



الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

Musculoskeletal Physical Therapy



سِرِّهِ مُحَمَّدٍ

Preface

- The primary goal of this document is to enrich the training experience of postgraduate residents by outlining the learning objectives to become independent and competent future practitioners.
- This curriculum may contain sections outlining some regulations of training; however, such regulations need to comply with the most updated “General Bylaws” and “Executive Policies” of the Saudi Commission for Health Specialties (SCFHS), which can be accessed online through the official SCFHS website.
- As this curriculum is subjected to periodic refinements, please refer to the electronic version posted online for the most updated edition:

<https://www.scfhs.org.sa/MESPS/TrainingProgs/TrainingProgsStatement/Pages/index.asp>

CONTRIBUTORS

Curriculum Development Committee

- Dr. Edan Alzahrani
- Dr. Ahmed Farrag
- Dr. Abdullah M. Al-Shenqiti
- Dr. Khaled Alzahrani

Reviewed and Approved by Specialty's Scientific Committee Members

- Dr. Edan Alzahrani
- Dr. Ahmed Farrag
- Dr. Abdullah M. Al-Shenqiti
- Dr. Khaled Alzahrani
- Dr. Ali Alshami

Curriculum Review Committee Members

- Dr. Sakra Balhareth, Pharm.D., BCPS, BCACP
- Dr. Faisal Althekair, MBBS, Msc.Med.ED, SBEM

Approved by Head of Curriculum Review Committee

- Dr.Ali Dr.Ali Alassiri, MBBS, Msc.MedEd. FRCSC, FACS

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Any amendment to this document shall be endorsed by the Specialty Scientific Council and approved by Central Training Committee. This document shall be considered effective from the date the updated electronic version of this curriculum was published on the commission's Website, unless a different implementation date has been mentioned.

Correspondence: Saudi Commission for Health Specialties P.O. Box: 94656 Postal Code: 11614

Contact Center: 920019393

E-mail: Curricula@scfhs.org.sa

Website: www.scfhs.org.sa

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FOREWARD

Physical therapy and rehabilitation services have been expanding exponentially over the past years, which necessitated the need for sub-specialization in order to promote service quality. Musculoskeletal disorders are health-related problems with significantly high incidence rate and great economic burden, both nationally and internationally. The increased demand for musculoskeletal rehabilitation services, in addition to the tremendous scientific advancement and diversity in musculoskeletal physical therapy treatment procedures and approaches, has driven the need to develop a specialty clinical degree in musculoskeletal physical therapy. In 2018, The Prince Sultan Military College of Health Sciences (PSMCHS) took the initiative and endorsed the development of this curriculum, in collaboration with SCFHS. This is the first clinical training program for the physical therapy profession, with specialization in musculoskeletal system, in the Middle East region.

Described in this text is the curriculum for the Saudi Board of Musculoskeletal Physical Therapy (MSK-PT). This curriculum describes the details of this specialized clinical degree including program objectives, enrollment criteria, study plan and clinical practice design, and success requirements. This program is adapting a competency-based educational approach as this could support professional training based on recent scientific evidences, in order to develop different competencies required for a clinician expert in musculoskeletal physical therapy. Additionally, graduates are expected to use their well-developed knowledge for specialty practice and efficient communication skills to appropriately educate their colleagues, and transfer their knowledge, skills, and experience to them. Furthermore, as health care providers, graduates should be competent as health advocates and professionals to increase community awareness and commit to patient care by applying best evidence-informed practices.

The MSK-PT program runs for three years. The program comprises didactic classes and clinical training. It includes several didactic classes focusing on physical therapy management for musculoskeletal dysfunction in different body regions. Emphasis is placed on spine and extremities. Additionally, clinical practice is the major component of this program in which residents will manage different conditions requiring musculoskeletal rehabilitation.

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Introduction

5.1 Context of Practice

In the field of physical therapy, the breadth and depth of knowledge and skills has increased beyond the scope of general practice, and so have the opportunities for clinical practice, research and academic study. Therefore, specialization in a selected area is essential to serve the physical therapy profession in terms of the clinical setting, the body of knowledge development and academia. Such specialization can be achieved through graduate study programs. The Saudi Commission for Health Specialties has recognized the importance of higher degrees in physical therapy with regard to the health care system in the Kingdom of Saudi Arabia (KSA), and has created jobs for physical therapists with a master's degree (Senior Physical Therapist) and for those with a PhD degree (Consultant in Physical Therapy). However, there still is a severe shortage of physical therapists with higher degrees. Currently, few programs in the KSA (such as King Saud University and Imam Abdulrahman Bin Faisal University) offer a postgraduate degree in physical therapy for a limited number of graduates every year, which does not fulfill the great demands for such professionals.

Specialized knowledge within a specific area of physical therapy and advanced clinical skills are required to be practiced at a higher level in today's musculoskeletal rehabilitation settings. Postgraduate clinical training programs accelerate a clinician's skill development. The number of these programs is continuing to grow worldwide. However, in KSA, no similar clinical training programs exist yet to serve the Physical Therapy profession. Lacking a Physical Therapy advanced and specialized clinical training programs might deprive the local healthcare-seeking community from receiving an outstanding, evidence-based healthcare service. Furthermore, many clinics are faced with

a challenge when trying to secure experienced clinical instructors to provide high-level clinical training to newly graduated therapists. The MSK-PT program will be the leading physical therapy advanced clinical training program in the Middle East region. The program is designed to cover the severe shortage of qualified, specialized, and highly-trained therapists for the management of musculoskeletal disorders. This three-year MSK-PT program is comprised of two parts:

Junior level, which continues for two years, and Senior level, which continues for the remaining year of the program. It focuses on musculoskeletal impairments of the spine and extremities. Eligibility to advance to Senior level is based on successful completion of Junior level.

- **Vision**

To become a preeminent clinical physical therapy program recognized for groundbreaking leadership in musculoskeletal clinical practice, education and mentorship.

- **Mission**

To expand the availability of guidelines-based clinical practice of musculoskeletal physical therapy in order to enhance the physical well-being and quality of life of individuals in KSA.

- **Objectives**

The Saudi Board of Musculoskeletal Physical Therapy program aims to achieve the following objectives:

General objectives

1. To integrate skill improvement in the areas of clinical reasoning with improvements in the application of manual therapy, therapeutic exercises, neuromuscular reeducation, and patient education.
2. To create mentors for building the next generation of Clinical Specialists in MSK-PT.
3. To produce highly skilled patient care providers for patients who have musculoskeletal disorders generally and spinal impairments specifically.

Specific objectives

1. To cover the existing shortage of highly qualified physical therapists in the KSA.
2. To provide physical therapy clinicians with advanced clinical skills, through extensive proper training, and scientific expertise based on the latest research findings in the MSK-PT field.
3. To train residents to conduct studies and experiments using hospital databases, which are established for this purpose, according to the appropriate rules and methodologies.
4. To prepare young leaders who have a high level of clinical and scientific expertise to take over the training functions in the physical therapy departments.
5. To provide health care and medical rehabilitation for patients in general, casualties of war and military exercises in particular, instead of receiving this type of medical

5.1 Goal and Responsibility of Curriculum Implementation

The ultimate goal of this curriculum is to guide residents to become competent in their specialty. This goal will require significant amount of efforts and coordination from all stakeholders involved in postgraduate training. As an “adult-learner” residents have to demonstrate full engagement with proactive role by: careful understanding of learning objectives, self-directed learning, openness to reflective feedback and formative assessment, and self-wellbeing and seeking support when needed. Program director has a vital role to make the implementation of this curriculum most successful. Training committee members, and particularly program administrator and chief resident, have significant impact on the program implementation. Residents should be enabled to share the responsibility in curriculum implementation. The SCFHS will apply the best models of training governance to achieve the best quality of training. Academic affairs in training centers and regional supervisory training committee will have a major role in training supervision and implementation. The MSK-PT scientific council will be responsible to make sure that the content of this curriculum is constantly updated to match the best-known standards in postgraduate physical therapy clinical education.

5.2 Policies and procedures

This curriculum represents the means and materials outlining learning objectives with which residents and trainers will interact for achieving the identified educational outcomes. The SCFHS has a full set of “General Bylaws” and “Executive Policies” (published on the official SCFHS website) that regulate all processes related to training. General bylaws of training, assessment, and accreditation as well as executive policies on: admission, registration, continuous assessment and promotion, examination, residents’ representation and support, duty hours, and leaves are examples of regulations that need to be applied. Residents, trainers, and supervisors need to apply this curriculum in compliance with the most updated bylaws and policies which can be accessed online (via the official SCFHS website).

5.3 Abbreviations Used in This Document

Abbreviation	Description
A	Attitude
ABPTRFE	American Board of Physical Therapy Residency & Fellowship Education
APTA	American Physical Therapy Association
CBE	Competency-Based Education
EC	Education and Counseling
FSI	Foundations of Scientific Inquiry
ITER	In-Training Evaluation Report
K	Knowledge
MSK_LQ	Musculoskeletal Physical Therapy - Lower Quarter
MSK_UQ	Musculoskeletal Physical Therapy - Upper Quarter
PSMCHS	Prince Sultan Military College of Health Sciences
ROC	Management and Rehabilitation of Post-operative Conditions
S	Skill
SCFHS	Saudi Commission for Health Specialties
SI-R	Spine rehabilitation
SP-R	Sports rehabilitation

IV. Program Structure

6.1 Program Entry Requirements

Please refer to the updated executive policy of SCFHS on admission and registration.

Website: www.scfhs.org.sa

6.2 Program Durations

The duration of the MSK-PT program is three calendar years divided into two levels, Junior level (years 1 and 2) and Senior level (year 3). Each year comprises four 3-month rounds, summing into twelve rounds. Depending on availability and suitability of training centers, residents will rotate to different centers throughout the program duration. Thus, the rotation system is modifiable. The program administrative board will strive to make agreements with different training centers to accommodate each recruited resident in a different training center.

6. Program Rotation

Training Year	Mandatory core rotations*		Elective rotations**		Annual leave
	Rotation name	Duration	Rotation name	Duration	Duration
Year 1 (Junior 1)	• Musculoskeletal Physical Therapy-Lower Quarter 1	3 months	Resident enrolls to only one elective round: • Pediatric Physical Therapy • Neurological Physical Therapy • Sports Physical Therapy	2 months	1 month (4 weeks)
	• Musculoskeletal Physical Therapy-Upper Quarter 1	3 months			
	• Musculoskeletal Physical Therapy-Spine Rehabilitation 1	3 months			
Year 2 (Junior 2)	• Musculoskeletal Physical Therapy-Lower Quarter 2	3 months	--	--	1 month (4 weeks)
	• Musculoskeletal Physical Therapy-Upper Quarter 2	3 months			
	• Musculoskeletal Physical Therapy-Spine Rehabilitation 2	3 months			
	• Musculoskeletal Physical Therapy-Post Surgical Rehabilitation	2 months			
Year 3 (Senior)	• Musculoskeletal Physical Therapy-Lower Quarter 3	3 months	--	--	1 month (4 weeks)
	• Musculoskeletal Physical Therapy-Upper Quarter 3	3 months			
	• Musculoskeletal Physical Therapy-Spine Rehabilitation 3	3 months			
	• Musculoskeletal Physical Therapy-Inpatient Care	2 months			

(***Mandatory core rotation:** Set of rotations that represent program core component and are mandatory to do.

(****Elective rotation:** Set of rotations that are related to the specialty, as determined by the scientific council/committee, and the resident is required to do some of them.

V. Learning and Competencies

7.3 Introduction to Learning Outcomes and Competency-Based Education

Training should be guided by well-defined “learning objectives” that are driven by targeted “learning outcomes” of a the program to serve specific specialty needs. Learning outcomes are supposed to reflect the professional “competencies” that are aimed to be “entrusted” by residents upon graduation. This will ensure that graduates will meet the expected demands of the healthcare system in relation to their particular specialty. Competency-based education (CBE) is an approach of “adult-learning” that is based on achieving pre-defined, fine-grained, and well-paced learning objectives that are driven from complex professional competencies.

Professional competencies related to healthcare are usually complex and entertain a mixture of multiple learning domains (knowledge, skills, and attitude). CBE is expected to change the traditional way of postgraduate education. For instance, time of training, though is a precious resource, should not be looked to as a proxy for competence (e.g. time of rotation in certain hospital areas is not the primary marker of competence achievement). Furthermore, CBE emphasizes the critical role of informed judgment of learner’s competency progress, which is based on a staged and formative assessment that is driven from multiple workplace-based observations. Several CBE models have been developed for postgraduate education in healthcare (example: CanMEDs by the Royal College of Physician and Surgeon of Canada (RCPSC), the CBME-Competency model by the Accreditation Council for Graduate Medical Education (ACGME), tomorrow’s doctor in UK and multiple others). The following are concepts to enhance the implementation of CBE in this curriculum:

- **Competency:** Competency is a cognitive construct assessing the potential to perform efficiently in a given situation based on the standard of the profession. Professional roles (e.g. expert, advocate, communicator, leader, scholar, collaborator, and professional) are used to define competency-role in order to make it mendable for learning and assessment.

