

Orthopaedic

Physical Therapy

Description of Specialty Practice

Specialty Council on Orthopaedic Physical Therapy



American Board of Physical Therapy Specialties

Acknowledgements

The Orthopaedic Physical Therapy Description of Specialty Practice was prepared by the members of a subject matter expert (SME) group and members of the Orthopaedic Physical Therapy Specialty Council and approved by the American Board of Physical Therapy Specialties (ABPTS), American Physical Therapy Association.

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Throughout this document, the editors have attempted to use language consistent with the *Guide to Physical Therapist Practice* and universally accepted concepts and terminology, without bias to any particular philosophy or school of thought. The references cited with the case scenarios are only given to help the reader understand the specific examples, and are not intended to bias any particular school of thought or philosophy. In addition, these references are not intended to be inclusive.

The Specialty Council on Orthopaedic Physical Therapy encourages your suggestions for improvement of this document. Your input and suggestions will be considered in the development of the next revision. This is a working document and will be modified as necessary.



American Board of Physical Therapy Specialties Specialty Council on Orthopaedic Physical Therapy

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INTRODUCTION

Specialist certification was established to provide formal recognition for physical therapists with advanced clinical knowledge, experience, and skills in a defined area of practice. Certification is achieved through the successful completion of a standardized application and examination process.

History of Specialization in Physical Therapy

In 1975, the House of Delegates (House) of the American Physical Therapy Association (APTA) approved the concept of specialization and created the Task Force on Clinical Specialization. The task force was charged with identifying and defining physical therapy specialty practice areas, and with developing the structure for and function of a board-certified process. Specialist certification was established to provide formal recognition for physical therapists with advanced clinical knowledge, experience, and skills in a defined area of practice. Certification is achieved through the successful completion of a standardized application and examination process.

The document developed by the task force, *Essentials for Certification of Advanced Clinical Competence in Physical Therapy*, was adopted by the House of Delegates in 1978. At that time, the House recognized 4 specialty areas: cardiovascular/pulmonary, neurology, orthopaedics, and pediatrics. In 1979, the House appointed the Commission for Certification of Advanced Clinical Competence. Specialty councils for each of the 4 specialty areas were appointed and charged with the development of competencies unique to each area of advanced clinical practice.

In 1980, the commission became the Board of Certification of Advanced Clinical Competencies (BCACC). The House of Delegates recognized 2 additional specialty areas in the same year: sports and clinical electrophysiology. The House of Delegates revised *Essentials for Certification of Advanced Clinical Competence in Physical Therapy* in 1985, and the name was changed to *Essentials for Certification of Physical Therapist Specialists*. The BCACC was renamed the American Board of Physical Therapy Specialists (ABPTS), and the first specialty examination was administered in cardiovascular/pulmonary physical therapy that same year. The specialty area of geriatrics was approved in 1989. In June 2006, the House of Delegates approved women's health as the newest area of physical therapist specialist practice.

History of Specialization in Orthopaedic Physical Therapy

In 1980, the Orthopaedic Section petitioned the House

of Delegates of the American Physical Therapy Association to form the Orthopaedic Specialty Council. The Orthopaedic Section has consistently been supportive of the Orthopaedic Specialty Council and the specialization process. Between 1980 and 1983, the Competencies for Orthopaedic Physical Therapy document was completed. This initial work was accomplished by Marilyn Anderson, Barbara Stevens, and Carolyn Wadsworth. This document was presented to the American Board of Physical Therapy Specialties in 1986, and was approved in 1987. The board certification examination for orthopaedics was developed based on this description of specialty practice. The first examination was administered in 1989.

ABPTS required that Descriptions of Specialty practice (DSPs) be revised and revalidated every 10 years. The Orthopaedic Specialty Council realized some limitations in the first document, and recognized that there had been changes in practice since its publication. As such, the Council did a revision and revalidation of the DSP, which was approved by ABPTS in 1994.

The first edition of the *Guide to Physical Therapist Practice* (Guide) was published in 1997.¹ This document was designed to describe physical therapy practice in the context of the Nagi disablement model. The Guide describes the patient/client management model as including patient/client examination, evaluation, diagnosis, prognosis, intervention, and outcomes. The Guide also standardizes terminology used in physical therapy practice, and describes preferred practice patterns in 4 categories of conditions: musculoskeletal, neuromuscular, cardiovascular/pulmonary, and integumentary. A second edition of the Guide was published in 2001.²

The Council completed a third revision and revalidation of the DSP, which incorporated Guide language from the first edition in 2001. This DSP in Orthopaedic Physical Therapy represents the results of a fourth revision and revalidation process that began in 2010. This document is based on the work of a subject matter expert group who met to address practice changes since the third revision, and was validated by a survey of orthopaedic certified specialists and noncertified clinicians. It was approved by ABPTS in 2014.

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1. Guide to Physical Therapist Practice. *Phys Ther.* 1997; 1163-1650.
2. Guide to Physical Therapist Practice. 2nd ed. *Phys Ther.* 2001;81:9-744.

CHAPTER 1: DESCRIPTION OF ORTHOPAEDIC PHYSICAL THERAPY BOARD-CERTIFIED SPECIALIST RESPONDENTS

The following figures contain the descriptive demographic information of the 223 survey respondents who indicated they were board-certified orthopaedic clinical specialists. While the American Board of Physical Therapy Specialties collects similar data on all newly board-certified or recertified specialists, this demographic data represents those who responded to the practice analysis survey.

