AMERICAN BOARD OF PHYSICAL THERAPY RESIDENCY AND FELLOWSHIP EDUCATION

Description of Residency Practice
Orthopaedics

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Preamble

The American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE), a board-appointed group of the American Physical Therapy Association (APTA), has created the following Description of Residency Practice (DRP) to reduced unwarranted curriculum variability; provide residents minimum consistency in learning experiences for that area of practice; and streamline the accreditation process for reporting.

This DRP is the product of collaborative work by ABPTRFE and the APTA Physical Therapy Outcomes Registry staff, and is based on feedback received from members of the American Board of Physical Therapist Specialties (ABPTS) and directors of residency programs. Feedback was analyzed and incorporated into the DRP as ABPTRFE refined the document.

While all programs are required to meet the comprehensive curriculum and program requirements as outlined within the *ABPTRFE Quality Standards for Clinical Physical Therapist Residency and Fellowship Programs*, the purpose of the DRP is to: (1) establish a consistent curriculum expectation for residency programs within the same specialty area, and (2) provide consistency in program reporting for accreditation processes. The DRP allows flexibility for programs to incorporate additional learning experiences unique to the program's environment that are beyond the minimum standard expectations.

The DRP for each residency area will undergo revalidation at least once every 10 years. The process for revalidation will be a collaborative process with ABPTS, for specialty areas recognized by ABPTS, and will occur as part of the revalidation of that specialty area by ABPTS.

I. Type of Program

Orthopaedics is a clinical area of practice.

II. Learning Domain Expectations

A residency program must have a curriculum inclusive of the learning domains identified within that area's current validated analysis of practice.

The following information is extracted directly from chapter 2 of the *Orthopaedic Description of Specialty Practice*.[1]

A. Knowledge Areas of Orthopaedic Practice

Human Anatomy and Physiology

- Musculoskeletal system
- Neuromuscular system
- Cardiovascular and pulmonary systems
- Integumentary system
- Human growth and development across the lifespan
- Histology (eg, connective tissue, muscle fiber type, immunity)
- Other systems (eg, endocrine, digestive, genitourinary)

Movement Science

- Kinesiology/clinical biomechanics
- Neural control of movement
- Ergonomics
- Locomotion

Pathology/Pathophysiology

- Signs and symptoms of disease/injury
- Progression of disease/injury processes
- Pathokinesiology
- Tissue inflammation, healing, and repair

Pain Science

- Peripheral nociceptive pain physiology
- Peripheral neuropathic pain physiology
- Central nervous system pain physiology
- Output mechanisms and expressions (eg, immune, endocrine, sympathetic, behavioral)

Medical and Surgical Considerations

- Imaging studies
- Pharmacology
- Ancillary tests (eg, lab studies, EKG, electrophysiological exams)
- Nonsurgical medical interventions and their implications for orthopaedic physical therapy
- Surgical interventions and their implications for orthopaedic physical therapy
- Developments in genetics/regenerative medicine (eg, genetic markers, stem cell applications, genetic-based alterations to pharmacological interventions, immunity)

Orthopaedic Physical Therapy Theory and Practice

- Biopsychosocial model
- Exercise physiology
- Manual therapy techniques
- Motor control and motor learning
- Theory and application of orthotic, protective, supportive, and prosthetic devices
- Therapeutic exercise
- Models of differential diagnosis and clinical reasoning (eg, hypothesis-oriented algorithm for clinicians (HOAC) model, prospect theory)
- Principles of teaching and learning
- Principles of prevention and wellness

Critical Inquiry for Evidence-Based Practice

- Appraisal of research findings on orthopaedic physical therapy practice
- Application of research findings to orthopaedic physical therapy practice

B. Professional Competencies of Orthopaedic Physical Therapists

Lifelong learning through pursuit of advanced knowledge, skills, and abilities.

[1]*Orthopaedic Physical Therapy Description of Specialty Practice.* 4th ed. Alexandria, VA: American Physical Therapy Association; 2014.

Use of patient-centered ethics and values in complex clinical decision making.

Devotion of time and effort to resolve complex problems.