- **Milestones:** Milestones are stages along the developmental journey throughout competency continuum. Residents throughout their learning journey, from junior and throughout senior levels, will be assisted to transform from being (novice/supervised) into (master/unsupervised) practitioners. This should not undermine the role of supervisory/regulatory bodies toward malpractice of independent practitioners. Milestones is expected to enhance learning process by pacing the training/assessment to match the developmental level of residents (junior vs. senior).
- **Learning-Domains:** Whenever possible, efforts should be directed to annotate the learning outcomes with the corresponding domain (K=Knowledge, S=Skills, and A=Attitude). In general, it is advisable to design learning outcomes at mid-level (i.e., neither too broad nor too specific). For example, "Demonstrate competency in taking a focused pediatrics history and performing a complete and appropriate physical examination. (S)". You might have more than one annotation for a given learning outcome.
- **Content-area Categorization:** It is advisable to categorize the learning outcomes in broad content area related to the practice of profession. For example, in pediatrics some of the content areas are Growth, Nutrition, Development, Adolescent health issues, Prevention, and Healthy lifestyle, Diagnosis and management of childhood diseases.

6.3 Mapping of Milestones

Residents are expected to progress from novice to mastery level in certain set of professional competencies. PSMCHS and SCFHS have endorsed the Core Competencies of a Physical Therapist Resident prepared by the Residency Competency Work Group established in 2014 by The American Board of Physical Therapy Residency & Fellowship Education (ABPTRFE) of the American Physical Therapy Association (APTA). The ABPTRFE Core Competencies of a Physical Therapist Resident includes seven core competencies, with associated critical behaviors (learning outcomes), for physical therapy residents in all areas of specialty practice. Each competency includes multiple behaviors with associated

milestones. The performance of each behavior is assessed independent of the other behaviors for that competency. The following is a general outline of each competency (adopted from “Core Competencies of a Physical Therapist Resident, The American Board of Physical Therapy Residency & Fellowship Education (ABPTRFE), 2016 http://www.abptrfe.org/uploadedFiles/ABPTRFEorg/For_Programs/ABPTRFE_CoreCompetenciesPhysicalTherapistResident.pdf”). Please refer to Appendix A and B.

Core Competencies of a Physical Therapist Resident

1. Clinical Reasoning:

Demonstrates the ability to organize, synthesize, integrate, and apply sound clinical rationale for patient management.

2. Knowledge for Specialty Practice:

Demonstrates the ability to organize, synthesize, integrate, and apply advanced specialty knowledge and skills to practice.

3. Professionalism:

Conducts self in a manner consistent with the PSMCHS and SCFHS Code of Ethics, in all professional responsibilities, inclusive of the Core Values and roles.

4. Communication:

Utilizes effective strategies to clearly and accurately disseminate and receive information in a respectful manner that considers situational needs and results in intended outcomes.

5. Education:

Designs, directs, and implements learner-centered instructional activities in academic, community, or clinical settings to advance physical therapist practice.

6. Systems-based Practice:

Demonstrates an awareness of and responsiveness to the larger context and system of health care to provide care that is of optimal value.

7. Patient Management:

Provides comprehensive value-based service to patients, using a human movement system team to optimize outcomes that impact the human experience framework, as an integral member of a collaborative inter-professional within a defined area of specialty practice.

Please refer to “Core Competencies of a Physical Therapist Resident, The American Board of Physical Therapy Residency & Fellowship Education (ABPTRFE), 2016 - http://www.abptrfe.org/uploadedFiles/ABPTRFEorg/For_Programs/ABPTRFE_CoreCompetenciesPhysicalTherapistResident.pdf” for further details regarding the behaviors associated with each Core Competency.

6.4 Continuum of Learning

This includes learning that should take place in each key stage of progression within the specialty. Residents are reminded of the fact of life-long Continuous Professional Development (CPD). Residents should keep in mind the necessity of CPD for every healthcare provider in order to meet the demand of their vital profession. The following table states how the role is progressively expected to develop throughout junior, senior and consultant levels of practice.

Undergraduate	Year 1-2 (Junior Level)	Year 3 (Senior Level)	Consultant
Non-practicing	Dependent/supervised practice	Partially Independent/provide partial supervision	Independent practice/provide supervision
Pre-Entrustable	Approaching Entrustable	Approaching Entrustable	Entrustable
Obtain basic health science and foundational level to core discipline knowledge	Obtain fundamental knowledge related to core clinical problems of the specialty	Apply knowledge to provide appropriate clinical care related to core clinical problems of the specialty	Acquire advanced and up-to-date knowledge related to core clinical problems of the specialty
Internship to the practice of discipline	Apply clinical skills such as physical examination and practical procedures related to the core presenting problems and procedures of the specialty	Analyze and interpret the findings from clinical skills to develop appropriate differential diagnoses and management plan for the patient	Compare and evaluate challenging, contradictory findings and develop expanded differential diagnoses and management plan

6.5 Academic Activities

6.5.1 General principles

- a) Teaching will contain both:
 - i. Structured didactic-based component, and
 - ii. Practice-based component.
- b) Efforts should be directed to enhance residents toward more responsibility for self-directed learning.
- c) Formal training time will include the following formal teaching activities:
 - i. Universal topics.
 - ii. Core specialty topics.
- d) Formal training time should be supplemented by other practice-based learning (PBL) such as:
 - i. Morning report or case presentations
 - ii. Journal clubs
 - iii. Continuous professional activities (CPD) relevant to specialty

6.5.2 Study Plan Overview

➤ Junior level (Years 1 and 2)

- Junior level continues for the first two years of the program. It is divided into four 6-month educational modules, which can be described as:
 - Module I: First 6-month period of the first year
 - Module II: Second 6-month period of the first year
 - Module III: First 6-month period of the second year
 - Module IV: Second 6-month period of the second year
- Each junior resident will be a fulltime working therapist (40 hours/week) throughout the two-year duration of junior level and be involved in patient care practices during all working hours, except for the hours that the resident is participating in classroom/lab training.
- Each junior resident will be evaluating and providing interventions for patients with musculoskeletal disorders, with emphasis on peripheral joints musculoskeletal conditions.

- Each junior resident will receive a 1-hour period of 1:1 clinical supervision while treating patients per day provided by experienced clinical supervisors from each training center.
- Each junior resident will enroll in an intensive didactic education including 6 classroom/lab training courses/seminars that are distributed over the four modules of the junior level.
- Each junior resident will receive two 6-hour clinical performance evaluations while evaluating and treating patients each Module (four evaluations / year). These performance evaluations will take place during the scheduled clinical supervision periods and performed approximately during week numbers 10 to 12 (end of the first three-month round) as well as during week numbers 20 – 22 (end of the second three-month round).
- Each junior resident will provide 4 periods of clinical supervision for physical therapy interns during modules 3 and 4 of the program and be evaluated using the Clinical Faculty Evaluation Form (Appendix N). A feedback period will consist of 4 weeks of clinical supervision/mentorship (2H/week) provided to the same intern.
- Each junior resident shall submit a research proposal by the end of the first year that should be conducted and completed before graduation (end of third year).
- Each junior resident will participate in a case study project that includes 1) pre-operative care and counseling, 2) observation of surgical procedures, and 3) post-operative physical therapy, for 8 or more of the surgical condition categories as listed below - at least one from each category:
 - i. Cervical foraminectomy or cervical fusion
 - ii. Rotator cuff repair or acromioplasty
 - iii. Carpal tunnel release or radial tunnel release or cubital tunnel release
 - iv. Lumbar microdiscectomy or lumbar fusion
 - v. Total hip arthroplasty or ORIF of a hip fracture
 - vi. Total knee arthroplasty
 - vii. Anterior cruciate reconstruction
 - viii. Menisectomy or meniscal repair
- The measure of completion for this project is, a case report for each of the 8 condition categories listed above. Each case report will contain:

- i. A copy of the patient's medical record of the episode of care
- ii. Description of the outcome measures that were used pre-operatively and post-operatively to assess the patient's progress over the episode of care
- iii. Description of the pre-operative management
- iv. Description of the surgical procedure
- v. Description of the post-operative management plan and procedures

Study plan for Junior level of the program

FSI: Foundations of Scientific Inquiry

MSK-LQ: Musculoskeletal Physical Therapy - Lower Quarter

MSK-UQ: Musculoskeletal Physical Therapy - Upper Quarter

Elements	1st year	
	Module I (6 months, 24 weeks)	Module II (6 months, 24 weeks)
Clinical Practice	• 1:1 clinical supervision (120 h) • Independent clinical practice (636 h)	• 1:1 supervision (120 h) • Independent clinical practice (636 h)
Didactic Education	• SI-R: 42 hours (6-day class) • FSI: 42 hours (6-day class)	• MSK_LQ: 42 hours (6-day class) • MSK-UQ: 42 hours (6-day class)

Elements	2nd year	
	Module III (6 months, 24 weeks)	Module IV (6 months, 24 weeks)
Clinical Practice	• 1:1 supervision (120 h) • Independent clinical practice (678 h)	• 1:1 supervision (120 h) • Independent clinical practice (678 h)
Mentorship	• 2 periods of clinical supervision of physical therapy interns	• 2 periods of clinical supervision of physical therapy interns
Didactic Education	• ROC: 42 hours (6-day class)	• SP-R: 28 hours (4-day class) • Case Study Presentation: 14 hours (2-day class)

ROC: Management and Rehabilitation of Post-operative Conditions

SI-R: Spine rehabilitation

SP-R: Sports rehabilitation

Elements	3 rd year	
	Module V (6 months, 24 weeks)	Module VI (6 months, 24 weeks)
Clinical Practice	• 1:1 clinical supervision (120 h) • Independent clinical practice (650 h)	• 1:1 supervision (120 h) • Independent clinical practice (594 h)
Mentorship	• Co-instructor for the junior level didactic classes in Module I (42 h) • 4 periods of clinical supervision of junior resident	• Co-instructor for the junior level didactic classes in Module II (84 h) • 4 periods of clinical supervision of junior resident
Didactic Education	• EC: 28 hours (4-day class)	• Musculoskeletal Imaging: 28 hours (4-day class) • Case Study Presentation: 14 hours (2-day class)

➤ Senior level (Year 3)

- Residents **MUST** fulfill all requirements of junior level before advancing to senior level of the program and ranked as Senior Resident.

- Senior level is a one-year curriculum divided into two 6-month educational modules, which can be described as:

Module V: First 6-month period of the third year

Module VI: Second 6-month period of the third year

- Each senior resident will be a fulltime working therapist (40 hours/week) and be involved in patient care activities during all working hours, except for the hours that the resident is participating in classroom/lab training.
- Each senior resident will be evaluating and providing interventions for patients with musculoskeletal disorders, with emphasis on spinal musculoskeletal conditions.
- Each senior resident will receive a 1-hour period of 1:1 clinical supervision while treating patients per day provided by experienced clinical supervisors from each training center.
- Each senior resident will participate in an intensive didactic education including 2 classroom/lab training courses/seminars that are distributed over the two modules of the program.
- Each senior resident will receive two 6-hour clinical performance evaluations while evaluating and treating patients each Module (four evaluations / year). These performance evaluations will take place during the scheduled clinical supervision periods and performed approximately during week numbers 10 to 12 as well as during week numbers 20 - 22.

- Each senior resident will provide 8 feedback periods for junior residents of the program and be evaluated using the Clinical Faculty Evaluation Form (Appendix N). A feedback period will consist of 4 weeks of clinical supervision/mentorship (2H/week) provided to the same resident.
- Each senior resident will act as a co-instructor for didactic classes provided for junior residents of the program and be evaluated using the Classroom/lab evaluation form (Appendix O).
- Each senior resident shall submit a research manuscript for publication in a scientific journal or present research data in a scientific conference.

Study plan for Senior level of the program

EC: Education and Counseling

6.5.3 Universal Topics

1. Universal topics are educational activities that are developed and aimed for all specialties (Appendix C).
2. Priority will be given to topics that are:
 - of high value
 - interdisciplinary and integrated
 - require expertise that might be beyond the availability of the local clinical training sites
3. Each universal topic will have a self-assessment at the end of the module.
4. As indicated in the “executive policies of continuous assessment and annual promotion” (please refer to www.scfhs.org), universal topics will be a mandatory component of the criteria for the annual promotion of residents from their current level of training to the subsequent level.

6.5.4 Core Specialty Topics

1. Core specialty topics are determined and approved by the specialty's scientific council aligned with the specialty defined competencies and teaching methods (Appendix D).
2. Core specialty topics will ensure that important clinical problems of the specialty are well taught.
3. Unlike Universal Topics, the format of core specialty topics is encouraged to be in interactive, case-based discussion format with pre-learning materials.
4. Whenever applicable, core specialty topics should include workshops, team-based learning (TBL) and simulation to develop skills in core procedures.
5. Learning objectives of each core topic need to be clearly defined.
6. Regional supervisory committees in coordination with academic and training affairs, program directors, and chief residents should work together to ensure planning and implementation of academic activities as indicated in the curriculum.
 - a) There should be an active involvement of the resident in the development and delivery of the topics under faculty supervision; the involvement might be in the form of: delivery, content development, research...etc.
7. Core specialty can be stratified into three categories based on the dominant learning domain: knowledge, skill, and attitude.