Figure 1. Current Age

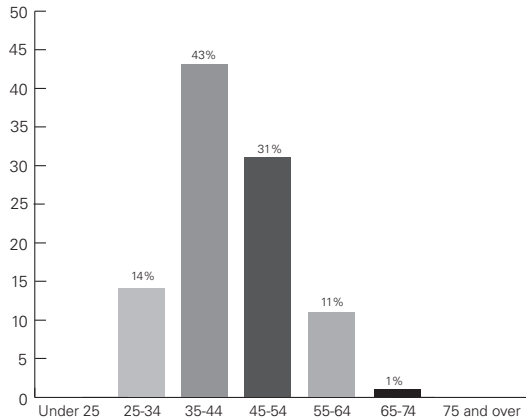


Figure 2. Sex

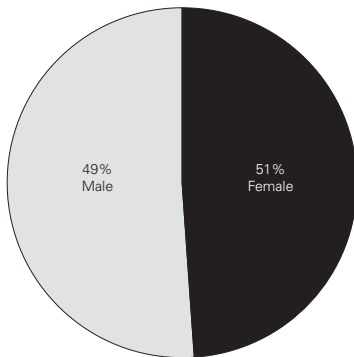


Figure 3. Ethnicity

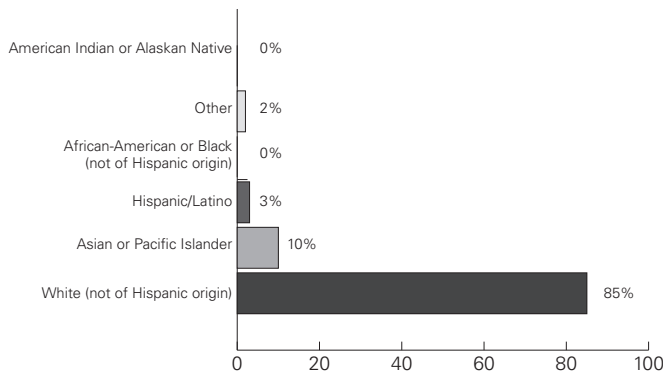


Figure 4. Highest Earned Professional Degree

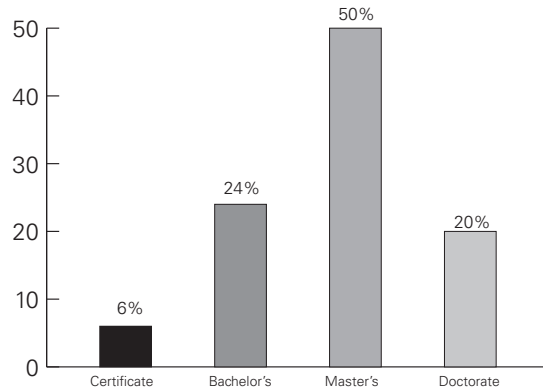


Figure 5. Highest Earned Academic Degree

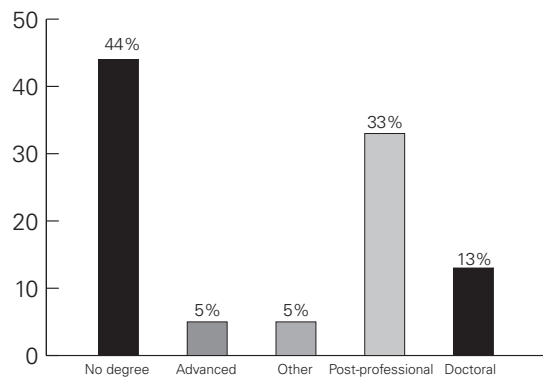


Figure 6. Type of Practice Facility

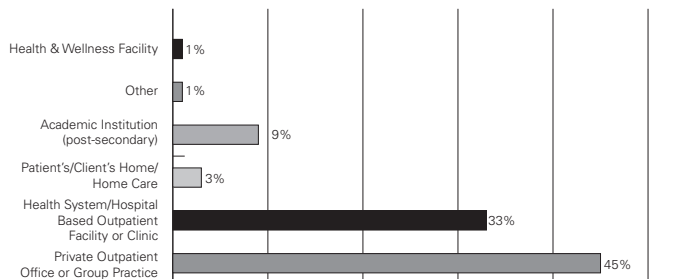


Figure 7. Influences on Clinical Decision Making

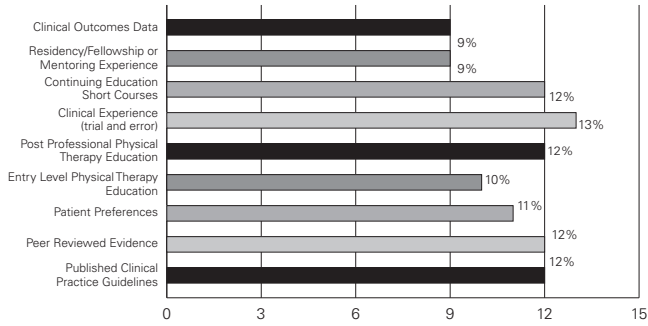


Figure 11. Years of Practice in Physical Therapy

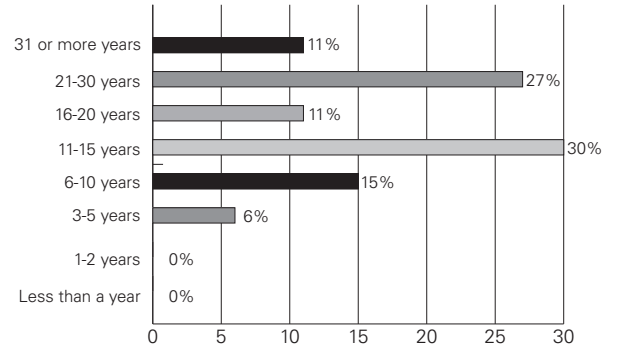


Figure 8. Most Influence on Developing Present Level of Clinical Skills Beyond Entry-Level Physical Therapy Education

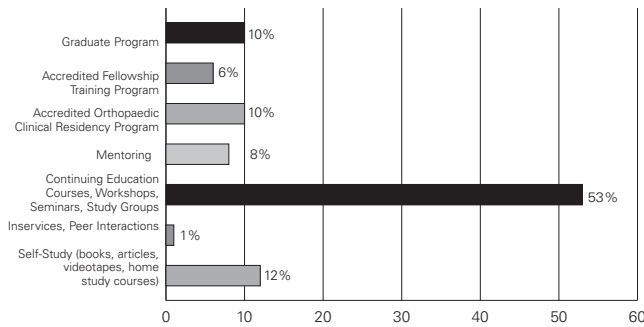


Figure 12. Years of Practice Primarily in Orthopaedics

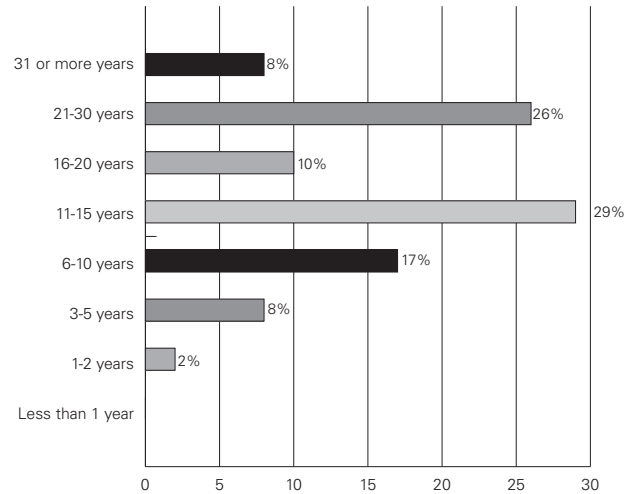


Figure 9. Respondents Who Completed an Accredited Orthopaedic Physical Therapy Residency

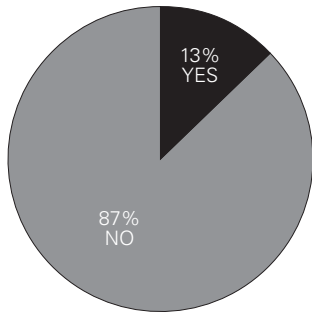


Figure 13. Respondents Who Have Additional Board Certifications

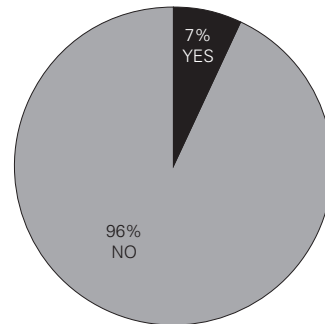


Figure 10. Respondents Who Completed an Accredited Physical Therapy Fellowship

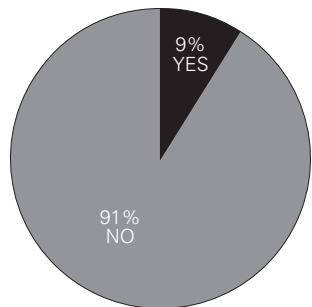


Figure 14. Three Most Common Additional Certifications

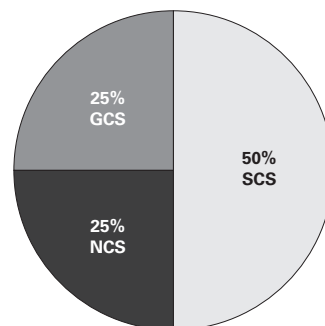


Figure 15. Geographic Representations of Respondents

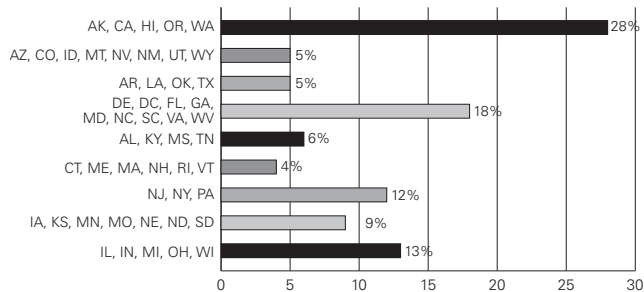


Figure 16. Patients/Clients Treated Per Day

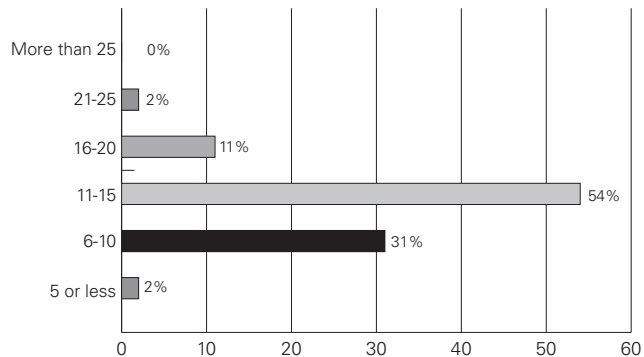


Figure 17. Referral Sources

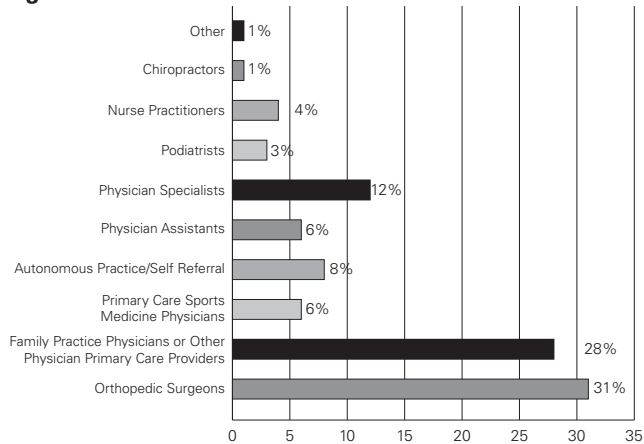


Figure 18. Percentage of Time Spent on Professional Activities

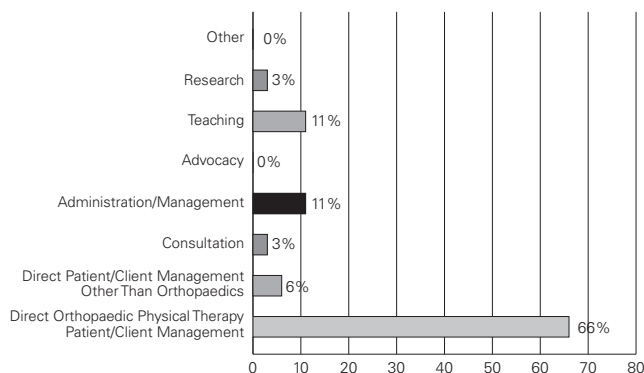


Figure 19. Primary Employment Status

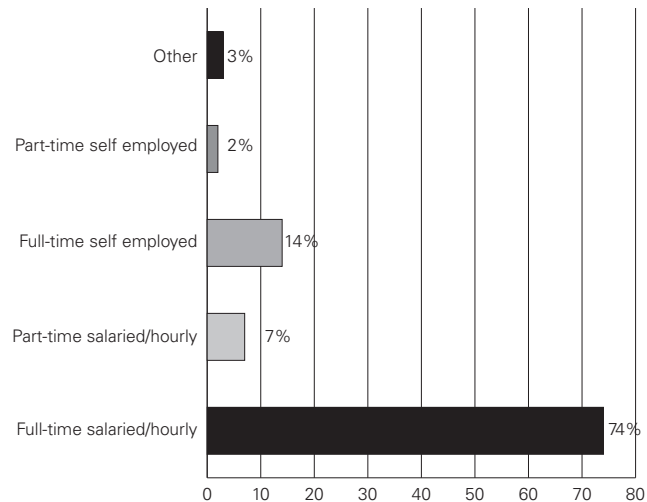


Figure 20. Percentage of Respondents Who Regularly Use Standardized Outcome Measures

