge of shoe wear and modifications in the pedorthic treatment plan to optimize outcomes.

i. Understand and explain the limitations of the pedorthic Scope of Practice and how it relates to the use of AFO's in pedorthic treatment.