6.5.4.1 Knowledge

This section will address topics of knowledge nature that are related to “health”, “disease”, and “preventive” aspects of the specialty that are not generally covered under practice-based teaching (see appendix-D for Core specialty knowledge topics). Generic Problems/Issues that are relevant might include:

- a. Updated musculoskeletal guidelines
- b. Clinical reasoning
- c. Signs and symptoms of disease/injury
- d. Kinesiology/clinical biomechanics
- e. Red and yellow flags for different musculoskeletal disorders
- f. Pain theories and output mechanisms
- g. Problem-related updated scientific evidence

- h. Surgical and nonsurgical interventions and their implications
- i. Exercise physiology
- j. Manual therapy approaches and theories
- k. Motor control and motor learning
- l. Imaging studies
- m. Ergonomics
- n. Tissue healing and inflammation
- o. Theories and applications of orthosis and prosthesis

6.5.4.2 Skills

Procedures List

Procedures list should be divided into three categories (see appendix-F for procedure list):

1. Category I: Assumed competent

These are procedures assumed to be previously learned. Category I procedures might include history taking and recording, range of motion assessment and application of Electrophysical agents.

2. Category II: Foundational Core Specialty Procedures

These are the specialty foundational procedures that are required to be learned and practiced under supervision during the training. Expected completion for Category II procedures should be during junior level of training.

3. Category III: Mastery level procedures

These are core specialty procedures that residents are expected to be competent performing unsupervised at the end of training.

For Category II and III procedures, the following must be specified:

1. Number of procedures observed/participated, performed under supervision, and those certified by the supervisor to be performed with full competency.
2. Each resident needs to maintain a logbook documenting the procedures observed, performed under supervision, and performed independently.
3. It would be prudent to determine the minimum number of procedures to be performed before certified being competent and the minimum number needed to maintain competency.
4. Residents need to declare that he/she is competent in Category I procedures. If for any reason, a resident is not competent in any given Category I procedures he/she should be provided with extended supervised training.

6.5.4.3 Attitude

List of Behavioral/Communication Skills

This could be categorized into two:

a) Category I: Assumed or Universal

Category I includes previously learned behavioral and communication skills and skills that are universal in nature (e.g., clear provision of therapeutic instructions, proper communication with colleagues).

Category II: Core specialty

Category II includes specialty specific behavioral and communication skills (e.g. informed consent for a given procedure, patient education).

VI. Assessment of Learning

8.1 Purpose of Assessment

Evaluations and assessments throughout the program are conducted in accordance with the Commission's training and examination rules and regulations. Assessment will guide residents and trainers to achieve the targeted learning objectives. The assessment process is designed to assess the different learning domains of the program including the knowledge, skills and attitude domains. The assessment plan will include both formative and summative assessment. Formative assessment will be carried out throughout the duration of the program, as well as at the end of each round.

8.2 Formative Assessment

8.2.1 General Principles

Continuous assessment is distributed throughout the academic year aiming primarily to provide residents with effective feedback. Input from the overall formative assessment tools will be utilized at the end of the year to make the decision of promoting each individual resident from current-to-subsequent training level.

Residents should play an active role seeking feedback during their training. On the other hand, trainers are expected to provide timely and formative assessment. SCFHS will provide an e-portfolio system to enhance communication and analysis of data arising from formative assessment.

8.2.2 Formative Assessment Tools

Skills

Resident's skill development and mastering will be followed up and assessed onsite using the:

- Weekly Feedback Form. (Appendix J)
- Musculoskeletal Physical Therapy Procedures Performance Assessment Tool (Appendix G)
- Clinical Performance Evaluation Tool (Appendix N)
- Patient Demographic Data Form (Appendix L)
- Body Region Logbook (Appendix M)
- Research Activity

During the three years period of the program, each resident will receive a 6-hour clinical performance evaluation, while evaluating and treating patients, each round (four evaluations / year) using the Clinical Performance Evaluation Tool. These performance evaluations will occur during the scheduled clinical supervision periods. Different core skills will be evaluated using the Musculoskeletal Physical Therapy Procedures Performance Assessment Tool. Evaluations will be based on accomplishment of the minimum requirements for the procedures and clinical skills. Residents should keep record of the Patient Demographic Data Form and Body Region Log Book and submit it by the end of each round. Timely and specific feedback for the resident will be provided. Each resident should be involved in preparation and conduction of a research project. Successful performance criteria are illustrated in the Program Completion Requirements.

Knowledge

Resident's knowledge will be assessed using:

- Written exams for each didactic class
- Structured academic activities (assignments, presentations, discussions, case study report)
- Structured Oral Exams

Each core specialty didactic course will be evaluated using written exams in form of multiple choice and essay questions. Structured academic activities will be designed according to each core specialty course requirements. Structured oral exams will take place at the end of each clinical rotation. Questions will be designed in accordance with the subject of the clinical rotation. Evaluations will be based on accomplishment of the minimum requirements for the knowledge skills. Successful performance criteria are illustrated in the Program Completion Requirements.

Attitude

Resident's attitude will be assessed using:

- Musculoskeletal Physical Therapy Counseling and Exercise Education Assessment Tool (Appendix H)
- Clinical Faculty Evaluation Form (Appendix N)
- Classroom / Lab. Presentation Evaluation Form (Appendix O)
- Weekly Feedback Form. (Appendix J)

Residents' attitude will be evaluated using different evaluation forms. Core specialty attitudes, in terms of patient communication and effective education, will be evaluated using the Orthopaedic Physical Therapy Counseling and Exercise Education Assessment Tool. Residents' mentoring and skills will be evaluated using the Clinical Faculty Evaluation Form and the Classroom / Lab. Presentation Evaluation Form. Successful performance criteria are illustrated in the Program Completion Requirements.

8.2.3 Program Completion Requirements (Formative Assessment)

- **Junior level (years 1 and 2):** To successfully complete this level, the resident must achieve/complete the following:
 1. Participate in the following clinical education (Total = 3360 hours):
 - 252 hours of classroom/lab instruction
 - 480 hours of 1:1 clinical supervision
 - 2596 hours of unsupervised clinical practice
 - 32 hours of clinical supervision for physical therapy interns
 - A maximum of 10% discrepancy is allowed due to absence, permission to leave or any unexpected incidents to the trainee.
 2. Score a minimum of 65% in the written exam for the following courses:
 - Musculoskeletal Physical Therapy - Lower Quarter
 - Musculoskeletal Physical Therapy - Upper Quarter
 - Foundations of Scientific Inquiry
 - Management and Rehabilitation of Post-operative Conditions
 - Spine Rehabilitation
 - Sports Rehabilitation
 3. Score a minimum of 65% in the First Part Written Exam.
 4. Demonstrate satisfactory performance during the eight clinical examinations using the Musculoskeletal Physical Therapy Clinical Performance Evaluation Tool.

Passing Criteria for this clinical program is attaining a total of 580 percentage points on the eight Clinical Performance Evaluation. The Passing Criteria is based on the following performance expectations:

1 st and 2 nd Clinical Performance Evaluation	Satisfactory or Superior Performance on 60% of Practice Dimensions Observed
3 rd and 4 th Clinical Performance Evaluation	Satisfactory or Superior Performance on 70% of Practice Dimensions Observed
5 th and 6 th Clinical Performance Evaluation	Satisfactory or Superior Performance on 80% of Practice Dimensions Observed
7 th and 8 th Clinical Performance Evaluation	Satisfactory or Superior Performance on 80% of Practice Dimensions Observed

Attaining a Cumulative Total for the first six Clinical Performance Evaluations of less than 420 percentage points will place the resident on probation and result in the resident being required to add an additional round and a 9th Clinical Performance Evaluation to his/her clinical training program.

5. Satisfactorily perform 100% of the 127 procedures listed on the Musculoskeletal Physical Therapy Procedures Performance Assessment Tool. In addition, all unsatisfactory performance scores will need to have a Satisfactory or Superior performance score recorded on the same procedure at a later date.
 6. Score “consistently” on 7 out of 10 categories on the Clinical Faculty Evaluation Form for 4 different feedback periods on the feedback that the physical therapy interns provide for the junior resident. A feedback period will consist of 4 weeks (2 hours per week) of clinical supervision/mentorship provided to the same intern. The minimal satisfactory performance criteria for the junior resident are “consistently” to be checked on at least 70% of the categories on the sum of the four (4) Clinical Faculty Evaluation Forms over four (4) different clinical feedback periods.
 7. Submit completed reports for eight (8) different case study condition categories.
 8. Submit a research proposal to be conducted during Senior level of the program.
 9. Maintain and submit the “Body Region Log” (Appendix M) and complete the “Patient Demographic Data” (Appendix L).
- **Senior level (year 3):** To successfully complete this program, the resident must achieve/complete the following:
 1. Participate in the following clinical education (Total = 1680 hours):
 - 70 hours of classroom/lab instruction
 - 240 hours of 1:1 clinical supervision
 - 1180 hours of unsupervised clinical practice
 - 126 hours as an instructor of continuing education seminars for physical therapists
 - 64 hours of clinical supervision for junior residents
 - A maximum of 10% discrepancy is allowed due to absence, permission to leave or any unexpected incidents to the trainee
 2. Score a minimum of 65% in the written exam for the following courses:
 - Education and Counseling for Patients with Neck and Back Pain
 - Musculoskeletal Imaging
 3. Demonstrate satisfactory performance during the four clinical examinations using the Musculoskeletal Physical Therapy Clinical Performance Evaluation Tool.

Passing Criteria for this clinical program is attaining a total of 330 percentage points on the four Clinical Performance Evaluations. The Passing Criteria is based on the

1st and 2nd Clinical Performance Evaluation	Satisfactory or Superior Performance on 80% of Practice Dimensions Observed
3rd and 4th Clinical Performance Evaluation	Satisfactory or Superior Performance on 85% of Practice Dimensions Observed

following performance expectations:

Attaining a Cumulative Total for the first three Clinical Performance Evaluations of less than 245 percentage points will place the resident on probation and result in the resident being required to add an additional clinical round and a 5th Clinical Performance Evaluation to his/her clinical training program.

4. Satisfactorily perform 100% of the 48 procedures listed on the Musculoskeletal Physical Therapy Counseling and Exercise Education Assessment Tool. In addition, all unsatisfactory performance scores will need to have a Satisfactory or Superior performance score recorded on the same procedure at a later date.
5. Demonstrate 70% or better inter-rater reliability with clinical faculty members on grading of a junior resident's Clinical Performance Evaluation for 3 separate evaluation periods. The reliability will be assessed by comparing the consistency of the observed practice dimensions selected by the clinical faculty versus the fellow; as well as the judgments on the performance (unsatisfactory vs. satisfactory/superior) of the resident on each of the selected practice dimensions.
6. Score "consistently" on 7 out of 10 categories on the Clinical Faculty Evaluation Form for 8 different feedback periods on the feedback that the junior resident provides for the senior resident. A feedback period will consist of 4 weeks (2 hours per week) of clinical supervision/mentorship provided to the same resident. The minimal satisfactory performance criteria for the senior resident are "consistency" to be checked on at least 70% of the categories on the sum of the 8 Clinical Faculty Evaluation Forms over 8 different clinical feedback periods.
7. Score of "consistently" on 7 out of 10 categories on the Classroom/Lab Evaluation Form for 4 different feedback periods. A Classroom/Lab Evaluation Form will be given to participants following completion of Didactic classes for junior residents or third-year senior residents. The minimal satisfactory performance criterion for the resident is "consistency" to be checked on at least 70% of the categories on the sum of the 4 Classroom/Lab Evaluation Forms from 4 different seminars.
8. Submit a research paper manuscript for publication in a scientific journal or present research data in a scientific conference.
9. Maintain and submit the "New Patient Log" (Appendix K) and complete the "Patient Demographic Data" (Appendix L).

8.3 Summative Assessment

8.3.1 First Part Examination

It is a written examination conducted in multiple choice question formats, is held at least once a year to promote resident from “junior” to “senior” level of training. The examination will focus on applied basic science knowledge related to the musculoskeletal Physical Therapy. The number of exam items, eligibility, and passing score will be in accordance with the Commission’s training and examination rules and regulations.