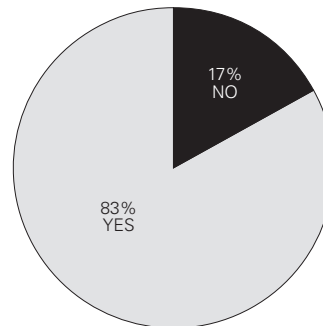
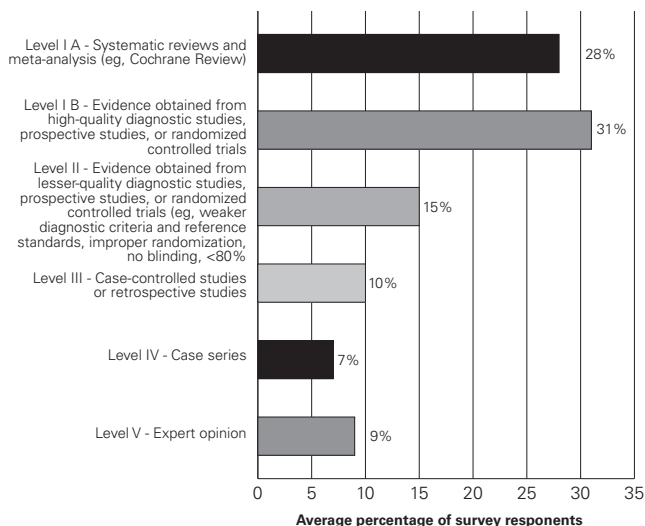


Figure 21. Levels of Evidence Used from Literature as Part of Decision Making



CHAPTER 2: DESCRIPTION OF BOARD-CERTIFIED SPECIALTY PRACTICE IN ORTHOPAEDICS

This Description of Specialty Practice (DSP) describes the practice of board-certified orthopaedic physical therapy clinical specialists. It is based on survey responses of 242 participants: 94.56% board-certified orthopaedic clinical specialists, and 5.44% members of the Orthopaedics Physical Therapy Section of APTA who are not specialists. The process of revalidation of the DSP is conducted every 10 years, and the last revision of the Orthopaedics DSP was published in 2001.¹

Specialty board certification is one mechanism to stimulate the development of expert practice in physical therapy. Expert clinicians demonstrate different reasoning processes from novices, based on their knowledge, experience, and reflective behaviors.³⁻⁷ This refinement in reasoning skills and patient management should result in greater efficiency and effectiveness in providing patient care in their area of specialization.

The patient/client management model described in the *Guide to Physical Therapist Practice*⁸ is the accepted

standard for physical therapist practice, including orthopaedic physical therapy specialty practice. As orthopaedic physical therapy specialty practice is a subset of physical therapist practice, this DSP does not include all of the practice areas covered in the Guide.

This DSP highlights the specific components of physical therapist practice that orthopaedic clinical specialists use. Based on participant responses to the practice survey and considered decisions of the Subject Matter Expert Group, key competencies from the previous DSP were modified and reorganized to reflect contemporary orthopaedic specialty practice. This document also reflects new content specific to changes in practice over the past 10+ years. This DSP includes content from knowledge areas, components of the Patient/Client Management model, and other professional roles, responsibilities, and values.

I. Knowledge Areas

The foundation of orthopaedics physical therapy specialty practice requires a comprehensive declarative and procedural knowledge for practice. This foundational knowledge and practice is critical to the development of advanced clinical competence. These knowledge and practice content areas include the following:

A. Human Anatomy and Physiology

1. Musculoskeletal system
2. Neuromuscular system
3. Cardiovascular and pulmonary systems
4. Integumentary system
5. Human growth and development across the lifespan
6. Histology (eg, connective tissue, muscle fiber type, immunity)
7. Other systems (eg, endocrine, digestive, genitourinary)

B. Movement Science

1. Kinesiology/clinical biomechanics
2. Neural control of movement
3. Ergonomics
4. Locomotion

C. Pathology/Pathophysiology

1. Signs and symptoms of disease/injury
2. Progression of disease/injury processes
3. Pathokinesiology
4. Tissue inflammation, healing, and repair

D. Pain Science

1. Peripheral nociceptive pain physiology

2. Peripheral neuropathic pain physiology
3. Central nervous system pain physiology
4. Output mechanisms and expressions (eg, immune, endocrine, sympathetic, behavioral)

E. Medical and Surgical Considerations

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

F. Orthopaedic Physical Therapy Theory and Practice

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

G. Critical Inquiry for Evidence-Based Practice

1. Appraisal of research findings on orthopaedic physical therapy practice
2. Application of research findings to orthopaedic physical therapy practice

Patient/Client Management Model

Advanced specialty practice in orthopaedic physical therapy requires certain knowledge, skills, and behaviors specific to the patient/client management model outlined in the Guide.⁵

II. Practice Expectations for Orthopaedic Clinical Specialists in the Patient/Client Management Model

A. Patient/Client Examination

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

1. 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.
2. Perform systems review to assess physiologic and anatomic status (eg, cardiovascular, pulmonary, integumentary), cognition, and communication skills.
3. 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.

B. Conduct Tests and Measures (listed alphabetically)

1. Active range of motion (eg, assessment of muscle length, single joint and multisegmental movements)
2. Assistive and adaptive devices (eg, assessment of appropriateness, alignment and fit, safety)

3. Balance
 - a. Analysis with and without assistive or other devices, on various terrain, in different environments, safety assessment)
 - b. Vestibular and visual assessment (eg, Dix Hall Pike, vestibulo-ocular reflex, extraocular movements)
4. Circulation (eg, vertebral artery examination, screen for circulatory abnormalities)
5. 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)
6. 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)
7. Gait and locomotion assessment (eg, analysis with and without assistive or other devices, on various terrain, in different environments, safety assessment)
8. Illness behavior assessment – cognitive and emotional, psychosocial influences (eg, FABQ)
9. Integumentary assessment of tissue quality (eg, signs of inflammation, soft tissue swelling and inflammation, healing)
10. Joint integrity (eg, mobility assessment of joint hypermobility and hypomobility to include passive range of motion, passive accessory motions, response to manual provocation)
11. Motor control and coordination (eg, assessment of timing of movements across segments, capability of acquiring new movement strategies)
12. Muscle performance, including strength, power, and endurance
13. Neural mobility (eg, limb tension tests)
14. Neuromotor development and sensory integration (eg, assessment of appropriate development, dexterity, coordination, and integration of the somatosensory system)
15. Orthotic, protective, and supportive devices (eg, assessment of appropriateness, use, remediation of impairment, alignment and fit, safety)
16. Posture (eg, assessment of body or body segment(s) structure, alignment, changes in different positions, body contours)
17. Reflex integrity (eg, assessment of normal and pathological reflexes)
18. Sensory integrity (eg, assessment of superficial sensation, dermatomes, myotomes, proprioception and kinesthesia, 2-point discrimination, quantitative sensory testing)
19. Special tests specific to joint complexes (eg, impingement, FABERE, Crank test)

C. Evaluation

1. Interpret data from history and systems review (eg, identify relevant, consistent, accurate data, prioritize impairments, assess patient's/client's needs, motivations, and goals).
2. Develop a working diagnosis, including nature of complaint, probable cause, anatomical structures involved, stage of condition, and possible contraindications for physical therapy intervention.
3. 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 environmental factors according to the *International Classification of Functioning, Disability and Health* (ICF) model.
4. Incorporate data from ancillary testing (eg, imaging, labs, electrophysiological studies).
5. Refer patients/clients to other health care professionals for further examination as appropriate, based on systems review and medical screening.
6. Consider implications of exam findings on activity, quality of life, and wellness as established by the ICF.

D. Diagnosis

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

E. Prognosis

1. Establish a prognosis, including the predicted optimal level of improvement in function and the amount of time needed to reach that level.
2. Select intervention approach to include referral to another health care professional, physical therapy intervention, or further examination.
3. Respond to emerging data from examinations and interventions.
 - a. Assess response to intervention (identify change in symptoms; development of new symptoms; changes in tissue response, mobility, and function; changes in signs and symptoms).
 - b. Determine the significance of changes in signs and symptoms as they relate to the plan of care (determine relationship between expected result and actual result, cause of change, relevance of change).
 - c. Modify and redirect examination and intervention based on this data.

F. Intervention (specific interventions include):

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

G. Outcomes

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

III. Other Professional Roles, Responsibilities, and Values

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

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

C. Devotion of time and effort to resolve complex problems.

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

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

E. Education

1. 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.
2. 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.

F. Professional Development

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

G. Critical Inquiry

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

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CHAPTER 3: CASE SCENARIOS AND SAMPLE QUESTIONS

This chapter will help the candidate understand the exam question format(s), and help in self-assessment of the competency areas for the Orthopaedic Physical Therapy Specialist Examination.

The sample questions for each case are written to represent different levels of thinking (comprehension, application, analysis, synthesis, and evaluation) required for the specialist examination. The questions are not intended to emphasize specific content areas, but rather to provide guidance regarding the integration of knowledge, clinical experience, and scientific evidence expected of the orthopaedic clinical specialist.

The questions within the case scenarios are arranged by the applicable DSP areas. (Human anatomy and physiology, movement science, pathology/pathophysiology, orthopaedic physical therapy and practice, critical inquiry for evidence-based practice, professional roles/responsibilities, examination/evaluation/diagnosis, and prognosis/interventions/outcomes.)

This organization is intended to help the candidate understand the linkages between the basic and clinical sciences, the patient/client management model, and critical inquiry within the competency areas. The candidate is encouraged to read the scenarios and questions, carefully consider the answer choices, and construct a rationale for the answer choice. This rationale then can be compared with the rationale provided following the question. There also are references cited supporting the rationale.