Consultation to contribute special knowledge or expert opinion in client-based, community or academic settings, including:

- Clients, clients' families and other health care professionals (eg, inservices, support groups, team meetings).
- Peer review (eg, chart reviews, peer teaching evaluations).
- Other venues, including the legal system, corporations, third-party payers, health care regulatory agencies, health care disparity issues.

Education

- Provide evidence-based orthopaedic physical therapy educational programs to a variety of audiences, including students, other health care professionals, the public, elected officials, political groups and candidates, and third-party payers.
- Mentor physical therapists, physical therapist assistants, other health care professionals, physical therapist residents, and students by participating in clinical education and research related to orthopaedic physical therapy.

Professional Development

- Maintain state-of-the-art knowledge and skills by participation in continuing professional development (eg, residency education, seminars, structured study, journal clubs, etc.).

Critical Inquiry

- Apply principles of evidence-based practice in patient/client management.
- Contribute to the body of evidence in orthopaedic physical therapy (eg, peer-reviewed and nonpeer-reviewed presentations and publications).
- Evaluate the efficacy and effectiveness of examination tools, interventions, and technologies based on available evidence.

C. Psychomotor Skills of Orthopaedic Physical Therapists in the Patient/Client Management Model

Patient/Client Examination

Examination includes obtaining history, performing a systems review, and conducting tests and measures.

- Identify history of patient's/client's major complaint(s) with regard to severity, chronicity, level of present functioning, level of irritability, other therapeutic interventions as well as personal and environmental factors/biopsychosocial factors contributing to the current clinical situation.
- Perform systems review to assess physiologic and anatomic status (eg, cardiovascular, pulmonary, integumentary), cognition, and communication skills.
- Select tests and measures that are comprehensive, consistent with history and systems review, appropriately sequenced, and have acceptable measurement properties (eg, high specificity/sensitivity) to verify or refute the working diagnosis.

Conduct Tests and Measures (listed alphabetically)

- Active range of motion (eg, assessment of muscle length, single joint and multisegmental movements)
- Assistive and adaptive devices (eg, assessment of appropriateness, alignment and fit, safety)
- Balance
  - Analysis with and without assistive or other devices, on various terrain, in different environments, safety assessment)
  - Vestibular and visual assessment (eg, Dix Hall Pike, vestibulo-ocular reflex, extraoccular movements)
- Circulation eg, vertebral artery examination, screen for circulatory abnormalities)
- Community and work (job, school, play) integration or reintegration to include activities using assistive or other devices, ergonomic analysis, instrumental activities of daily living scales (IADLS) (eg, Oswestry)
- Community, home, and work barriers: Assessment of current and potential barriers, ergonomics and

body mechanics (eg, analysis of specific tasks, work environment, functional capacity) and self-care and independence in home management (eg, functional capacity and safety)
- Gait and locomotion assessment (eg, analysis with and without assistive or other devices, on various terrain, in different environments, safety assessment)
- Illness behavior assessment – cognitive and emotional, psychosocial influences (eg, FABQ)
- Integumentary assessment of tissue quality (eg, signs of inflammation, soft tissue swelling and inflammation, healing)
- Joint integrity (eg, mobility assessment of joint hypermobility and hypomobility to include passive range of motion, passive accessory motions, response to manual provocation)
- Motor control and coordination (eg, assessment of timing of movements across segments, capability of acquiring new movement strategies)
- Muscle performance, including strength, power, and endurance
- Neural mobility (eg, limb tension tests)
- Neuromotor development and sensory integration (eg, assessment of appropriate development, dexterity, coordination, and integration of the somatosensory system)
- Orthotic, protective, and supportive devices (eg, assessment of appropriateness, use, remediation of impairment, alignment and fit, safety)
- Posture (eg, assessment of body or body segment(s) structure, alignment, changes in different positions, body contours)
- Reflex integrity (eg, assessment of normal and pathological reflexes)
- Sensory integrity (eg, assessment of superficial sensation, dermatomes, myotomes, proprioception and kinesthesia, 2-point discrimination, quantitative sensory testing)
- Special tests specific to joint complexes (eg, impingement, FABERE, Crank test)