Examination details and blueprints will be published on the commission website:

www.scfhs.org.sa

Blueprint of first part exam for the Saudi Board for Musculoskeletal Physical Therapy is shown in the following table (numbers in each cell represent number of exam questions):

Contents							
Categories	Sections	Proportions	Basic medical knowledge	Assessment	Intervention	Diagnosis	Outcomes
Spine 35%	Cervical region	12%	2	3	3	2	2
	Thoracic region	5%	0	1	2	1	1
	Lumbar region	18%	4	4	5	3	2
Upper Quadrant 20%	Shoulder girdle	12%	3	3	2	2	2
	Elbow, wrist and hand	8%	1	2	2	1	2
Lower Quadrant 30%	Pelvis and hip	8%	1	2	2	2	1
	knee	15%	2	4	4	3	2
	Foot and ankle	7%	1	2	2	1	1
Scholarly Activities and others 15%	Critical Inquiry	7%	2	2	2	0	1
	Professional rules, values and responsibilities	8%	3	3	2	0	0
	Total	100%	19	26	26	15	14

8.3.2 Final Specialty Examinations

Final specialty examination is the summative assessment component that grant residents the specialty's certification. It has two elements:

- Final written exam: in order to be eligible for this exam, residents are required to have "Certification of Training-Completion".
- Final clinical/practical exam: Residents will be required to pass the final written exam in order to be eligible to set for the final clinical/practical exam.

Blueprint of the final written exam is shown in the following table (numbers in each cell represent number of exam questions):

Contents							
Categories	Sections	Proportions	Basic medical knowledge	Assessment	Intervention	Diagnosis	Outcomes
Spine 40%	Cervical region	14%	2	4	3	3	2
	Thoracic region	6%	0	2	2	1	1
	Lumbar region	20%	2	5	5	5	3
Upper Quadrant 20%	Shoulder girdle	12%	3	3	2	2	2
	Elbow, wrist and hand	8%	1	2	2	1	2
Lower Quadrant 30%	Pelvis and hip	8%	1	2	2	2	1
	knee	15%	2	4	4	3	2
	Foot and ankle	7%	1	2	2	1	1
Scholarly Activities and others 10%	Critical Inquiry	5%	1	1	2	0	1
	Professional rules, values and responsibilities	5%	1	2	2	0	0
	Total	100%	14	27	26	18	15

Blueprint of the final clinical/practical exams are shown in the following table:

		DIMENSIONS OF CARE				
		Health Promotion & Illness Prevention 1±1 Station(s)	Acute 5±1 Station(s)	Chronic 7±1 Station(s)	Psychological Aspects 1±1 Station(s)	# Station(s)
DOMAINS FOR INTEGRATED CLINICAL ENCOUNTER	Patient Care 7±1 Station(s)	1	2	4	1	8
	Patient Safety & Procedural Skills 1±1 Station(s)		2	1		3
	Communication & Interpersonal Skills 2±1 Station(s)		1	1	1	3
	Professional Behaviors 0±1 Station(s)			1		1
	Total Stations	1	5	7	2	15

8.3.3 Certification of Training-Completion

In order to be eligible to set for final specialty examinations, each resident is required to obtain “Certification of Training-Completion”. Based on the training bylaws and executive policy (please refer to www.scfhs.org), residents will be granted “Certification of Training-Completion” once the following criteria is fulfilled:

- Successful completion of all training rotations.
- Completion of training and educational requirements as outlined in the Program Completion Requirements shown above.
- Clearance from SCFHS training affairs, that ensures compliance with tuitions payment and completion of universal topics.

“Certification of Training-Completion” will be issued and approved by the local supervisory committee or its equivalent according to SCFHS policies.

Resident evaluations of the program

Training program evaluations are part of the PSMCHS and SCFHS commitment to excellence in teaching and learning. Program evaluation guides training improvement by evaluating the effectiveness of the educational program in an ongoing manner using residents' evaluations. Residents are asked to complete an evaluation form for each completed rotation, which the director reviews (Appendix P). The residency coordinator tabulates the responses and comments, which faculty discuss at the educational retreat. In this way, program directors and scientific council carefully weigh the program's overall effectiveness at meeting goals and objectives, as well as each rotation's effectiveness and each institution's contribution to the program.

IX. Appendices

- A. Junior-level Competency-Metrix
- B. Senior-level Competency-Metrix
- C. Universal Topics Modules
- D. Core Specialty Topics Modules
- E. Top Conditions and procedures in the Specialty
- F. List of Core Skills and Procedures
- G. Musculoskeletal Physical Therapy Procedures Performance Assessment Tool
- H. Musculoskeletal Physical Therapy Counseling and Exercise Education Assessment Tool
- I. List of Formative Assessment Tools
- J. DAILY/WEEKLY FEEDBACK FORM
- K. Clinical Performance Evaluation Tool
- L. Patient Demographic Data
- M. Body Regions Log
- N. Clinical Faculty Evaluation Form
- O. CLASSROOM / LAB PRESENTATION EVALUATION FORM
- P. PROGRAM EVALUATION FORM
- Q. Glossary

Appendix-A

Junior-level Competency-Matrix: to map Competency, learning domain and Milestones

Training Year level	Competency-Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Professional Activities Related to Musculoskeletal Rehabilitation					
		Conducting a comprehensive patient clinical assessment	Effective management plan for musculoskeletal disorders	Reasonable justification for clinical decisions	Appropriate application of treatment modalities	Efficient patient communication	Adherence to policies for proper collaboration, documentation and reporting
Junior	Clinical Reasoning	Identifies relevant and appropriate information when making clinical judgments. K, S, A	Establishes/modifies the plan of care of simple conditions and situations to ensure care is efficient, patient-focused and value based. K, S	Presents a rationale for simple clinical decisions, and gives consideration to patient needs or values. K, S, A	Applies evidence-based practice, considers patient perspective and the value of service, and integrates these into practice in all simple situations and some complex situations. K, S	Identifies components of a biopsychosocial model in clinical reasoning. K, A	
	Knowledge for Specialty Practice		Identifies gaps in advanced knowledge of foundational and clinical sciences for clinical practice. K, S	Demonstrates the process of critical inquiry principles and methods with feedback in the management of patients within the musculoskeletal rehabilitation. K, S, A	Incorporates, with feedback, new technology, skills, and understanding of the art, science and ethics, applicable to the musculoskeletal rehabilitation. K, S		Writing, dictation, and presentation skills. K, S
	Professionalism		Describes rationale for the intent of local, regional, and national regulations. K, A	Recognize possible solutions to ethical issues in clinical practice and their potential impact on patient outcomes, public trust, and patient/therapist safety. K, A	Recognizes relevant resources within the specialty area that contribute to competency development. K, S, A	Demonstrates emerging characteristics of an effective leader and communicator. S, A	Interprofessional communication in terms of referring and receiving patient with musculoskeletal disorders. A

	Communication	Develops active listening and nonverbal skills with minimal feedback during anticipated situations. S, A		Develops strategies to adapt to diverse communication styles during patient and professional interactions. K, S, A	Develops strategies for self-reflection to enhance communication and facilitate expected outcomes. K, S, A	Explores and develops strategies for engaging in challenging encounters to negotiate positive outcomes. K, S, A	Demonstrates emerging effective communication strategies within interprofessional relationships in simple clinical situations. S, A
	Education		Explores available resources to design and implement effective management programs considering patient education. K, S		Explores and develops educational strategies in consideration of learner and setting characteristics. K, S, A	Identifies various methods to effectively assess the learner's level of comprehension. K, S	
	Systems-based Practice		Modifies treatment based on emerging data within the cost-versus-risk benefit framework for patient care. K, A	Modifies treatment based on emerging data within the cost-versus-risk benefit framework for patient care. K, A	Participates in systems-related quality improvement and safety initiatives critical to meeting the needs of the practice setting. K		Incorporates policies and procedures critical to meet the needs of the practice setting or broader system. K, A
	Patient Management	Performs a musculoskeletal examination and evaluation with feedback in simple and complex clinical situations to establish a diagnosis and prognosis. K, S	Establishes a plan of care that accurately predicts goal achievement, frequency, and duration of an episode of care for simple clinical situations. K, S		Performs musculoskeletal interventions and education with feedback in simple and complex clinical situations. K, S	Performs musculoskeletal interventions and education with feedback in simple and complex clinical situations. K, S	Requires feedback to generate documentation to justify an episode of care that is cost-effective and value-based. K, S, A

Appendix-B

Senior-level Competency-Matrix: to map Competency, learning domain and Milestones

Training Year level	Competency-Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Professional Activities Related to to Musculoskeletal Rehabilitation					
		Conducting a comprehensive patient clinical assessment	Effective management plan for musculoskeletal disorders	Reasonable justification for clinical decisions	Appropriate application of treatment modalities	Efficient patient communication	Mentorship for junior residents
Senior	Clinical Reasoning	Efficiently and strategically gathers, interprets, and synthesizes essential and accurate information from multiple resources to make more effective clinical judgments. K, S, A	Anticipates expected and unexpected outcomes of the patient's current clinical condition across varied practice settings or diverse patient populations. K, S	Presents a logical rationale for all clinical decisions while incorporating patient's needs and values, within the context of ethical clinical practice. K, S, A	Evaluates evidence-based practice, for all simple and complex situations, and effectively reflects upon the application of evidence across all situations and modifies accordingly. K, S	Integrates into patient care a comprehensive biopsychosocial model in clinical reasoning. K, A	Supports, encourages and facilitates clinical decisions of junior residents justified by plausible clinical reasoning. S, A
	Knowledge for Specialty Practice		Integrates comprehensive knowledge in foundational and clinical sciences, within the musculoskeletal rehabilitation across diverse patient populations or practice settings. K, S	Integrates critical inquiry principles and methods in the management of patients with musculoskeletal disorders. K, S, A	Discriminates the efficiency, efficacy, and value of new technology, skills, and understanding of the art, science, and ethics applicable to the musculoskeletal rehabilitation. K, S		Guides junior residents, colleagues and patients to reliable sources for relevant professional and educational information. K, A
	Professionalism		Integrates knowledge of laws and regulations to optimize broad patient outcomes and advocate for patients to provide comprehensive level of care. K, S	Seeks optimal resolution of ethical issues in clinical situations to promote positive outcomes and public trust. K, S, A	Integrates resources within a specialty area and identifies areas of involvement relevant to professional association(s) and continued competence. K, S	Integrates effective communication skills to modify patient beliefs. K, S, A	Exhibits professional responsibilities of a musculoskeletal practitioner, which include personal well-being. A

	Communication	Integrates active listening and effective nonverbal skills to facilitate reciprocal communication patterns during both anticipated and unanticipated situations. S, A		Seamlessly and intuitively adapts to diverse communication styles during both anticipated and unanticipated patient and professional interactions. K, S, A	Integrates self-reflection to enhance communication strategies and facilitate expected outcomes across multiple settings and in complex situations. S, A	Discriminates and incorporates appropriate strategies to engage in challenging encounters with patients and others to negotiate positive outcomes. S, A	Serves as a role model and is able to mentor others to develop communication competencies across different clinical settings and in variable situations. S, A
	Education		Adapts appropriate resources to design, deliver, and evaluate instructional activities. K, S		Integrates appropriate educational strategies that are congruent with the setting and needs of the learner, inclusive of technologies. S, A	Assesses the learner's comprehension and demonstrates the ability to integrate the findings into educational activities. S, A	Effectively delivers comprehensive content to improve knowledge and skills of residents in clinical or academic settings. K, S, A
	Systems-based Practice		Analyzes societal and patient needs to consistently provide cost-effective and efficient patient care. K, A	Analyzes societal and patient needs to consistently provide cost-effective and efficient patient care. K, A	Integrates knowledge of systems-related quality improvement and safety initiatives to enhance patient, organizational, and societal outcomes. K		
	Patient Management	Accurately, comprehensively, and efficiently performs a musculoskeletal examination and evaluation in simple and complex clinical situations to establish a diagnosis and prognosis. K, S	Establishes a cost-effective and value-based plan of care that accurately predicts goal achievement, frequency, and duration of an episode of care for simple and complex clinical situations. K, S		Accurately, comprehensively, and efficiently chooses and modifies interventions and education to guide patient management for successful patient outcomes. K, S	Accurately, comprehensively, and efficiently chooses and modifies interventions and education to guide patient management for successful patient outcomes. K, S	Is able to mentor others to develop patient management competencies across different clinical settings for successful patient outcomes. S, A

Universal Topics Modules

Intent:

These are high value, interdisciplinary topics of outmost importance to the resident. The reason for delivering the topics centrally is to ensure that every resident receives high quality teaching and develops essential core knowledge. These topics are common to all specialties.

Topics included here meet one or more of the following criteria:

- Impactful: these are topics that are common or life-threatening
- Interdisciplinary: hence topics that are difficult to teach by a single discipline
- Orphan: topics that are poorly represented in the undergraduate curriculum
- Practical: topics that residents will encounter in hospital practice

Development and Delivery:

Universal topics will be developed and delivered centrally by the Commission through e-learning platform. A set of preliminary learning outcomes for each topic will be developed. Content experts, in collaboration with the central team, may modify the learning outcomes. These topics will be didactic in nature with focus on practical aspects of care. These topics will have more content-heavy as compared to workshops and other face-to-face interactive session planned.

The suggested duration of each topic is 1.30 hours.