Case Scenario 1

A 25-year-old, athletic male sustained an isolated partial tear of the right medial collateral ligament 10 days ago, confirmed by an MRI. He reports episodes of pain (4-5/10) with full weight bearing and when the knee occasionally “gives way.” The instability occurs during sports activities that involve twisting and pivoting, and when walking on uneven surfaces. He reports morning stiffness that increases during the day. His goal is to return to playing basketball twice a week. Physical examination reveals the following:

PROM: Knee flexion 15°–90°

Strength: Right quadriceps 4-/5, right hip extensors and abductors 4-/5.

Gait: Flexed knee in midstance, and decreased stance time on the right.

- When should this patient optimally be expected to return to sports participation?
 - 1 month
 - 6 months
 - 12 months
 - 18 months
- Addressing which of the following impairments would be the most effective for normalizing the patient’s gait pattern?
 - Limited knee extension range of motion
 - Limited knee flexion range of motion
 - Weak hip extensors
 - Weak quadriceps

1. The correct answer is b.

This question relates to the DSP areas of *Human Anatomy and Physiology* and *Applied Orthopaedic Physical Therapy Theory and Practice and Prognosis/Interventions/Outcomes*. The patient presents with a medial collateral ligament sprain. Understanding the injury, inflammation/healing, and remodeling phases/rates of this particular injury, will lead the orthopaedic certified specialist to the best answer of 6 months.

2. The correct answer is a.

Answering this question would be associated with the DSP areas of *Movement Science, Examination/Evaluation/Diagnosis, and Prognosis/Interventions/Outcomes*. The orthopaedic certified specialist must decide which impairment most contributes to the patient’s gait pattern. The patient has decreased strength, but is functional at 4-/5. Knee flexion range of motion is not limited to the extent that it would impair gait. The range of motion is impaired at 15° from full extension. Improving knee extension will normalize gait at midstance, and increase stance time on the right.

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Case Scenario 2

A 70-year-old African American male has a 6-month history of low back pain with an insidious onset. The patient reports lumbar and buttock pain with walking that is progressively worsening. He tolerates weekend cycling trips with his family, but is unable to tolerate walking 18 holes of golf due to pain. His pain initially was in the low back region, but is now spreading into his left posterior thigh. He denies fevers, chills, or weight loss. Blood count and urinalysis lab tests were conducted and demonstrated slight anemia, but otherwise normal.

3. Which of the following is the most likely pair of potential diagnoses?
 - a. Lumbar stenosis and infection
 - b. Lumbar stenosis and prostate disease
 - c. Peripheral neuropathy and infection
 - d. Peripheral neuropathy and prostate disease

Further examination shows sitting alleviates his symptoms. He notes that the severity of the symptoms at their worst, after 18 holes of golf, is 4-5/10 and 0/10 after sitting for 15 minutes, but he has difficulty describing his pain.

Systems Review:

Musculoskeletal: functional upper extremity and lower extremity PROM with the exception of hip extension limited to 0° and muscle strength within normal limits.

Cardiovascular/Pulmonary: heart rate 72 beats per minute, sitting blood pressure 130/80 mm Hg, Respiratory rate 12 breaths per minute.

Neuromuscular: Normal transitions noted, normal gait pattern

Integumentary: Good skin integrity, without evidence of LE swelling

The 2-stage treadmill test (flat walking versus inclined walking) is negative. The patient has 3 PT visits in the first week. Interventions include postural training emphasizing flexion positions, and trunk and lower extremity stretching. He notes no subjective improvement in symptoms, despite attempts to find pain-alleviating positions and adherence to his home program.

4. Which of the following is the most appropriate next step by the physical therapist?
 - a. Continue to follow the current plan of care, adding lumbar traction
 - b. Continue to follow the current plan of care, and reassess again after 1 more week
 - c. Discontinue the current plan of care, and initiate lumbar joint mobilization
 - d. Discontinue the current plan of care, and refer the patient to the physician

3. The correct answer is b.

In answering this question, the orthopaedic certified specialist would use the DSP areas of *Pathology/Pathophysiology and Examination/Evaluation/Diagnosis*. Symptoms are worse in lumbar extension (walking) than lumbar flexion (cycling), and the patient's age is typical for lumbar stenosis. There are no signs or symptoms of peripheral neuropathy. With the patient's age and race, the answer of lumbar stenosis and prostate disease (prostate disease can cause low back pain) are correct. Patients with prostate disease can be anemic. In addition, tests for prostate serum antigen (PSA), a marker for prostate disease, is not part of standard lab tests.

4. The correct answer is d.

In answering this question, the orthopaedic certified specialist would use the DSP areas of *Pathology/Pathophysiology, Examination/Evaluation/Diagnosis, Movement Science, Prognosis/Interventions/Outcomes, Critical Inquiry/Evidence Based Practice, and Applied Orthopaedic Physical Therapy Theory and Practice*. The orthopaedic certified specialist will use the information from the 2-stage treadmill test (biomechanics of the lumbar spine in extension versus in flexion). Walking in extension (treadmill flat) would exacerbate symptoms if the cause were lumbar stenosis, whereas walking in flexion (inclined treadmill) should allow increased distance with less symptoms. This will help the orthopaedic certified specialist determine that this patient should demonstrate some improvement with the proposed treatment plan for a suspected diagnosis of lumbar stenosis. Following the same plan with/without the addition of mechanical traction will not have a positive outcome. The lack of progress in 1 week while trying a variety of pain-alleviating positions, would alert the certified clinical specialist that the problem is nonmechanical, and a new approach should be tried. The physical therapist also should consider the possibility that this problem is outside the scope of physical therapy practice, such as intermittent claudication. Referral to a physician would appear to be the best course of action.

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Case Scenario 3

A 47-year-old female, who works in the local mental health hospital as an aide is seen in an outpatient clinic. She reports a 4-week history of neck pain and stiffness, intermittent headaches, and occasional loss of strength in her hands while transferring patients. Her past medical history is significant for a cervical injury sustained in a rear-end automobile collision 10 years ago. Ten days ago, a patient became aggressive and struck her firmly on the back of her head and neck. No imaging has been performed yet. She reports increased pain, stiffness, headaches, and loss of strength since being struck.

5. Which of the following is the most appropriate sequence of tests for this patient?
 - a. Cervical palpation, cervical active range of motion (AROM), and neurologic testing
 - b. Cervical active range of motion, cervical compression, cervical distraction testing
 - c. Cervical passive range of motion (PROM), cervical AROM, and resisted cervical movements
 - d. Postural examination, cervical PROM, and cervical AROM
6. Cervical rotation was 60° bilaterally. At the end range of active cervical flexion, the patient has upper extremity paresthesia bilaterally. Which of the following is the most appropriate next step?
 - a. Initiate active range of motion exercises in the pain free range
 - b. Perform gentle manual cervical traction in slight cervical flexion
 - c. Perform stability tests for the upper cervical spine
 - d. Place the patient in a rigid cervical collar

5. The correct answer is a.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Human Anatomy and Physiology, Applied Orthopaedic Physical Therapy Theory and Practice, Examination/Evaluation/Diagnosis, and Critical Inquiry/Evidenced Based Practice.* The orthopaedic certified specialist will use the Canadian Cervical Spine Rules (ie, least likely to harm) first. The Canadian Cervical Spine rules are composed of several key tests and assessments. Since the patient has no signs of traumatic injury, has no paresthesia, and is younger than 65 years old, the specialist can begin to screen the patient. Cervical palpation is initially used to test for cervical midline tenderness. This patient has several of the factors, including delayed onset of neck pain and an ambulatory status, that permit for active range-of-motion testing. Active cervical rotation range of motion is the last test to determine the need for radiographs. Although not needed for the Cervical Spine Rules, a neurological screen is also appropriate at this time to rule out nerve involvement.

6. The correct answer is c.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Human Anatomy and Physiology, Applied Orthopaedic Physical Therapy Theory and Practice, Examination/Evaluation/Diagnosis, and Critical Inquiry/Evidenced Based Practice.* Having cleared the Cervical Spine Rules for fracture, the orthopaedic certified specialist should recognize that the bilateral symptoms, the history of the trauma, and recent reoccurrence suggest instability in the upper cervical spine. These tests should be cleared prior to continuing with any additional intervention. Answers a and b are incorrect in that the upper cervical spine has not been cleared from a potentially serious impairment. Answer d may also be appropriate, but since the patient has had a 10-year history of neck involvement and has cleared the Cervical Spine Rules, it may be an overzealous action without having determined whether cervical instability is present.

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Case Scenario 4

A 20-year-old female runner has a 3-month history of right patellofemoral pain, especially when squatting or descending stairs. Before the onset of pain she was running an average of 20 miles per week. Her pain has improved, and she is now attempting to increase her running mileage from 10 miles per week back to 20 miles per week, but this has resulted in increased knee pain.

7. Which of the following strengthening exercises is most appropriate to recommend?
 - a. Concentric hip abductor activities
 - b. Concentric knee extensor activities
 - c. Eccentric hip abductor activities
 - d. Eccentric knee extensor activities

7. The correct answer is c.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Movement Science, and Prognosis/Intervention/Outcomes*. The orthopaedic certified specialist should understand that eccentric training of hip musculature (hip external rotators and abductors) is an important component to include in the rehabilitation of individuals with patellofemoral pain, and results in decrease pain and a decrease in frontal plane motion at the hip.

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Case Scenario 5

A 32-year-old woman is seen in an outpatient clinic complaining of right shoulder pain that worsens when reaching overhead. Three months ago, the patient reports falling off of a ladder and fracturing the medial 3 fingers of her right hand and right 7th rib. Examination findings reveal decreased upward rotation of the right scapula during active elevation and excessive "winging" of the medial border of the right scapula. Resisted shoulder flexion provokes some pain, though the patient is able to withstand resistance.