Evaluation
- Interpret data from history and systems review (eg, identify relevant, consistent, accurate data, prioritize impairments, assess patient's/client's needs, motivations and goals).
- Develop a working diagnosis, including nature of complaint, probable cause, anatomical structures involved, stage of condition, and possible contraindications for physical therapy intervention.
- Evaluate and interpret data from the examination (correlate history/systems review with tests and measures); consider intervening factors, such as stage or irritability of condition and personal and environment factors according to the International Classification of Functioning, Disability and Health (ICF) model.
- Incorporate data from ancillary testing (eg, imaging, labs, electrophysiological studies).
- Refer patient/client to other health care professionals for further examination as appropriate, based on systems review and medical screening.
- Consider implications of exam findings on activity, quality of life, and wellness as established by the ICF.

Diagnosis
- Based on the evaluation, organize data into recognized clusters, patterns, syndromes, or categories to establish a diagnosis.

Prognosis
- Establish a prognosis, including the predicted optimal level of improvement in function and the amount of time needed to reach that level.
- Select intervention approach to include referral to another health care professional, physical therapy intervention, or further examination.
- Respond to emerging data from examinations and interventions.
  - Assess response to intervention (identify change in symptoms; development of new symptoms; changes in tissue response, mobility, and function; changes in signs and symptoms).

- Determine the significance of changes in signs and symptoms as they relate to the plan of care (determining relationship between expected result and actual result, cause of change, relevance of change).
- Modify and redirect examination and intervention based on this data.

Intervention (Specific interventions include):

- Ergonomics (influences of environment and occupation on posture and movement)
- Functional activities and participation
- Activities of daily living (eg, hygiene, stair climbing, sleeping postures)
- Injury prevention and wellness promotion (eg, task adaptation, behavior modification, body mechanics)
- Pain interventions (eg, pain physiology education graded motor imagery, maladaptive central sensitization)
- Protective, adaptive or supportive device or equipment (eg, orthotics, rotational knee brace, kinesiotaping)
- Manual therapy techniques include:
- Joint mobilization and thrust techniques (eg, grade II mobilization, grade V thrust)
  - Neural mobilization (eg, nerve gliding)
  - Passive range of motion (physiologic movements)
  - Soft tissue mobilization (eg, connective tissue, deep friction, cross friction massage)
- Muscle stimulation (eg, functional electrical stimulation, neuromuscular electrical stimulation)
- Patient/client education:
  - Concerning diagnosis, prognosis, treatment, responsibility, and self-management within plan of care
  - Using the biopsychosocial/biomedical models
  - Addressing pain physiology and dose response
  - Addressing prevention and wellness
- Therapeutic exercise instruction to improve muscle performance, mobility, and ROM of soft tissues:
  - Aerobic capacity and endurance
  - Motor control and coordination (eg, timing and magnitude of muscle activation during multisegmental movement)
  - Muscle performance (eg, strength, muscle endurance)

Outcomes

- Assess remediation of activity and participation limitations, optimization of patient satisfaction, and promotion of primary and secondary prevention.
- Assess improvement of patient's/client's activities and participation based on best available evidence and patient/client-specific variables (eg, history, diagnosis, complications).
- Choose appropriate assessment measures to determine initial and long-term responses to intervention.
- Use applicable, evidence-based outcomes measurement tools/questionnaires/scales (eg, Oswestry, Fear Avoidance Behavior Questionnaire, Lower Extremity Functional Scale).

III. Practice Settings

The clinical curriculum of all accredited residency programs must include a variety of practice settings, as noted below. A resident should experience a minimum of 5% of their time in each setting, as required by the *ABPTRFE Quality Standards for Clinical Physical Therapist Residency and Fellowship Programs*.

If a residency program is unable to provide each participant with an opportunity to engage in patient care activities within these settings, the program must provide additional learning opportunities (eg, observation, didactic, journal club, research) related to patient care within these settings for the minimum required hours noted above.