Assessment:

The topics will be delivered in a modular fashion. At the end of each Learning Unit there will be on-line formative assessment. After completion of all topics there will be a combined summative assessment in the form of context-rich MCQ. All residents must attain minimum competency in the summative assessment. Alternatively, these topics can be assessed in a summative manner along with specialty examination.

Some ideas: may include case studies, high quality images, worked examples of prescribing drugs in disease states, and internet resources.

Module 1: Introduction

1. Safe drug prescribing
2. Hospital acquired infections
3. Sepsis; SIRS; DIVC
4. Antibiotic stewardship
5. Blood transfusion

Safe drug prescribing: At the end of the Learning Unit, you should be able to

- a) Recognize importance of safe drug prescribing in the healthcare
- b) Describe the various Adverse Drug Reactions with examples of commonly prescribed drugs that can cause such reactions
- c) Apply principles of drug-drug interactions, drug-disease interactions, and drug-food interactions into common situations
- d) Apply principles of prescribing drugs in special situations such as renal failure and liver failure
- e) Apply principles of prescribing drugs in elderly, pediatrics age group patients, and in pregnancy and lactation
- f) Promote evidence-based cost-effective prescribing
- g) Discuss ethical and legal framework governing safe-drug prescribing in Saudi Arabia

Hospital Acquired Infections (HAI): At the end of the Learning Unit, you should be able to

- a) Discuss the epidemiology of HAI with special reference to HAI in Saudi Arabia
- b) Recognize HAI as one of the major emerging threats in healthcare
- c) Identify the common sources and set-ups of HAI
- d) Describe the risk factors of common HAIs such as ventilator associated pneumonia, MRSA, CLABSI, Vancomycin Resistant Enterococcus (VRE)
- e) Identify the role of healthcare workers in the prevention of HAI

- f) Determine appropriate pharmacological (e.g., selected antibiotic) and non-pharmacological (e.g., removal of indwelling catheter) measures in the treatment of HAI
- g) Propose a plan to prevent HAI in the workplace

Sepsis, SIRS, DIVC: At the end of the Learning Unit, you should be able to

- a) Explain the pathogenesis of sepsis, SIRS, and DIVC
- b) Identify patient-related and non-patient related predisposing factors of sepsis, SIRS, and DIVC
- c) Recognize a patient at risk of developing sepsis, SIRS, and DIVC
- d) Describe the complications of sepsis, SIRS, and DIVC
- e) Apply the principles of management of patients with sepsis, SIRS, and DIVC
- f) Describe the prognosis of sepsis, SIRS, and DIVC

Antibiotic Stewardship: At the end of the Learning Unit, you should be able to:

- a) Recognize antibiotic resistance as one of the most pressing public health threats globally
- b) Describe the mechanism of antibiotic resistance
- c) Determine the appropriate and inappropriate use of antibiotics
- d) Develop a plan for safe and proper antibiotic usage including right indications, duration, types of antibiotic, and discontinuation.
- e) Appraise of the local guidelines in the prevention of antibiotic resistance

Blood Transfusion: At the end of the Learning Unit, you should be able to:

- a) Review the different components of blood products available for transfusion
- b) Recognize the indications and contraindications of blood product transfusion
- c) Discuss the benefits, risks, and alternative to transfusion
- d) Undertake consent for specific blood product transfusion
- e) Perform steps necessary for safe transfusion
- f) Develop understanding of special precautions and procedures necessary during massive transfusions
- g) Recognize transfusion associated reactions and provide immediate management

Module 2: Cancer

1. Principles of management of cancer
2. Side effects of chemotherapy and radiation therapy
3. Oncologic emergencies
4. Cancer prevention
5. Surveillance Follow-up of cancer patients

Principles of Management of Cancer: At the end of the Learning Unit, you should be able to:

- a) Discuss the basic principles of staging and grading of cancers
- b) Enumerate the basic principles, (e.g., indications, mechanism, types) of
 - a. Cancer surgery
 - b. Chemotherapy
 - c. Radiotherapy
 - d. Immunotherapy
 - e. Hormone therapy

Side Effects of Chemotherapy and Radiation Therapy: At the end of the Learning Unit, you should be able to:

- a) Describe important side effects (e.g., frequent or life or organ threatening) of common chemotherapy drugs
- b) Explain principles of monitoring of side-effects in a patient undergoing chemotherapy
- c) Describe measures (pharmacological and non-pharmacological) available to ameliorate side-effects of commonly prescribed chemotherapy drugs
- d) Describe important (e.g., common and life-threatening) side effects of radiation therapy
- e) Describe measures (pharmacological and non-pharmacological) available to ameliorate side-effects of radiotherapy

Oncologic Emergencies: At the end of the Learning Unit, you should be able to:

- a) Enumerate important oncologic emergencies encountered both in hospital and ambulatory settings
- b) Discuss the pathogenesis of important oncologic emergencies
- c) Recognize the oncologic emergencies
- d) Institute immediate measures when treating a patient with oncologic emergencies
- e) Counsel the patients in anticipatory manner to recognize and prevent oncologic emergencies

Cancer Prevention: At the end of Learning Unit, you should be able to:

- a) Conclude that many major cancers are preventable
- b) Identify smoking prevention and life-style modifications are major preventable measures
- c) Recognize cancers that are preventable
- d) Discuss the major cancer prevention strategies at the individual as well as national level
- e) Counsel patients and families in proactive manner regarding cancer prevention including screening

Surveillance and Follow-Up of Cancer Patients: At the end of the Learning Unit, you should be able to:

- a) Describe the principles of surveillance and follow-up of patients with cancers
- b) Enumerate the surveillance and follow-up plan for common forms of cancer
- c) Describe the role of primary care physicians, family physicians, and similar others in the surveillance and follow-up of cancer patients
- d) Liaise with oncologists to provide surveillance and follow-up for patients with cancer

Module 3: Diabetes and Metabolic Disorders

- 1. Recognition and management of diabetic emergencies
- 2. Management of diabetic complications
- 3. Comorbidities of obesity
- 4. Abnormal ECG

Recognition and Management of Diabetic Emergencies: At the end of the Learning Unit, you should be able to:

- a) Describe pathogenesis of common diabetic emergencies including their complications
- b) Identify risk factors and groups of patients vulnerable to such emergencies
- c) Recognize a patient presenting with diabetic emergencies
- d) Institute immediate management
- e) Refer the patient to appropriate next level of care
- f) Counsel patient and families to prevent such emergencies

Management of Diabetic Complications: At the end of the Learning Unit, you should be able to:

- a) Describe the pathogenesis of important complications of Type 2 diabetes mellitus
- b) Screen patients for such complications
- c) Provide preventive measures for such complications
- d) Treat such complications
- e) Counsel patients and families with special emphasis on prevention

Comorbidities of Obesity: At the end of the Learning Unit, you should be able to:

- a) Screen patients for presence of common and important comorbidities of obesity
- b) Manage obesity related comorbidities
- c) Provide dietary and life-style advice for prevention and management of obesity

Abnormal ECG: At the end of the Learning Unit, you should be able to:

- a) Recognize common and important ECG abnormalities
- b) Institute immediate management, if necessary

Module 4: Medical and Surgical Emergencies

1. Management of acute chest pain
2. Management of acute breathlessness
3. Management of altered sensorium
4. Management of hypotension and hypertension
5. Management of upper GI bleeding
6. Management of lower GI bleeding

For all the above, following learning outcomes apply.

At the end of the Learning Unit, you should be able to:

- a) Triage and categorize patients
- b) Identify patients who need prompt medical and surgical attention
- c) Generate preliminary diagnoses based history and physical examination
- d) Order and interpret urgent investigations
- e) Provide appropriate immediate management to patients
- f) Refer the patients to next level of care, if needed

Module 5: Acute Care

1. Pre-operative assessment
2. Post-operative care
3. Acute pain management
4. Chronic pain management
5. Management of fluid in the hospitalized patient
6. Management of electrolyte imbalances

Pre-Operative Assessment: At the end of the Learning Unit, you should be able to:

- a) Describe the basic principles of pre-operative assessment
- b) Perform pre-operative assessment in uncomplicated patient with special emphasis on:
 - i. General health assessment
 - ii. Cardiorespiratory assessment
 - iii. Medications and medical device assessment
 - iv. Drug allergy
 - v. Pain relief needs
- c) Categorize patients according to risks

Post-Operative Care: At the end of the Learning Unit, you should be able to:

- a) Devise a post-operative care plan including monitoring of vitals, pain management, fluid management, medications, and laboratory investigations
- b) Hand-over the patients properly to appropriate facilities
- c) Describe the process of post-operative recovery in a patient
- d) Identify common post-operative complications
- e) Monitor patients for possible post-operative complications
- f) Institute immediate management for post-operative complications

Acute Pain Management: At the end of the Learning Unit, you should be able to:

- a) Review the physiological basis of pain perception
- b) Proactively identify patients who might be in acute pain
- c) Assess a patient with acute pain
- d) Apply various pharmacological and non-pharmacological modalities available for acute pain management
- e) Provide adequate pain relief for uncomplicated patients with acute pain
- f) Identify and refer patients with acute pain who can be benefitted from specialized pain services

Chronic Pain Management: At the end of the Learning Unit, you should be able to:

- a) Review bio-psychosocial and physiological basis of chronic pain perception
- b) Discuss various pharmacological and non-pharmacological options available for chronic pain management
- c) Provide adequate pain relief for uncomplicated patients with chronic pain
- d) Identify and refer patients with chronic pain who can be benefitted from specialized pain services

Management of Fluid in Hospitalized Patients: At the end of the Learning Unit, you should be able to:

- a) Review physiological basis of water balance in the body
- b) Assess a patient for his/her hydration status
- c) Recognize a patient with over and under hydration
- d) Order fluid therapy (oral as well as intravenous) for a hospitalized patient
- e) Monitor fluid status and response to therapy through history, physical examination and selected laboratory investigations

Management of Acid-Base Electrolyte Imbalances: At the end of the Learning Unit, you should be able to:

- a) Review physiological basis of electrolyte and acid-base balance in the body
- b) Identify diseases and conditions that are likely to cause or associated with acid/base and electrolyte imbalances
- c) Correct electrolyte and acid-base imbalances
- d) Perform careful calculations, checks, and other safety measures while correcting acid-base and electrolyte imbalances
- e) Monitor response to therapy through history, physical examination and selected laboratory investigations

Module 6: Frail Elderly

1. Assessment of frail elderly
2. Mini-mental state examination
3. Prescribing drugs in the elderly
4. Care of the elderly

Assessment of Frail Elderly: At the of the Learning Unit, you should be able to

- a) Enumerate the differences and similarities between comprehensive assessment elderly and assessment of other patients
- b) Perform comprehensive assessment, in conjunction with other members of health care team, of a frail elderly with special emphasis on social factors, functional status, quality of life, diet and nutrition, and medication history
- c) Develop a problem list based on the assessment of the elderly

Mini-Mental State Examination: At the end of the Learning Unit, you should be able to

- a) Review the appropriate usages, advantages, and potential pitfalls of Mini-MSE
- b) Identify patients suitable for mini-MSE
- c) Screen patients for cognitive impairment through mini-MSE

Prescribing Drugs in the Elderly: At the end of the Learning Unit, you should be able to

- a) Discuss the principles of prescribing in the elderly
- b) Recognize poly-pharmacy, prescribing cascade, inappropriate dosages, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in the elderly
- c) Describe the physiological and functional declines in the elderly that contribute to increased drug related adverse events
- d) Discuss drug-drug interactions and drug-disease interactions among the elderly
- e) Familiar with Beers criteria
- f) Develop rational prescribing habit for the elderly
- g) Counsel elderly patient and family on the safe medication usage

Care of the Elderly: At the end of the Learning Unit, you should be able to:

- a) Describe the factors that need to be considered while planning care for the elderly
- b) Recognize the needs and well-being of care-givers
- c) Identify the local and community resources available in the care of the elderly
- d) Develop, with inputs from other health care professionals, individualized care plan for an elderly patient

Module 7: Ethics and Healthcare

1. Occupational hazards of HCW
2. Evidence-based approach to smoking cessation
3. Patient advocacy
4. Ethical issues: transplantation/organ harvesting; withdrawal of care
5. Ethical issues: treatment refusal; patient autonomy
6. Role of doctors in death and dying

Occupation Hazards of Health Care Workers (HCW): At the end of the Learning Unit, you

should be able to:

- a) Recognize common sources and risk factors of occupational hazards among the HCW
- b) Describe common occupational hazards in the workplace
- c) Develop familiarity with legal and regulatory frameworks governing occupational hazards among the HCW
- d) Develop a proactive attitude to promote workplace safety
- e) Protect yourself and colleagues against potential occupational hazards in the workplace

Evidence Based Approach to Smoking Cessation: At the end of the Learning Unit, you

should be able to:

- a) Describe the epidemiology of smoking and tobacco usages in Saudi Arabia
- b) Review the effects of smoking on the smoker and family members
- c) Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence among special population groups such as pregnant ladies, adolescent, and patients with psychiatric disorders

Patient Advocacy: At the end of the Learning Unit, you should be able to:

- a) Define patient advocacy
- b) Recognize patient advocacy as a core value governing medical practice
- c) Describe the role of patient advocates in the care of the patients
- d) Develop a positive attitude towards patient advocacy
- e) Be a patient advocate in conflicting situations
- f) Be familiar with local and national patient advocacy groups

Ethical issues: transplantation/organ harvesting; withdrawal of care: At the end of the

Learning Unit, you should be able to:

- a) Apply key ethical and religious principles governing organ transplantation and withdrawal of care
- b) Be familiar with the legal and regulatory guidelines regarding organ transplantation and withdrawal of care
- c) Counsel patients and families in the light of applicable ethical and religious principles
- d) Guide patients and families to make informed decision

Ethical issues: treatment refusal; patient autonomy: At the end of the Learning Unit, you

should be able to:

- a) Predict situations where a patient or family is likely to decline prescribed treatment
- b) Describe the concept of 'rational adult' in the context of patient autonomy and treatment refusal
- c) Analyze key ethical, moral, and regulatory dilemmas in treatment refusal
- d) Recognize the importance of patient autonomy in the decision making process
- e) Counsel patients and families declining medical treatment in the light of best interest of patients

Role of Doctors in Death and Dying: At the end of the Learning Unit, you should be able to:

- a) Recognize the important role a doctor can play during a dying process
- b) Provide emotional as well as physical care to a dying patient and family
- c) Provide appropriate pain management in a dying patient
- d) Identify suitable patients and refer to patient to palliative care services

Appendix-D

Core Specialty Topics

Intent:

These topics are designed to ensure high quality education and essential core skills development. The topics are selected to fulfill the knowledge and skill requirements for a competent musculoskeletal physical therapy specialist.