8. Which of the following nerves is most likely contributing to the patient's symptoms?

- a. Long thoracic nerve
- b. Subscapular nerve
- c. Suprascapular nerve
- d. Thoracodorsal nerve

8. The correct answer is a.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Human Anatomy and Physiology, Movement Science, and Examination/Evaluation/Diagnosis*. The orthopaedic certified specialist should recognize that the patient presents with signs and symptoms of a long thoracic nerve palsy. Knowledge of muscle innervations and clinical biomechanics of shoulder girdle movement will lead the orthopaedic certified specialist to the best answer of the long thoracic nerve.

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Case Scenario 6

A 27-year-old male who plays recreational soccer reports a 6-month history of left posterior lower leg and foot pain. Rest and gentle stretching has not demonstrated any improvement in the patient's symptoms or function. Examination shows tenderness about 5 cm proximal to the posterior inferior aspect of the calcaneus.

9. Which of the following exercises is most appropriate to recommend for the patient's condition?
 - a. Concentric standing heel raises
 - b. Eccentric unilateral heel lowering
 - c. Standing single-leg balance activities
 - d. Theraband-resisted ankle inversion

9. The correct answer is b.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Applied Theory and Practice, Critical Inquiry and Evidence-Based Practice, and Prognosis/Interventions/Outcomes*. Understanding the signs and symptoms of an Achilles tendinopathy and the interventions most effective in the treatment of this condition, will lead the orthopaedic certified specialist to the best answer of eccentric strengthening.

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of clinical tests to diagnose stress fractures: a systematic review and meta-analysis. *J Orthop Sports Phys Ther*. 2012;42(9):760-771.

Case Scenario 7

A 56-year-old female is referred from her primary care physician, with complaints of bilateral posterolateral lower leg pain and ache associated with power-walking. Radiographs taken 6 weeks ago were negative. She states her symptoms started approximately 2 months ago during a moderately longer walk than usual. She recently increased her mileage, but has been power-walking for several years. Examination reveals full- and pain-free active and passive ROM of the ankles bilaterally, normal ankle strength but pain with resisted eversion and plantarflexion bilaterally, and tenderness to palpation along the mid-fibular region bilaterally.

10. Which of the following is the most appropriate next step by the physical therapist?
- Perform tuning fork testing
 - Perform video analysis of running
 - Recommend a MRI
 - Recommend radiographs

10. The correct answer is c.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Pathology/Pathophysiology, Medical/Surgical Considerations, and Critical Inquiry for Evidenced-Based Practice*. Behrens et al indicates magnetic resonance imaging as the gold standard for diagnosis of stress fractures at this early stage, and standard radiographs have low sensitivity and are of limited utility in the early stages of stress fracture. Greenberg et al report magnetic resonance imaging may be needed to detect stress fractures early. Schneiders et al concluded the use of a tuning fork should be used cautiously for this purpose. Video analysis may guide treatment, but would not help diagnose the presence of stress fracture in this patient.

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Case Scenario 8

A 65-year-old woman sustained a nondisplaced fracture of the greater tuberosity of the humerus 3 weeks ago, and was treated with sling immobilization. She reports sharp pain in the involved shoulder whenever she moves the arm, and has limited motion in all planes of movement. The pain typically subsides within 30 minutes of rest.

11. Which of the following interventions is the most appropriate?
- Biofeedback to encourage scapular muscle control during arm elevation
 - Grade IV posterior and inferior humeral glides
 - Pain free active and passive shoulder ROM
 - Rotator cuff and scapulothoracic muscle training

11. The correct answer is c.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Human Anatomy and Physiology and Orthopaedic Physical Therapy Theory and Practice*. Understanding the healing times of boney tissue dictates the most appropriate intervention. The recommended intervention for these patients is pain free active and passive motion. Joint mobilizations to increase range are not indicated as the fracture has not healed. Biofeedback and resisted shoulder exercises are not appropriate at this time, as priority is to increase range of motion. For resistive exercises, it is too early in the healing phase; this is typically introduced at 6-8 weeks post injury.

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Case Scenario 9

A 38-year-old woman with a 3-year history of shoulder and elbow/forearm pain is evaluated in an outpatient clinic.

12. Which of the following factors would most negatively impact her prognosis?
- Active coping style, catastrophization strong self-efficacy
 - Active coping style, catastrophization, fear-avoidance behaviors

- c. Fear-avoidance behaviors, passive coping styles, social introversion
- d. Passive coping style, social introversion, strong self-efficacy

12. The answer is c.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Applied Theory and Practice, and Pathophysiology*. Active coping style and self-efficacy are positive psychosocial traits noted to positively affect outcomes after injury. Fear-avoidance behaviors, passive coping style, catastrophization, and social introversion have all been linked to negative outcomes and chronicity.

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Case Scenario 10

A 32-year-old woman reports onset of left radial wrist and thumb pain 6 days ago, after striking her hand/wrist sharply on the dishwasher. She noted immediate swelling of the lateral wrist/thumb, and bruising 48 hours later. She has been afraid to move or use the left hand due to increased pain and intermittent “pins and needles” in her distal forearm, wrist, and thumb. Radiological findings are negative and she reports no prior injury. She is guarding the upper extremity and appears anxious and concerned about her injury. Examination reveals diffuse swelling of all the fingers and wrist region. She has hypersensitivity and allodynia to palpation throughout the hand/fingers, and into the proximal forearm, including the elbow.

13. Which of the following conditions should the physical therapist most likely suspect?
 - a. Complex regional pain syndrome
 - b. Conversion disorder
 - c. Peripheral neuropathy
 - d. Superficial radial nerve irritation
14. Which of the following interventions is most appropriate?
 - a. Mental imagery instruction
 - b. Mirror visual feedback
 - c. Pain physiology education
 - d. Stress loading

15. Following your initial intervention with pain physiology education, which of the following is the most appropriate next step?
 - a. Graded motor imagery
 - b. Mirror visual feedback
 - c. Peripheral desensitization techniques
 - d. Stress loading

13. The correct answer is a.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Human Anatomy and Physiology, and Pathology/Pathophysiology*. Superficial radial nerve irritation would not affect the whole palm and fingers. Given the location, area of involvement, description of involvement (diffuse swelling, allodynia as far proximal as the elbow) should indicate to the orthopaedic certified specialist that peripheral nociceptive pathologies (and peripheral/central neurogenic pathologies) should be considered. While the numbness and tingling may fit peripheral neuropathy, the hypersensitivity and allodynia do not fit the peripheral neuropathy category.

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14. The correct answer is c.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Orthopaedic Physical Therapy and Practice, Pain Science, and Prognosis/Interventions/Outcomes*. Significant evidence indicates pain physiology education, along with peripheral and/or central interventions improves outcomes for patients presenting with significant chronic pain expression and associated pain behaviors. This has been shown to immediately decrease perceived threat and positively influence protective output mechanisms that are limiting movement tolerance. Pain physiology education, knowledge of brain biology, and maladaptive central sensitization relationships are essential elements prior to initiating a graded motor imagery protocol.

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15. The correct answer is a.

In answering this question, the orthopaedic certified specialist will use the DSP areas of *Orthopaedic Physical Therapy Theory and Practice, Medical/Surgical Considerations, Pain Science, and Prognosis/Interventions/Outcomes*. A graded motor imagery protocol has shown to have very good outcomes for patients with complex regional pain syndrome. Stress loading exercise has little evidence supporting its effectiveness. Mirror visual feedback, stress loading, and peripheral desensitization are not part of the graded motor imagery protocol.

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CHAPTER 4: EXAMINATION CONTENT

The board-certified orthopaedic physical therapy specialist examination is based on the below listed major competency areas. Each competency area is subdivided into specific objectives in Chapter 2. The percentage of the exam devoted to each of these areas is outlined below. These percentages are based on survey responses by members of the Orthopaedic Physical Therapy Association, and the opinions of a group of subject matter experts. Each question in the item bank is categorized according to the competency area, and when the test is constructed the question distribution on the exam approximately reflects these percentages.

DSP Area	% of Exam
Human Anatomy and Physiology	10
Movement Science	10
Pathology/Pathophysiology/Pain Science	10
Medical/Surgical Interventions	10
Orthopaedic Physical Therapy and Practice	10
Critical Inquiry for Evidence Based Practice	10
Other Professional Roles/Responsibilities/Values	
Examination/Evaluation/Diagnosis	20
Prognosis/Interventions/Outcomes	20
TOTAL	100%

Body Regions and Percentages

The following chart reflects current orthopaedic clinical specialist practice based on survey responses. The Orthopaedic Clinical Specialist Examination will reflect these approximate percentages.

Body Region	% of Exam
Head/Maxillofacial/Craniomandibular	3%
Cervical Spine	13%
Thoracic Spine/Ribs	6%
Lumbar Spine	20%
Pelvis/Sacroiliac/Coccyx/Abdomen	7%
Shoulder/Shoulder Girdle	15%
Arm/Elbow	4%
Wrist/Hand	4%
Hip	7%
Thigh/Knee	12%
Leg/Ankle/Foot	9%
TOTAL	100%

CHAPTER 5: EXECUTIVE SUMMARY

Introduction

A practice analysis is a systematic study of professional practice behaviors and content knowledge areas that compose specialty practice. The purpose of a practice analysis is to collect data that describes the requisite knowledge and skills of the board-certified orthopaedic clinical specialist, and the characteristics of contemporary specialty practice in orthopaedic physical therapy. From analysis of this data, the *Description of Specialty Practice* is reviewed and revised to describe the current knowledge base and competency areas for orthopaedic physical therapy practice. The DSP then sets the blueprint for the specialist certification examination to identify the physical therapists who are capable of advanced practice in this specialty area. This DSP is also used to guide the curriculum for orthopaedic physical therapy residencies that are certified by the American Board of Physical Therapy Residency and Fellowship Education. This chapter summarizes the practice analysis process for clinical specialization in orthopaedic physical therapy that resulted in the generation of this DSP.