The minimum required practice settings for orthopaedic residency programs are:

- Outpatient facility

IV. Patient Populations

The clinical curriculum of all accredited residency programs must include a variety of patient populations,

specific to sex and age group as listed below, for a minimum of 5% of the program hours required by the *ABPTRFE Quality Standards for Clinical Physical Therapist Residency and Fellowship Programs*.

If a residency program is unable to provide each resident with an opportunity to engage in patient care activities within these populations, the program must provide additional learning opportunities (eg, observation, didactic, journal club, research) related to patient care within these populations for the minimum required hours noted above.

The minimum required patient populations for orthopaedics residency programs are:

Age:

- Pediatrics (0-21 years of age)
- Adults (22-59 years of age)
- Geriatrics (60 years of age to end of life)

Sex:

- Female
- Male

V. Primary Health Conditions

The clinical curriculum of all accredited residency programs must include a variety of primary health conditions associated with the program's area of practice (see below list).

If a residency program is unable to provide each resident with an opportunity to engage in patient care activities within the majority of these populations, the program must provide additional learning opportunities (eg, observation, didactic, journal club, research) related to patient care within these conditions.

The following template must be used when logging resident–patient encounters as part of the residency curriculum. Patients evaluated, treated, or managed by the resident as part of the resident's education throughout the course of the residency program should be included within the template. The patient's primary health condition is only counted during the first patient encounter. **Patient encounters beyond the initial visit should not be included in the frequency count.**

Name of Resident:	
Primary Health Conditions Orthopaedics	Number of Patients Evaluated, Treated, or Managed by the Resident as Part of the Program's Curriculum
NERVOUS SYSTEM	
Carpal Tunnel Syndrome	
Cervical Radiculopathy	
Cubital Tunnel Syndrome	
Lumbar Radiculopathy	
Thoracic Outlet Syndrome	
MUSCULOSKELETAL SYSTEM	
Chronic Pain Syndromes (eg, fibromyalgia)	
Ankle / Foot Fracture	
Ankle / Foot Ligamentous Injuries	
Ankle / Foot Tendinopathies	
Hallux Valgus	
Other Disorders of the Lower Leg, Ankle and Foot	
Plantar Fasciitis	
Elbow / Forearm Fracture	
Elbow Instability (eg, subluxation/dislocation, ligamentous)	
Elbow Tendinopathies	
Other Disorders of the Elbow and Forearm	
Wrist, Hand, Finger Fracture	
Wrist, Hand, Finger Instability (eg, subluxation/dislocation, ligamentous)	
Wrist, Hand, Finger Tendinopathies	
Other Disorders of the Wrist and/or Hand	
Cervical Disc Pathologies (eg, DDD, protrusion, herniation)	
Cervical Instability	
Cervical Sprain/Strain	
Cervicogenic Headache	
Other Disorders of Cervical Spine	
Temporomandibular Dysfunction	
Femoroacetabular Impingement	

Hip Fracture	
Hip Osteoarthritis	
Hip Tendinopathies	
Trochanteric Bursitis	
Other Disorders of the Hip and Thigh	
Knee Fracture	
Knee Ligamentous Injuries	
Knee Osteoarthritis	
Knee Tendinopathies	
Meniscal Pathology	
Patellofemoral Dysfunction	
Other Disorders of the Knee	
Lumbar Disc Pathologies (eg, DDD, protrusion, herniation)	
Lumbar Instability	
Lumbar Spondylosis / Spondylolisthesis	
Lumbar Strain	
Other Disorders of the Lumbar Spine	
Piriformis Syndrome	
Sacroiliac Dysfunction	
Other Disorders of the Pelvic Girdle	
Rotator Cuff Pathology	
Shoulder Adhesive Capsulitis	
Shoulder Labral Pathology	
Shoulder Complex / Arm Fracture	
Shoulder Instability (eg, subluxation/dislocation, ligamentous)	
Shoulder Osteoarthritis	
Other Disorders of the Shoulder Complex	
Rib Dysfunction	
Thoracic Sprain/Strain	
Other Disorders of the Thoracic Spine	
OTHER	