Topics included here meet one or more of the following criteria:

- **Impactful:** These topics are common in daily clinical practice.
- **Specialized:** focus primarily on musculoskeletal rehabilitation knowledge and skills.
- **Advanced:** topics that are superficially represented in the undergraduate curriculum
- **Practical:** conditions that residents will encounter in a clinical practice setting.

Development and Delivery:

Core specialty topics will be developed and delivered by the PSMCHS, in collaboration with the SCHS. A set of preliminary learning outcomes for each topic will be developed.

These topics will be didactic in nature with focus on practical aspects of care. Delivery mode will be primarily face-to-face interactive lectures and workshops, in addition to distant-learning using reading materials.

The topics will be distributed over the duration of the program. These topics will encompass didactic classes and hands-on skill training. The duration of each topic will vary depending on the allocated days. However, it ranges between 2 – 6 days. Each topic will be conducted in one session or divided into two or more sessions depending on its duration.

	Junior Level		Senior Level
	1 st year	2 nd year	3 rd year
Topics	• SI-R: 42 hours (6-day class) • FSI: 42 hours (6-day class) • OLQ: 42 hours (6-day class) • OUQ: 42 hours (6-day class)	• ROC: 42 hours (6-day class) • SP-R: 28 hours (4-day class) • Case Study Presentation: 14 hours (2-day class)	• EC: 28 hours (4-day class) • Musculoskeletal Imaging: 28 hours (4-day class) • Case Study Presentation: 14 hours (2-day class)

Assessment:

At the end of each topic, a summative assessment will be conducted in the form of context-rich MCQ. Furthermore, formative assessment in the form of presentations, assignments, Group discussion and brain storming activities will take place throughout the course.

Core topics distribution plan

EC: Education and Counseling

FSI: Foundations of Scientific Inquiry

MSK_LQ: Musculoskeletal Physical Therapy - Lower Quarter

MSK_UQ: Musculoskeletal Physical Therapy - Upper Quarter

ROC: Management and Rehabilitation of Post-operative Conditions

SI-R: Spine rehabilitation

SP-R: Sports rehabilitation

Detailed Clinical training and study plan

A. Junior Level:

1. Clinical Practice and Supervision

1. Experienced clinical supervisors from each training center (in collaboration with faculty from PSMCHS) will provide 1:1 clinical supervision for the Junior Residents.
2. Each First-Year Junior Resident will receive a 1-hour period of 1:1 clinical supervision while treating patients per day for a total of 480 hours per resident during Junior level of the program.
3. Each second-Year Junior Resident will provide four 4-week periods (2 hours per week) of clinical supervision for physical therapy interns at the clinical training center.

2. Core Specialty Topics

1. Spine Rehabilitation

At the completion of this course, the residents should be able to:

- Utilize a systematic approach to analyze common functional movements and implement corrective exercises and reeducation procedures for management of pelvic girdle, low back, thorax, and neck disorders
- Complete a reliable mobility examination of the spine and implement at least three manipulative/mobilizing procedures for each region of the spine, along with the reasoning of "when," "who" and "why to" perform the manipulative procedure
- Interpret clinical findings of a patient to correctly classify spinal patients into one or more of the ICF-based diagnostic categories and implement the matched treatments associated with those impairment-based categories
- Employ effective clinical reasoning strategies to progress the patient during follow up treatments based upon the patient's response to treatment and emerging clinical findings
- Gain the knowledge, skills and ability to apply the highest level of evidence-based care (as represented in the Orthopaedic Section's ICF-based Clinical Practice Guidelines) for patients with neck, thorax, or low back musculoskeletal conditions
- Improve skills with movement analysis and movement reeducation for patients with neck and back pain with movement coordination impairments
- Improve patient education and counseling skills to provide the optimal interventions for patients with chronic neck and back pain

2. Foundations of Scientific Inquiry

At the completion of this course, the residents should be able to:

- Discuss the rationale for undertaking research in physical therapy.
- Determine the barriers to research in physical therapy and devise means to overcome the barriers to research in physical therapy.
- Develop an informed consent statement.
- Identify the potential risks to research subjects.
- Conduct a literature search using off- and online databases.
- Critically appraise evidence-based documents for reliability, validity, and clinical utility
- Design a clinical study using data mined from patient records during clinical practice
- Collect and analyze examination, diagnosis, and treatment outcome data on patients seen by the residents and clinical faculty of this clinical training program
- Submit and publish practice-based clinical outcome studies from data collected by the residents and clinical faculty of this clinical training program

3. Musculoskeletal Physical Therapy - Lower Quadrant

At the completion of this course, the residents should be able to:

- Discuss the role of the International Classification of Functioning as it relates to the physical therapy profession
- Recognize pelvic girdle, lumbar spine, hip, knee, ankle and foot anatomy as it relates to clinical practice
- Discuss the best available evidence behind pelvic girdle, lumbar spine, hip, knee, ankle and foot clinical examination and treatment
- Analyze standing, walking, bending and lifting-related activities, identifying normal versus abnormal functional movements and implement reeducation strategies to normalize movement coordination impairments
- Demonstrate a complete pelvic girdle, lumbar spine, hip, knee, ankle and foot examination
- Interpret pelvic girdle, lumbar spine, hip, knee, ankle and foot examination findings in order to come up with a logical treatment plan.

- Discuss strategies to identify the source of lower quarter somatic pain, considering published research pertaining to referred pain and radicular pain
- Demonstrate manual interventions to address pelvic girdle, lumbar spine, hip, knee, ankle and foot impairments
- Demonstrate therapeutic exercises used to prescribe a therapeutic exercise regimen aimed at normalizing common pelvic girdle, lumbar spine, hip, knee, ankle and foot region impairments
- Integrate concepts of lower quarter pain management in to physical therapy patient education strategies with the best available evidence.

4. Musculoskeletal Physical Therapy – Upper Quadrant

At the completion of this course, the residents should be able to:

- Recognize thorax, neck, shoulder, elbow, wrist and hand anatomy as it relates to clinical practice
- Discuss the best available evidence behind thorax, neck, shoulder, elbow, wrist and hand clinical examination and treatment
- Analyze respiration, turning the head, reaching, and grasping-related activities, identifying normal versus abnormal functional movements and implement reeducation strategies to normalize movement coordination impairments
- Demonstrate a complete thorax, neck, shoulder, elbow, wrist and hand examination
- Interpret thorax, neck, shoulder, elbow, wrist and hand examination findings in order to come up with a logical treatment plan.
- Discuss strategies to identify the source of upper quarter somatic pain, considering published research pertaining to referred pain and radicular pain
- Demonstrate manual interventions to address thorax, neck, shoulder, elbow, wrist and hand impairments
- Demonstrate therapeutic exercises used to prescribe a therapeutic exercise regimen aimed at normalizing common thorax, neck, shoulder, elbow, wrist and hand region impairments
- Integrate concepts of upper quarter pain management in to physical therapy patient education strategies with the best available evidence

5. Management and Rehabilitation of Post-operative Conditions

At the completion of this course, the residents should be able to:

- Recognize the principles of different tissue disorders.
- Demonstrate the phases of postoperative tissue repair.
- Identify functional deficits associated with tissue injury.
- Examine functional performance measures that are relevant to the affected tissue.
- Assess clinical findings associated with different tissue insult.
- Perform pertinent objective tests and measurements.
- Develop postoperative rehabilitation protocol appropriate for the managed disorder and its phase.
- Design a progressive loading rehabilitation program that fits the managed tissue disorder.
- Integrate clinical guidelines with rehabilitation protocols.

6. Sports Rehabilitation

At the completion of this course, the residents should be able to:

- Identify signs and symptoms of an acute concussion, perform an on-field and ongoing concussion assessment, and implement post-injury management of concussions
- Perform an on-field assessment of an athlete suspected of an injury and determine the appropriate action plan
- Identify the clinical findings suggesting an overuse syndrome and implement management strategies of address the musculoskeletal impairments and other relevant factors responsible for the tissue injury
- Provide education and counseling to an individual or athlete that promotes an active and healthy lifestyle as well as optimal performance in athletic events
- Discuss normal movement patterns of acceleration / sprinting, jumping, directional change / cutting, lateral movements, deceleration, distance running, cycling, throwing / overhead striking.
- Analyze common sport-related activities and identify abnormal movement strategies.
- Utilize physical therapy interventions to address the abnormal movement strategies and assist the athlete in development of more optimal movement patterns

7. Case Study Presentation

At the completion of this course, the residents should be able to:

- Demonstrate efficient examination and treatment abilities with regard to complex cases.
- Capture and utilize relevant knowledge and ideas, and apply them appropriately to patient management.
- Analyze and understand medical and/or surgical factors important to the etiology, care, and outcome of the patient's problems as they relate to a physical therapy plan of care.
- Apply the principles of evidence-based practice and clinical decision-making processes to selected patient cases across a variety of physical therapy diagnoses.
- Justify clinical decisions (assessment and treatment) based on best available evidence.
- Determine a physical therapy diagnosis and prognosis based on best available evidence.
- Perform appropriate discharge planning based on best available evidence.
- Present cases to peers and defend clinical decisions based on best available evidence.
- Lead a group discussion.
- Write a professional case report.
- Develop appropriate time management skills.

B. Senior Level:

1. Clinical Practice and Supervision

1. Experienced clinical supervisors from each training center (in collaboration with faculty from PSMCHS) will provide 1:1 clinical supervision for the Senior Residents.
2. Each Senior Resident will receive a 1-hour period of 1:1 clinical supervision while treating patients per day for a total of 240 hours in the Senior level of the program.
3. Each senior resident will be involved in clinical supervision of junior residents. Senior residents will provide eight 4-week periods (2 hours per week) of clinical supervision to junior residents.

2. Core Specialty topics

1. Education and Counseling for Patients with Neck and Back Pain

Patient education and counseling strategies discussed and practiced during this course will equip therapists with fundamental skills to address 1) personality disorders, such as paranoid, avoidant, borderline or dependent disorders, 2) cognitive tendencies, such as anxiety or fear, 3) affective tendencies, such as depression, 4) pain catastrophizing, such as exaggerated pain experiences, and 5) generalized pain, such as maladaptive central nervous system sensitivity.