Methods

Survey Instrument

Members of the Orthopaedic Specialty Council of ABPTS met in 2011 to develop the survey instrument in collaboration with the orthopaedic subject matter experts and their consultant. Contributing documents included the *Guide to Physical Therapist Practice*¹ and its patient/client management model, and the existing 2001 *Orthopaedic Physical Therapy Description of Specialty Practice*.² The survey consisted of 5 sections: (1) knowledge areas; (2) professional roles, responsibilities, and values; (3) patient/client management model; (4) percentile classification of body regions treated; and (5) demographic information. For the knowledge area in section 1 of the survey, the participants were asked to rate how frequently an orthopaedic clinical specialist would use this knowledge area, how important that knowledge area is to practice as an orthopaedic clinical specialist, and, finally, the level of judgment an orthopaedic clinical specialist exercises when using this knowledge area. For all questions in sections 2 and 3, the participants were asked to rate the frequency and importance as in section 1, and to rate the level of mastery an orthopaedic clinical specialist would demonstrate, while performing the skill. The survey design included a 5-point rating scale for frequency of use (never, less than once a month, monthly, weekly, daily), a 4-point rating scale for importance (not important, minimally important, moderately important,

very important), and a 4-point rating scale for level of judgment (not used, recall, application, analysis) for section 1, and level of mastery (advanced beginner, competent, proficient, expert) for sections 2 and 3.

Pilot Survey

A pilot survey was conducted in August–September 2012. The purpose of the pilot survey was to test the survey instrument, clarify current competencies in the practice of orthopaedic physical therapy, identify potential new competencies, and provide data to confirm the final practice analysis survey. The pilot survey was distributed to 30 board-certified orthopaedic clinical specialists. There were 21 responses for a return rate of 70%. Input from the pilot study respondents was used to make editorial corrections, and clarify survey question examples. Based on the consistent feedback from the pilot volunteers regarding the length of the survey, ABPTS staff recommended that the formal survey allow respondents the option of completing only 1 of the 3 randomly assigned sections of knowledge, additional roles, and patient/client management. All respondents were requested to provide information on the percentage of body regions treated and the demographics. The recommendation to split the survey was based on experience with other recent revision/revalidation surveys by different specialties. This format ultimately led to 4 groups of respondents: a group that opted to answer the entire survey; a group that answered sections 1 and 2; a group that answered section 3 on patient/client examination, evaluation, diagnosis, and prognosis; and a group that responded to questions regarding patient/client interventions and outcomes in section 3. Within these respective groups, not all respondents answered all questions within the sections.

Final Survey Administration

In June 2103, the survey invitation was emailed to 799 current board-certified orthopaedic clinical specialists, and 799 randomly selected nonspecialists who were members of the Orthopaedic Physical Therapy Section. The survey was accompanied by a cover letter providing instructions and an Internet link to participate in the survey. Several additional calls for participants with email reminders were sent out at 4, 8, and 10 weeks later to nonrespondents. The survey was closed to additional data collection when the response to the repeated reminders was unproductive in recruiting new respondents. Respondents were given the opportunity to call or email the project coordinator, if they had questions about the survey. The majority of the questions asked by

the respondents involved their eligibility to complete the survey, ie, not working in orthopaedic practice. Several respondents asked questions about the rating scales, and the differentiation between importance and level of judgment or mastery scales.

Data Analysis

Participant demographics were summarized using frequency charts presented in Chapter 1. This information included age, sex, ethnicity, geographic region, educational, and residency training background, professional experience, certification status, employment setting, clinical responsibility, and productivity.

At their initial meeting, council members and the subject matter expert group agreed to a priori decision rules, as to what items are to be included in the DSP. In Section 1 (Knowledge Areas), items would be included if at least 75% of respondents rated its importance at a 2 or 3 (moderately or very important) and on level of judgment at a 2 or 3 (application or analysis). For Section 2 (Professional Roles, Responsibilities and Values) and Section 3 (Practice Expectations, Patient/Client Management), items would be included in the DSP if at least 75% of the respondents rated its importance at a 2 or 3 (moderately or very important) and on level of mastery at a 2 or 3 (proficient or expert skill level). Concerning frequency, items would be included if at least 75% of respondents rated its importance at 3 or 4 level (daily or weekly). In the event of discrepancy, such as importance rating at 75% and level of mastery at less than 75%, the SME group would review the responses for orthopaedic certified specialists as compared to responses from non-orthopaedic certified specialists. In all close cases, the SME group would come to a consensus about keeping the item or eliminating it. The rationale for eliminating an item is that it is something that an entry-level PT and the specialist both use or perform, although it is not an item that distinguishes between the specialist and nonspecialist. In February 2014, the summary data were distributed to the SME group and the consultant, followed by a meeting to review and discuss the survey findings.

Consensus building determined the final competencies that describe orthopaedic physical therapy specialty practice. Prior to discussion of individual items, the group reviewed the decision rules and reapproved them. The group reached 100% consensus on all items brought up for discussion. The group had planned to compare results between the orthopaedic certified specialist respondents and the non-orthopaedic certified specialist respondents. However, response rates for the non-orthopaedic certified

specialist respondents were considered too low (less than 2%) to allow for adequate comparison.

The SME group reviewed the survey respondents' recommended examination blueprint data specific to body region percentages, along with the existing 2001 blueprint information. The SME group discussed the examination breakdown and came to a consensus about the weighting and distribution of DSP areas based upon this information. The consensus decisions regarding the breakdown of material for the examination is presented in Chapter 4.

Results

Survey results from all groups were combined for statistical analysis. Because there were minimal changes from the pilot survey to the final, those responses were also included in the analysis. A total of 237 respondents completed at least some portion of the survey (29.67% response rate). Survey respondents could also respond by opting out because they either were not actively involved in the orthopaedic specialty area (7 respondents), or were unable to complete the survey at that time (14 respondents). Based on these opt-out responses, the response rate was 258/799 or 32.9%. Of the respondents, 223 indicated they were board-certified clinical specialists in orthopaedic physical therapy, and 15 reported they were not board certified in orthopaedic physical therapy. Based on the agreed upon decision rules, the responses for these 2 groups were reviewed separately.

Data from the first 4 sections of the survey are the basis for the Description of Specialty Practice in Orthopaedic Physical Therapy shown in Chapter 2. According to the agreed upon decision rules, 37 items were flagged due to not meeting the decision rules, or just barely meeting the rules. After thoughtful discussion, review of the statistics, and reaching a consensus, 24 items were ultimately deleted. The rationale for eliminating an item was that it is something that an entry-level PT and the specialist both use or perform, although it was not an item that distinguishes between the specialist and nonspecialist. In this process, the SME group considered aspects of practice that are important today, and those that were projected to be of increasing importance in the next decade.

Of note, all but 1 of the modality items under interventions were deleted due to low ratings. In addition, the SME group did note some unfortunate duplication of items, and 2 were deleted for this reason. In Section 2, Professional Roles, Responsibilities, and Values, 4 items under consultation did not meet the

decision rules;

however, although the ratings were low for frequency and level of mastery, the importance rating was very high. The SME group were of the opinion that the ratings were likely affected by the fact that not many respondents were consulting at these higher levels (ex, serving as consultants for the legal system or health care regulatory agencies). The SME group felt strongly that these consultancy roles should be reflected in the DSP. To address this, these 4 items were rewritten into 1 item. On 2 items, the SME group edited the listed examples for the final DSP. Part of that decision was a reflection of changes in practice over the 3 years of DSP revision/revalidation. Using the *Guide to Physical Therapist Practice*¹ competencies from the 2001 DSP² survey results, and SME group consensus opinion, the orthopaedic clinical specialist competencies were reorganized as shown in Chapter 2.

Additions to this DSP that were not part of the 2001 revisions reflect changes in practice over 10+ years. These include the knowledge area of pain science, with 4 new subcategories enveloped by the biopsychosocial paradigm. Another new knowledge area is developments in genetics/regenerative medicine (eg, genetic markers, stem cell applications, genetically based alterations to pharmacological interventions, immunity). Consulting roles were expanded as discussed above. Other changes were made in language and organization to be consistent with the *Guide to Physical Therapist Practice*.¹

To illustrate the link between foundational knowledge and the practice competencies, the DSP provides case scenarios and sample questions in Chapter 3. Some case scenarios/questions were updated and retained, and the SME group included new ones as well, providing 15 test question examples to further illustrate the breadth and depth of the examination expectations. These cases were prepared based on contemporary information and using principles of evidenced-based practice. They are intended to help candidates prepare for the examination by presenting examples of question types in different competency areas.

Conclusions

The demographic information in Chapter 1 is the most current data on board-certified clinical orthopaedic specialists. The DSP for orthopaedic physical therapy in Chapter 2 is based on the patient/client management model in the *Guide to Physical Therapist Practice*,¹ with emphasis on the professional practice expectations, tests and measures, and intervention skills that distinguish an

orthopaedic clinical specialist from a nonspecialist. The DSP in Chapter 2 also reflects knowledge areas as well as other professional duties, expectations and values. This description of practice was validated through a survey of orthopaedic clinical specialists. Chapter 2 can also serve as a self-assessment tool from which to develop a study guide to prepare for the certification examination. Chapter 2 also describes the foundation knowledge-base areas pertinent to orthopaedic physical therapy practice in the development of residency education in this specific discipline of physical therapy. The case scenarios and sample questions in Chapter 3 are presented to demonstrate the links between the practice expectation competencies and their associated knowledge areas, and to familiarize future orthopaedic clinical specialists with the certification examination question format. Chapter 4 presents the examination content outline, and Chapter 5 presents the technical data regarding the practice analysis and the development of the DSP. This is a working document and will continue to be revisited on a recurring basis for review and revalidation based on changes in orthopaedic physical therapy practice.