At the completion of this course, the residents should be able to:

- Acquire and apply knowledge of pain science to the assessment and management of pain disorders
- Describe the role of a physical therapist in the management of pain
- Identify strategies for managing patients with pain
- Identify the biological and psychosocial factors that contribute to pain, physical dysfunction and disability using valid and reliable assessment tools
- Develop and utilize an evidence-based physical therapy management program to modify pain responses, promote proper tissue healing and restore function
- Develop and utilize effective strategies for patient education, behavioral changes, activity pacing, graded motor imagery and application of electrophysiological agents when appropriate
- Recognize the advantages of a multi-disciplinary program to enhance physical therapy interventions
- Identify patients at risk for becoming disabled with back and neck pain, including assessment of cognitive and affective tendencies associated with recurrence of spinal pain and the progression of acute spinal pain to chronic, disabling conditions.
- Incorporate interviewing strategies to optimally structure therapist-patient relationships that enhance the patient's self-responsibility and self-efficacy
- Implement patient education and counseling strategies intended to prevent the progression of acute pain to chronic, disabling conditions
- Implement patient education, counseling, and exercise strategies to address fear-avoidance beliefs and depressive disorders commonly co-existing with low back pain

2. Musculoskeletal Imaging

At the completion of this course, the residents should be able to:

- Engage in the diagnostic process using musculoskeletal imaging procedures when appropriate to establish differential diagnoses across systems and across the lifespan.
- Determine the most appropriate musculoskeletal imaging procedure according to the patient/client presentation and the current best evidence for diagnosis.
- Determine the most appropriate radiographic views according to patient/client presentation, and current best evidence for diagnosis.
- Describe a systematic approach to the analysis of plain film radiography, magnetic resonance imaging, bone scans, and computed tomography and determine the relevance of visualized pathology to clinical decision-making.
- Use evidence-based diagnostic imaging procedures as appropriate to help determine the patient/client who would benefit from physical therapy interventions and the patient/client who requires referral for medical services.
- Review diagnostic test studies on musculoskeletal imaging according to evidence-based criteria for validity.
- Understand basic concepts of musculoskeletal image acquisition and interpretation.
- Recognize the appearance of normal anatomy and common pathology on musculoskeletal images to facilitate diagnostic accuracy and appropriate intervention strategies and forces.

3. Case Study Presentation

At the completion of this course, the residents should be able to:

- Demonstrate efficient examination and treatment abilities with regard to complex cases.
- Capture and utilize relevant knowledge and ideas, and apply them appropriately to patient management.
- Analyze and understand medical and/or surgical factors important to the etiology, care, and outcome of the patient's problems as they relate to a physical therapy plan of care.
- Apply the principles of evidence-based practice and clinical decision-making processes to selected patient cases across a variety of physical therapy diagnoses.
- Justify clinical decisions (assessment and treatment) based on best available evidence.
- Determine a physical therapy diagnosis and prognosis based on best available evidence.
- Perform appropriate discharge planning based on best available evidence.
- Present cases to peers and defend clinical decisions based on best available evidence.
- Lead a group discussion.
- Write a professional case report.
- Develop appropriate time management skills.

Appendix-E

Top Conditions in the Musculoskeletal Physical Therapy and Rehabilitation

Top Conditions and procedures in the Specialty		
Top conditions requiring musculoskeletal rehabilitation		
Conditions	Relative Frequency	Cumulative Frequency
Low Back Pain w/ or w/o radiculopathy	15%	15%
Knee Osteoarthritis	15%	30%
Total Knee and/or Hip Replacement	10%	40%
Neck Pain w/ or w/o radiculopathy	10%	50%
Knee Ligamentous Repair	10%	60%
Shoulder Adhesive Capsulitis	10%	70%
Rotator Cuff / Impingement Syndrome	10%	80%
Long Bones Fractures	5%	85%
Pelvis/ Hip Pain	5%	90%
J. Tennis Elbow	5%	95%
I. Ankle Sprain	5%	100
Top Ten Causes of Out-Patient rehabilitation in Saudi Arabia		
Conditions	Relative Frequency	Cumulative Frequency
Back pain	20%	20%
Knee pain	15%	35%
Neck pain	10%	45%
Hip pain	10%	55%
Limited joint movement	10%	65%

Shoulder pain	10%	75%
Fractures	10%	85%
Ankle dysfunction	5%	90%
Post-surgical follow-up	5%	95%
3. Congenital/idiopathic deformities	5%	100%

Top Ten Causes of In-patient Admissions in Saudi Arabia

Conditions	Relative Frequency	Cumulative Frequency
1. Knee arthroplasty	20%	20%
2. Traffic accidents	15%	35%
3. Lumbar/cervical Discectomy	15%	50%
4. Hip arthroplasty	10%	60%
5. Anterior cruciate ligament repair	10%	70%
6. Femoral neck fracture	10%	80%
7. Shoulder joint surgeries	5%	85%
8. Spinal fixation	5%	90%
9. Foot and ankle surgeries	5%	95%
10. Elbow and hand surgeries	5%	100%

Appendix-F

List of core skills and procedures

1. Category I: Assumed competency

- Obtain and record patient's subjective information
- Active and passive range of movement assessment of different body joints
- Muscle strength assessment
- Prepare and apply different Electrophysical treatment modalities
- Pain assessment using visual analogue scale
- Detection of common bony landmarks (e.g. ASIS, C7, scapular spine,)
- Palpate peripheral muscles belly and tendon
- Describe phases of human gait and perform basic gait assessment
- Perform basic sensory assessment
- Identify poor posture
- Maintenance of a sterile field
- Appropriate dress code
- Basic interview skills
- English language proficiency
- Basic computer skills

2. during Junior level of the program.

Appendix-G: Musculoskeletal Physical Therapy Procedures Performance Assessment Tool

BODY AREA	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
UPPER CERVICAL					
Movement Analysis & Reeducation:					
(1)Head and Neck Alignment	3				
(2)Vertebrobasilar Insufficiency Eval	3				
(3)Ligament Integrity Tests:					
Alar	3				
Sharp-Purser					
(4)Suboccipital Myof. Provocation/STM	3				
(5)C1 Lateral Translation	3				
(6)C1 Anterior Glide/Occ. Post. Glide	3				
(7) Occiput/C1 Contract/Relax of Segmental Extensors & Sidebenders	3				
(8)Occipital Distraction	3				
(9)C1/C2 Rotation Contract/Relax	3				
(10)C1/C2 Rotation Mobilization	4				
(11)C2-C3 Superior/Anterior Glides	4				
(12)C2-C3 Inferior/Posterior Glides	3				
(13)Upper Quarter Neuro Status Exam	3				
(14) Neck Rotation ROM, Movement / Pain Relations & Overpressures	4				
(15)Provocation of Involved Segment(s)	3				
(16)C2-C7 Sup/Ant Glides (rotation)	3				
(17)C2-C7 Inf/Post Glides (sidebend)	3				
(18)STM: Segmental Myofascia	3				
(19)Natural Apophyseal Glides (NAGs)	4				
(20)Sustained Apophyseal Glides (SNAGs)	4				
(21)Rotation in Neutral Manipulation	3				
(22)Sidebending in Neutral Manip.	3				
(23)Inferior/Post. Glides/Sidebending	3				
(24)Contract/Relax Flexors/Sidebenders	3				

UPPER THORACIC	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
Movement Analysis & Reeducation: (25)Neck Rotation	3				
(26)TP Symmetry in Flexion/Extension	3				
(27) Unilat. PA & Transverse Pressures	4				
(28)STM: Segmental Myofascia	3				
(29) STM: Scaleni Myofascia	3				
(30) Unilat PAs-sup/ant glides using TPs	4				
(31) Rotation in Neutral (using adj SP's)	3				
(32)Rotation in Neutral (neutral gap)	3				
(33)Rotation/Sidebending in Extension	3				
(34)1st Rib Inferior Glide	3				
SHOULDER	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
Movement Analysis & Reeducation: (35)Reaching Overhead	3				
(36)Upper Limb Nerve Mobility Exam: Median Radial Ulnar	3				
(37)Shoulder Special Tests: Resistive Tests Impingement Assessment Labral Assessment	3				
(38)Muscle Length Tests: Pectoralis Minor & Major Latissimus Dorsi & Teres Major Subscapularis	3				
(39)Glenohumeral ROM Exam External Rotation Internal Rotation Flexion Abduction Horizontal Adduction	3				
(40)Accessory Movement Tests: Acromioclavicular Post & Ant Mvts Sternoclavicular Glides Glenohumeral Posterior Glides GH Inferior & Anterior Glides	3				
(41)STM to Nerve Entrapment Sites	3				
(42)Soft Tissue Mobilization & PNF: Subscapularis STM Extensors/Internal Rotators C/R	3				

Facilitation of Flexors/Ext Rotators Infraspinatus STM					
(43)MWMs: Elevation Hand-Behind-Back	4				
(44)Joint Mobilization: Humeral Inferior Glide Humeral Posterior Glide in neutral Humeral Post Glide in flex/adduction	4				
ELBOW	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(45)Elbow Special Tests: Resistive Tests (ECRB & ECRL) Extensor Tendon Provocation Valgus Stress Test	3				
(46)Accessory Movement Tests: Ulnar Distraction Radial Posterior Glide Radial Anterior Glide Radial Compression & Distraction	3				
(47)STM to Nerve Entrapment Sites	3				
(48)MWMs: Elbow Flexion Elbow Extension	3				
(49)Joint Mobilization: Ulnar Distraction Radial Posterior Glide Radial Anterior Glide	4				
WRIST and HAND	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(50)Resistive Tests: Abductor Pollicis Brevis 1st Dorsal Interosseous Abductor Pollicis Longus Extensor Pollicis Brevis	3				
(51)Wrist & Hand Special Tests: Provocation of APL & EPB Tendons Finkelstein's Test Provocation of Guyon's Tunnel 1st MP Valgus Stress Test	3				
(52)Wrist Accessory Movement Tests: Distal Radioulnar Joint Ulnomeniscotriquetral Joints Radiocarpal Joints Intercarpal Joints	3				
(53)MWMs: Forearm Pronation Wrist Extension	3				

Interphalangeal					
(54)Joint Mobilization: Radius & Ulna Glides Proximal Carpal Row Glides Scaphoid & Lunate Glides Hamate & Capitate Glides Other Intercarpal Glides Phalangeal Bi & Unicondylar Glides	3				
THORACIC	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
Movement Analysis & Reeducation: (55)Thorax Rotation	3				
(56)Slump Exam - including long sitting	4				
(57)TP Symmetry in Flexion/Extension	3				
(58)Unilateral PAs	3				
(59)Rib Positional Symmetry	3				
(60)Rib AP & PAs Pressures	3				
(61)Soft Tissue Mob. & Contract/Relax: Multifidi/Segmental Myofascia Segmental Extensors and Sidebenders Intercostal Myofascia Segmental Flexors and Sidebenders	3				
(62)Rotation/Sidebending in Flexion	3				
(63)Rotation/Sidebending in Extension	3				
(64)Rib Posterior Glides with Isometric Mobilizations	3				
(65)Rib Anterior Glides with Isometric Mobilizations	3				
PELVIC GIRDLE	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(66)Movement Analysis & Reeducation: Standing Pelvis/Trunk Symmetry Sitting Weight Shift March Test Flare Test	3				
(67)PSIS/ASIS Palpation for Symmetry	3				
(68) SI Ligament Provocation: Long Posterior SI Ligament Short Posterior SI Ligament Sacrotuberous SI Ligament	3				

(69)SIJ/ASIS Compression / Distraction	3				
(70)STM & C/R: Quadratus Lumborum Iliacus	3				
(71)Lumbopelvic Region Manipulation	3				
(72)Innominate Inferior Translation	3				
(73)Sagittal Plane Isometric Mobilization using hip flexors/extensors using hip adductors/extensors	3				
(74)Innominate Posterior Rotation Mobs	3				
(75)Innominate Anterior Rotation Mobs	3				
(76) Innominate External & Internal Rotation Mobilizations	3				
(77) Sacral Flexion Mobilizations	3				
LUMBAR	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(78)Movement Analysis & Reeducation: Lumbar Forward Bending Lumbar Sidebending Lumbar Movement/Pain Relations Lifting	3				
(79)Movement Analysis & Muscle Power: Trunk Flexors/Abdominals Trunk Sidebenders/Lateral Abds Trunk Extensors/Erector Spinae Trunk Rotators/Multifidi/TA/Obliques	3				
(80) Lower Quarter Neuro Status Exam	3				
(81)TP Assessment in Flexion/Extension	3				
(82)Unilateral PAs	4				
(83)Sciatic Nerve Tension Test	4				
(84)Slump Test	4				
(85)Lateral Shift Correction	4				
(86)STM: Multifidi/Segmental Myofascia	3				

(87) STM: Psoas	3				
(88)Sidebending/Rotation in Neutral	3				
(89)Sidebending/Rotation in Extension	3				
(90)PAs in Combined Movements	3				
HIP	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
Movement Analysis & Reeducation: (91)Walking	3				
(92)Piriformis Stretch Test & Provocation	4				
(93)Mobility & Muscle Flexibility: Hip Flexion Hip Internal Rotation Hip External Rotation Hip Abduction Hip Extension	3				
(94)Lower Limb Nerve Mobility	4				
(95)Resistive & Stretch Tests: Lateral Hamstring/Biceps Femoris Medial Hamstrings Hip Adductors Rectus Femoris	3				
(96)Soft Tissue Mob. & Contract/Relax: Piriformis Gluteus Maximus & Medius Other Hip External Rotators	3				
(97)MWs: Hip Flexion Hip Internal Rotation	4				
(98)Joint Mobs: Femoral Anterior Glides	4				
KNEE	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
Movement Analysis & Reeducation: (99)Single Leg Squat	3				
(100)Knee Special Tests: Valgus/Varus Lachman's Test McMurray's	3				
(101)Knee Extension Exam: Terminal Ext Ant. Glides	3				
(102)Knee Flexion Exam: Hyperflexion Posterior Glides	3				
(103) Patellofemoral/Lower Extr Alignment	3				
(104)Patellar Medial/Lateral Glides	3				
(105)ITB Exam: Length & Provocation	3				