References

1. *Guide to Physical Therapist Practice*. 2nd ed. *Phys Ther*. 2001;81:9-744.
2. *Orthopaedic Physical Therapy Description of Advanced Clinical Practice*. Alexandria, VA: American Board of Physical Therapy Specialties, Specialty Council on Orthopaedic Physical Therapy; 2001.

Assessment Tool *for Physical Therapists*

APPENDIX

Orthopaedic

American Board of Physical Therapy Specialties



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Assessment Tool for Physical Therapists
Description of Specialty Practice: Orthopaedics

Assessment Tool for Physical Therapy: Orthopaedics is based on the *Orthopaedic Physical Therapy Description of Specialty Practice* (2015) prepared by the members of a subject matter expert (SME) group and members of the Specialty Council on Orthopaedic Physical Therapy. The DSP was approved by and used with permission of the American Board of Physical Therapy Specialties (ABPTS).

ABPTS states that: “Individuals who are considering applying for specialist certification may find use of assessment tools a valuable way of determining readiness for specialist certification. Use of the assessment tool does not guarantee success on the specialist certification examination.”

Assessment Tool for Physical Therapy: Orthopaedics will help physical therapists (and their clinical supervisors or mentors) evaluate their current level of knowledge and skills in the practice of Orthopaedic physical therapy against a set of nationally accepted advanced clinical competencies.

Assessment Tool for Physical Therapists
Description of Specialty Practice: Orthopaedics
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How to Use the Assessment Tool

Directions:

1. Read each competency statement.
2. Assess the performance of the clinician being assessed for each competency by placing an (X) in the box that BEST describes the behavior (unsatisfactory, satisfactory, or superior performance) on this aspect of the competency.
3. After marking each item associated with the competency, calculate the cumulative rating for each knowledge-based area or clinical practice expectation and record in the provided summary box: 1 point for each “Unsatisfactory Performance” rating, 2 points for each “Satisfactory Performance” rating, and 3 points for each “Superior Performance” rating. **Please note, the maximum number of possible rating points is provided in each knowledge area/clinical practice expectation summary box.**
4. Once you have completed the entire assessment tool, copy each rating into the Summary Form on page 14. You will then have a global perspective for each competency and the description of specialty practice.

Here is a sample of how to use this assessment tool:

<i>Assessment Tool for Physical Therapists</i> Description of Specialty Practice: Orthopaedics SAMPLE ASSESSMENT				
Directions: Place an “X” in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
1. Ability to identify the educational needs of the learner/client.				
a) Identifies what the learner needs to know.		X		2
b) Identifies what the learner needs to be able to do.			X	3
Calculate the cumulative rating for this section and record here →				5 6

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The Guide to Physical Therapist Practice (Guide) describes the Patient/Client Management Model, which includes patient/client examination (history, systems review, tests, and measures), evaluation, diagnosis, prognosis, intervention, and outcomes. Based on the development of the Guide and previous specialty practice surveys, the elements of this Patient/Client Management Model are the accepted standard for *all* physical therapist practice, including specialty practice. A Description of Specialty Practice (DSP) does not include all the items covered in the Guide, but rather highlights those elements of practice that clinical specialists utilize or perform at an advanced level compared with nonspecialists.

This DSP includes competency statements about knowledge-based areas and clinical practice expectations related to orthopaedic physical therapy. The clinical practice expectations consist of competency in the area of professional roles, responsibilities and values, and competency in patient/client management. The competency statements reflect the wording used on the survey instrument.

Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
I. Knowledge Areas				
A. Human Anatomy and Physiology				
1. Is knowledgeable about the musculoskeletal system.				
2. Is knowledgeable about the neuromuscular system.				
3. Is knowledgeable about the cardiovascular and pulmonary systems.				
4. Is knowledgeable about the integumentary system.				
5. Is knowledgeable about human growth and development across the lifespan.				
6. Is knowledgeable about histology (eg, connective tissue, muscle fiber type, immunity).				
7. Is knowledgeable about other systems (eg, endocrine, digestive, genitourinary).				
Calculate the cumulative rating for this section and record here →				21
B. Movement Science				
1. Is knowledgeable about kinesiology/clinical biomechanics.				
2. Is knowledgeable about neural control of movement.				
3. Is knowledgeable about ergonomics.				
4. Is knowledgeable about locomotion.				

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
B. Movement Science (Cont'd)				
Calculate the cumulative rating for this section and record here →				12
C. Pathology/Pathophysiology				
1. Is knowledgeable about the signs and symptoms of disease/injury.				
2. Is knowledgeable about the progression of disease/injury processes.				
3. Is knowledgeable about pathokinesiology.				
4. Is knowledgeable about tissue inflammation, healing, and repair.				
Calculate the cumulative rating for this section and record here →				12
D. Pain Science				
1. Is knowledgeable about peripheral nociceptive pain physiology.				
2. Is knowledgeable about peripheral neuropathic pain physiology.				
3. Is knowledgeable about central nervous system pain physiology.				
4. Is knowledgeable about output mechanisms and expressions (eg, immune, endocrine, sympathetic, behavioral).				
Calculate the cumulative rating for this section and record here →				12
E. Medical and Surgical Considerations				
1. Is knowledgeable about imaging studies.				
2. Is knowledgeable about pharmacology.				
3. Is knowledgeable about ancillary tests (eg, lab studies, EKG, electrophysiological exams).				

Assessment Tool for Physical Therapists
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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
E. Medical and Surgical Considerations (Cont'd)				
4. Is knowledgeable about nonsurgical medical interventions and their implications for orthopaedic physical therapy.				
5. Is knowledgeable about surgical interventions and their implications for orthopaedic physical therapy.				
6. Is knowledgeable about developments in genetics/regenerative medicine (eg, genetic markers, stem cell applications, genetic-based alterations to pharmacological interventions, immunity).				
Calculate the cumulative rating for this section and record here →				18
F. Orthopaedic Physical Therapy Theory and Practice				
1. Is knowledgeable about the biopsychosocial model.				
2. Is knowledgeable about exercise physiology.				
3. Is knowledgeable about manual therapy techniques.				
4. Is knowledgeable about motor control and motor learning.				
5. Is knowledgeable about the theory and application of orthotic, protective, supportive, and prosthetic devices.				
6. Is knowledgeable about therapeutic exercise.				
7. Is knowledgeable about models of differential diagnosis and clinical reasoning (eg, hypothesis-oriented algorithm for clinicians (HOAC) model, prospect theory).				
8. Is knowledgeable about the principles of teaching and learning.				
9. Is knowledgeable about the principles of prevention and wellness.				
Calculate the cumulative rating for this section and record here →				27

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
G. Critical Inquiry for Evidence-Based Practice				
1. Is able to appraise research findings on orthopaedic physical therapy practice.				
2. Is able to apply research findings to orthopaedic physical therapy practice.				
Calculate the cumulative rating for this section and record here →				6
II. Practice Expectations for Orthopaedic Clinical Specialists in the Patient/Client Management Model				
A. Patient/Client Examination (Examination includes obtaining history, performing a systems review, and conducting tests and measures.)				
1. Is able to identify the 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.				
2. Is able to perform systems review to assess physiologic and anatomic status (eg, cardiovascular, pulmonary, integumentary), cognition, and communication skills.				
3. Is able to 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.				
Calculate the cumulative rating for this section and record here →				9
B. Conducts Tests and Measures (listed alphabetically)				
Is able to conduct tests and measures to include:				
1. Active range of motion (eg, assessment of muscle length, single joint, and multisegmental movements)				
2. Assistive and adaptive devices (eg, assessment of appropriateness, alignment and fit, safety)				

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Description of Specialty Practice: Orthopaedics

Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
B. Conducts Tests and Measures (listed alphabetically) (Cont'd)				
Is able to conduct tests and measures to include: (Cont'd)				
3. Balance a. Analysis with and without assistive or other devices, on various terrain, in different environments, safety assessment). b. Vestibular and visual assessment (eg, Dix Hall Pike, vestibulo-ocular reflex, extraocular movements)				
4. Circulation (eg, vertebral artery examination, screen for circulatory abnormalities)				
5. 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)				
6. 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)				
7. Gait and locomotion assessment (eg, analysis with and without assistive or other devices, on various terrain, in different environments, safety assessment)				
8. Illness behavior assessment – cognitive and emotional, psychosocial influences (eg, FABQ).				
9. Integumentary assessment of tissue quality (eg, signs of inflammation, soft tissue swelling and inflammation, healing)				
10. Joint integrity (eg, mobility assessment of joint hypermobility and hypomobility to include passive range of motion, passive accessory motions, response to manual provocation)				
11. Motor control and coordination (eg, assessment of timing of movements across segments, capability of acquiring new movement strategies)				

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
B. Conducts Tests and Measures (listed alphabetically) (Cont'd)				
Is able to conduct tests and measures to include: (Cont'd)				
12. Muscle performance, including strength, power, and endurance				
13. Neural mobility (eg, limb tension tests)				
14. Neuromotor development and sensory integration (eg, assessment of appropriate development, dexterity, coordination, and integration of the somatosensory system)				
15. Orthotic, protective, and supportive devices (eg, assessment of appropriateness, use, remediation of impairment, alignment and fit, safety)				
16. Posture (eg, assessment of body or body segment(s) structure, alignment, changes in different positions, body contours)				
17. Reflex integrity (eg, assessment of normal and pathological reflexes)				
18. Sensory integrity (eg, assessment of superficial sensation, dermatomes, myotomes, proprioception and kinesthesia, 2-point discrimination, quantitative sensory testing)				
19. Special tests specific to joint complexes (eg, impingement, FABERE, Crank test)				
Calculate the cumulative rating for this section and record here →				57
C. Evaluation				
1. Is able to interpret data from history and systems review (eg, identify relevant, consistent, accurate data, prioritize impairments, assess patient's/client's needs, motivations, and goals).				
2. Is able to develop a working diagnosis, including nature of complaint, probable cause, anatomical structures involved, stage of condition, and possible contraindications for physical therapy intervention.				

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
C. Evaluation (Cont'd)				
3. Is able to 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 environmental factors according to the <i>International Classification of Functioning, Disability and Health</i> (ICF) model.				
4. Is able to incorporate data from ancillary testing (eg, imaging, labs, electrophysiological studies).				
5. Is able to refer patients/clients to other health care professionals for further examination as appropriate, based on systems review and medical screening.				
6. Is able to consider implications of exam findings on activity, quality of life, and wellness as established by the ICF.				
Calculate the cumulative rating for this section and record here →				18
D. Diagnosis				
1. Is able to organize data into recognized clusters, patterns, syndromes, or categories to establish a diagnosis, based on the evaluation.				
Calculate the cumulative rating for this section and record here →				3
E. Prognosis				
1. Is able to establish a prognosis, including the predicted optimal level of improvement in function and the amount of time needed to reach that level.				
2. Is able to select intervention approach to include referral to another health care professional, physical therapy intervention, or further examination.				

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
E. Prognosis (Cont'd)				
3. Is able to respond to emerging data from examinations and interventions, including: a. Assessing response to intervention (identify change in symptoms; development of new symptoms; changes in tissue response, mobility, and function; changes in signs and symptoms). b. Determining the significance of changes in signs and symptoms as they relate to the plan of care (determine relationship between expected result and actual result, cause of change, relevance of change). c. Modifying and redirecting examination and intervention based on this data.				
Calculate the cumulative rating for this section and record here →				9
F. Interventions (specific interventions include):				
1. Is able to provide training in ergonomics (influences of environment and occupation on posture and movement).				
2. Is able to provide functional training activities and participation.				
3. Is able to provide functional training in activities of daily living (eg, hygiene, stair climbing, sleeping postures).				
4. Is able to provide functional training in injury prevention and wellness promotion (eg, task adaptation, behavior modification, body mechanics).				
5. Is able to provide functional training in pain interventions (eg, pain physiology education graded motor imagery, maladaptive central sensitization).				
6. Is able to prescribe, apply, and, as appropriate, fabricate protective, adaptive, or supportive device or equipment (eg, orthotics, rotational knee brace, kinesiotaping).				

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
F. Interventions (Cont'd)				
7. Is able to provide manual therapy techniques, including: a. Joint mobilization and thrust techniques (eg, grade II mobilization, grade V thrust). b. Neural mobilization (eg, nerve gliding). c. Passive range of motion (physiologic movements). d. Soft tissue mobilization (eg, connective tissue, deep friction, cross friction massage).				
8. Is able to provide muscle stimulation (eg, functional electrical stimulation, neuromuscular electrical stimulation).				
9. Is able to provide patient/client education: a. Using diagnosis, prognosis, treatment, responsibility, and self-management within plan of care b. Using biopsychosocial/biomedical models c. Addressing pain physiology and dose response d. Addressing prevention and wellness				
10. Is able to provide therapeutic exercise instruction to improve muscle performance, mobility, and ROM of soft tissues: a. Aerobic capacity and endurance b. Motor control and coordination (eg, timing and magnitude of muscle activation during multisegmental movement) c. Muscle performance (eg, strength, muscle endurance)				
Calculate the cumulative rating for this section and record here →				30
G. Outcomes				
1. Is able to assess remediation of activity and participation limitations, optimization of patient satisfaction, and promotion of primary and secondary prevention.				
2. Is able to assess improvement of patient's/client's activities and participation based on best available evidence and patient/client-specific variables (eg, history, diagnosis, complications).				

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
G. Outcomes (Cont'd)				
3. Is able to choose appropriate assessment measures to determine initial and long-term responses to intervention.				
4. Is able to use applicable, evidence-based outcomes measurement tools/questionnaires/scales (eg, Oswestry, Fear-Avoidance Behavior Questionnaire, Lower Extremity Functional Scale).				
Calculate the cumulative rating for this section and record here →				12
III. Other Professional Roles, Responsibilities, and Values				
A. Lifelong Learning Through Pursuit of Advanced Knowledge, Skills, and Abilities				
1. Is able to apply lifelong learning through pursuit of advanced knowledge, skills, and abilities.				
Calculate the cumulative rating for this section and record here →				3
B. Use of Patient-Centered Ethics and Values in Complex Clinical Decision Making				
1. Is able to use patient-centered ethics and values in complex clinical decision making.				
Calculate the cumulative rating for this section and record here →				3
C. Devotion of Time and Effort to Resolve Complex Problems				
1. Is able to devote time and effort to resolve complex problems.				
Calculate the cumulative rating for this section and record here →				3
D. Consultation to Contribute Special Knowledge or Expert Opinion in Client-Based, Community, or Academic Settings				
1. Is able to consult with clients, clients' families, and other health care professionals (eg, inservices, support groups, team meetings).				
2. Is able to use peer review materials (eg, chart reviews, peer teaching evaluations).				
3. Is able to use other venues, including the legal system, corporations, third-party payers, health care regulatory agencies, and health care disparity issues.				
Calculate the cumulative rating for this section and record here →				9

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Directions: Place an "X" in the box that BEST describes behavior observed for aspect of the competency.	Unsatisfactory Performance 1	Satisfactory Performance 2	Superior Performance 3	Rating
E. Education				
1. Is able to 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.				
2. Is able to 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.				
Calculate the cumulative rating for this section and record here →				6
F. Professional Development				
1. Is able to maintain state-of-the-art knowledge and skills by participating in continuing professional development (eg, residency education, seminars, structured study, journal clubs, etc).				
Calculate the cumulative rating for this section and record here →				3
G. Critical Inquiry				
1. Is able to apply principles of evidence-based practice in patient/client management.				
2. Is able to contribute to the body of evidence in orthopaedic physical therapy (eg, peer-reviewed and non-peer-reviewed presentations and publications).				
3. Is able to evaluate the efficacy and effectiveness of examination tools, interventions, and technologies based on available evidence.				
Calculate the cumulative rating for this section and record here →				9

Assessment Tool for Physical Therapists
Description of Specialty Practice: Orthopaedics

SUMMARY FORM

Use this summary to gain an overview of the ratings you recorded for each behavior. Copy each rating you recorded to this page. You will then have a global perspective for each competency.

I. Knowledge Areas	Score	Summary Score
A. Human Anatomy and Physiology	21	
B. Movement Science	12	
C. Pathology/Pathophysiology	12	
D. Pain Science	12	
E. Medical and Surgical Considerations	18	
F. Orthopaedic Physical Therapy Theory and Practice	27	
G. Critical Inquiry for Evidence-Based Practice	6	
Cumulative Rating for Section I		108
II. Practice Expectations for Orthopaedic Clinical Specialists in the Patient/Client Management Model	Score	Summary Score
A. Patient/Client Examination	9	
B. Conducts Tests and Measures	57	
C. Evaluation	18	
D. Diagnosis	3	
E. Prognosis	9	
F. Interventions	30	
G. Outcomes	12	
Cumulative Rating for Section II		138

III. Other Professional Roles, Responsibilities, and Values	Score	Summary Score
A. Lifelong Learning Through Pursuit of Advanced Knowledge, Skills, and Abilities	3	
B. Use of Patient-Centered Ethics and Values in Complex Clinical Decision Making	3	
C. Devotion of Time and Effort to Resolve Complex Problems	3	
D. Consultation to Contribute Special Knowledge to Expert Opinion in Client-Based, Community, or Academic Settings	9	
E. Education	6	
F. Professional Development	3	
G. Critical Inquiry	9	
Cumulative Rating for Section III		36
Total Cumulative Rating		282

Assessment Tool for Physical Therapists
Description of Specialty Practice: Orthopaedics

ACTION PLAN

After you have reviewed the summary form, identify (by highlighting) the competency aspects that you scored the weakest. These are the competency aspects that may need to be improved. An action plan may be developed to increase knowledge and/or skills for each of the competency aspects that have been highlighted. An action plan can help to organize and prioritize professional development needs.

It is simple to develop an action plan.

1. Identify the **competency aspect** that needs to be improved.
2. Assign a professional development **priority** to the competency aspect using a scale of 1 to 5 with 1 being the lowest priority and 5 the highest priority.
3. Identify **when** (timeframe for implementation of the action item) each professional development need can be satisfied.
4. Indicate **how** (eg, continuing education course, college/university class, mentor, clinical residency, supervised clinical practice) each professional development need will be satisfied.
5. Identify **what** resources (eg, time off, registration fee, contact with possible mentors, application for clinical residency, etc.) are needed.
6. Choose the **method** that will be used to demonstrate that each professional development need has successfully been met (eg, certificate of completion, passing grade, mentor feedback, satisfactory completion of residency, etc.)

Here is a sample action plan to consider:

BEHAVIOR	PRIORITY 1 = lowest 5 = highest	WHEN	HOW	WHAT	METHOD
Is able to identify the educational needs of the learner/client.	4	by 6/18	CE course	1. time off 2. registration fee 3. travel funds 4. shift coverage	1. certificate of completion 2. peer review
Is able to reevaluate treatment or goals	2	by 12/18	Mentor	1. agreement with department director	1. mentor feedback 2. peer review

For additional professional development information, visit www.apta.org.