(106) Proximal Tibiofibular Accessory Movements	3				
(107)Provocation: Medial Joint Line Pes Anserine Bursa Patellar Tendon	3				
(108) Soft Tissue Mobilization: Lateral Thigh/Iliotibial Band Lateral Retinaculum Quadriceps Femoris Lateral Leg Nerve Entrapment Sites	3				
(109)Joint Mobilization Patella Medial Glides Tibiofemoral Extension Tibial Anterior Glide Knee Flexion MWM Fibular Posterior/Medial Glide Fibular Anterior/Lateral Glide	4				
ANKLE	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(110)Movement Analysis & Reeducation: Talocrural, Talocalcaneal, Talonavicular, Calcaneocuboid, & 1st MTP functioning during Initial Contact, Loading Response, Mid-Stance, Terminal Stance, & Pre-Swing	3				
(111)Ant Talofibular Ligament Provocation	3				
(112)Inversion Stress Test (Talar Tilt)	3				
(113) Talar Anterior Drawer	3				
(114)Ankle Sprain MWM	4				
(115)Lower Limb Nerve Tension: Tibial Sural Fibular	3				
(116)Nerve Entrapment Site Provocation	3				
(117)STM to Nerve Entrapment Sites	3				
(118)MWMs: Distal Tibiofibular Ankle Dorsiflexion Talar Posterior Glide Ankle Plantar Flexion	4				
(119)Joint Mobs: Distal Fibular Post.	4				

Glide Talar Posterior Glide Talar Anterior Glide					
FOOT	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(120) Movement Analysis & Reeducation: Tibial Internal and External Rotation 1/4 Squat Heel Raise	3				
(121) Calcaneal Position & Eversion ROM	3				
(122) Mid-Tarsal Accessory Mvt Tests Talus – Navicular Navicular – 1st Cuneiform Calcaneus – Cuboid Navicular/3rd Cuneiform – Cuboid	3				
(123) 1st MTP Extension ROM and Accessory Movements	3				
(124) Longitudinal MT Mobility w/Evr&Inv	3				
(125) Oblique Mid-Tarsal Mob w/ Evr & Inv	3				
(126) Joint Mobilizations: Calcaneal Lateral Glides Navicular Dorsal & Plantar Glides Cuboid Dorsal and Plantar Glides 1st MTP Dorsal Glides & MWMs	4				
(127) Cuboid Whip	3				

KEY:

- Unsatisfactory: Application of procedure is deficient, which leads to less than optimal patient outcomes.
- Satisfactory: Utilizes procedural implementation that is consistent with what is 1) described in clinical practice guidelines for common musculoskeletal conditions, and 2) instructed during the lab portion of the residency curriculum.
- Superior: Clinical reasoning and procedures are utilized consistently with a high level of skill or with a patient for which a high level of skill was required to achieve the desired outcome.

3. **Category III:** Mastery level procedures. Residents are expected to be competent by the end of Junior level of the program

Appendix-H: Musculoskeletal Physical Therapy Counseling and Exercise Education

Assessment Tool

CONDITION	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
Neck Pain With Mobility Deficits Segmental Somatic Dysfunction					
(1) Patient Education and Counseling: Integrate movements into end ranges of neck motions while performing daily activities	3				
(2) Exercise Training: Self SNAG stretch Levator scapular stretching	4				
Neck Pain With Movement Coordination Impairments Whiplash					
(3) Patient Education and Counseling: Progressive return to normal activities Reassurance that full recovery usually occurs	3				
(4) Exercise Training: Deep neck flexors strengthening Upper back extensors strengthening Scalene stretching Mid-back / Thorax self mobilization	4				

Neck Pain With Headache Cervicogenic Headache	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(5) Patient Education and Counseling: Neutral (gentle flexion) head position with activities	3				
(6) Exercise Training: Deep neck flexors strengthening C1-C2 Self SNAG stretch Scalene stretching Upper trapezius stretching	4				
Neck Pain With Radiating Pain Cervical Radiculopathy	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(7) Patient Education and Counseling: Avoid positions and movements that: 1) put the neck in extension with end range side-bending and rotation 2) put the upper limb in nerve tension positions	3				
(8) Exercise Training: Median, radial, and ulnar nerve mobility Scalene stretching Mid-back / Thorax self mobilization	4				
Shoulder Pain and Mobility Deficits Adhesive Capsulitis	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(9) Patient Education and Counseling: 1) Positions of comfort and avoidance of end range movements that may increase tissue irritability 2) Progressing activities to	4				

gain motion without producing tissue inflammation 3) Progression to performing more high demand activities					
(10) Exercise Training: Glenohumeral external rotation stretching Glenohumeral internal rotation stretching Overhead / Latissimus dorsi stretching					
Shoulder Subacromial Pain Rotator Cuff Syndrome	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(11) Patient Education and Counseling: 1) Avoidance of overhead movements that may increase tissue irritability 2) Progressing activities to perform with normal, pain free scapulohumeral motion 3) Progression to performing more high demand activities as strength and coordination improve	3				
(12) Exercise Training: Pectoralis major & minor stretching Mid-back / thorax self mobilization Rotator cuff / supraspinatus strengthening Rotator cuff / infraspinatus strengthening Scapular rotators / lower	4				

trapezius strengthening					
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Shoulder Stability and Movement Coordination Impairments Shoulder Instability	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(13) Patient Education and Counseling: 1) Avoidance of movements that may increase tissue irritability 2) Progressing activities to perform with normal, pain free scapulohumeral positions and movements 3) Progression to performing more high demand activities as strength and coordination improve	3				
(14) Exercise Training: Pectoralis major & minor stretching Mid-back / thorax self mobilization Glenohumeral internal rotation stretching Rotator cuff / subscapularis strengthening Scapular rotators / lower trapezius strengthening Scapular stabilizers / middle trapezius strengthening Scapular rotators / serratus anterior strengthening	3				

Elbow Epicondylitis	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(15) Patient Education and Counseling: 1) Avoidance of or altering grasping activities related to tissue irritability 2) Progression to performing more high demand activities as strength and nerve mobility improve	3				
(16) Exercise Training: Median, radial, and ulnar nerve mobility Wrist extensors - eccentric and concentric strengthening Scapular stabilizers / middle trapezius strengthening Scapular rotators / serratus anterior strengthening	3				
Carpal Tunnel Syndrome	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(17) Patient Education and Counseling: 1) Use of neutral wrist splints at night as needed 2) Advice on optimal ergonomic positions for work activities to keep wrists in neutral and reduce median nerve entrapments	3				
(18) Exercise Training: Median nerve mobility Pectoralis major & minor stretching Scalene stretching	3				

Low Back Pain with Mobility Deficits Segmental Somatic Dysfunction	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(19) Patient Education and Counseling: Integrate movements into end ranges into activities, such as walking, reaching, bending, and twisting	3				
(20) Exercise Training: Thoracolumbar self mobilization Thoracolumbar rotation stretching; & extension stretching Hip flexor stretching Lower abdominals strengthening	3				
Low Back Pain with Movement Coordination Impairments Lumbar Instability	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(21) Patient Education and Counseling: 1) Postures and motions that maintain the involved spinal structures in neutral, symptom-alleviating positions 2) Counseling strategies that emphasize a) understanding of the anatomical/structural strength inherent in the human spine b) neuroscience concepts that explain pain perception c) the overall favorable prognosis of low back pain	4				

d) the use of active pain coping strategies that decrease fear and catastrophizing e) the early resumption of normal or vocational activities, even when still experiencing pain f) the importance of improvement in activity levels, not just pain relief, including low-stress aerobic activities					
(22) Exercise Training: Lower abdominals strengthening Lateral abdominals strengthening Low back / multifidi strengthening Hip extensors strengthening Hip abductors strengthening Hip internal rotation stretching Hamstrings-sciatic nerve mobility	4				
Low Back Pain with Related (Referred) Lower Extremity Pain Lumbar Disc Displacement	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(23) Patient Education and Counseling: Education on positions that promote centralization Progress to strategies consistent with treatments for patients with Low Back Pain with Movement Coordination Impairments	4				

(24) Exercise Training: Lateral shift correction Thoracolumbar extension repeated movements Hip internal rotation stretching Hamstrings-sciatic nerve mobility	4				
Low Back Pain with Radiating Pain Lumbar Radiculopathy	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(25) Patient Education and Counseling: Avoid positions and movements that: 1) put the lumbar spine into extension or extension with end range side-bending and rotation 2) put the lower limb in nerve tension positions	4				
(26) Exercise Training: Slump/dural mobility Hamstrings-sciatic nerve mobility	4				
Low Back Pain with Generalized Pain Chronic Low Back Pain	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(27) Patient Education and Counseling: 1) Education and counseling to address specific classification exhibited by the individual (ie, depression, fear-avoidance, pain catastrophizing) 2) Low-intensity, prolonged (aerobic) exercise activities	4				

(28) Exercise Training: Progressive aerobic endurance and fitness activities	4				
Non-arthritic Hip Joint Pain	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(29) Patient Education and Counseling: Education in regard to joint protection strategies and avoidance of symptom-provoking activities, such as: 1) Activities that place the hip at end-ranges of flexion, internal rotation, and adduction 2) Modification of movement impairments that aggravate the reported hip pain (eg sitting, stairs, walking) 3) Modification of weight loading forces that are aggravating the reported pain	3				
(30) Exercise Training: Hip extensors strengthening Hip abductors strengthening Hip internal rotation stretching Hip external rotation / piriformis stretching Hamstrings-sciatic nerve mobility	4				

Knee Stability and Movement Coordination Impairments Knee Ligament Sprain	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(31) Patient Education and Counseling: 1) Assist with determining the need for surgical repair - based upon injury, level of strength and sensorimotor control available, and athletic or occupational needs 2) Progress strength and neuromuscular training as able and needed for performance of desired activity	3				
(32) Exercise Training: Hip abductors strengthening Hip external rotators strengthening Quadriceps strengthening GastrocSoleus - fibularis longus strengthening Progressive loading & Sensorimotor training	4				
Knee Pain and Mobility Impairments Knee Meniscal and Articular Cartilage Lesions	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(33) Patient Education and Counseling: Assist with determining the optimal exercise dose, weight-bearing load, and return to desired occupational, recreational, or athletic activity	3				
(34) Exercise Training: Hip extensors / hamstrings strengthening Quadriceps strengthening	4				

- using caution not to load injured cartilage					
Patellofemoral Pain Syndrome	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(35) Patient Education and Counseling: Assist with determining the optimal exercise dose, weight-bearing load, and return to desired occupational, recreational, or athletic activity	3				
(36) Exercise Training: Hip abductors strengthening Hip external rotators strengthening Quadriceps strengthening GastrocSoleus / fibularis longus strengthening GastrocSoleus / tibialis posterior strengthening Hip flexor / rectus femoris stretching Calf/gastrocnemius stretching	3				
Achilles Pain, Stiffness, and Muscle Power Deficits Achilles Tendinitis	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(37) Patient Education and Counseling: 1) Assist with determining the optimal walking or running exercise training load to adjust weight-bearing load to Achilles tendon tolerance 2) Consider footwear modifications, such as increase cushioning, and / or use of heel lifts or	3				

orthotics to reduce symptoms					
(38) Exercise Training: Calf/gastrocnemius stretching Gastroscopes - eccentric & concentric strengthening	4				
Ankle Stability and Movement Coordination Impairments Ankle Ligament Sprain	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(39) Patient Education and Counseling: 1) Assist with progressing the return to function - progressing from the Acute / Protected Motion through the Progressive Loading / Sensorimotor Training phases of returning to daily activities or sports 2) Encourage performance of balance and proprioceptive exercises and drill to lessen the likelihood of recurring ankle injuries	3				
(40) Exercise Training: Calf/gastrocnemius stretching GastroSoleus / fibularis longus strengthening GastroSoleus / tibialis posterior strengthening Progressive Loading & Sensorimotor Training	4				
Heel Pain Plantar Fasciitis	Number to achieve competency	UNSATISFACTORY PERFORMANCE (Date)	SATISFACTORY PERFORMANCE (Date)	SUPERIOR PERFORMANCE (Date)	(CI initials)
(41) Patient Education and Counseling: Modify activity to be within	3				

pain tolerance - with gradual increase in weight-bearing loads Footwear or orthotic suggestions: 1) Arch support for individuals with excessive pronation 2) Heel cushioning for individuals with excessive supination 3) Encourage reduction of body fat in overweight individuals					
(42) Exercise Training: Calf/gastrocnemius stretching GastrocSoleus / fibularis longus strengthening Progressive loading & Sensorimotor training	3				

KEY:

Unsatisfactory: Education and counseling has a moderate likelihood of promoting greater disability; or exercise education and training is deficient, which could lead to less than optimal patient outcomes.

Satisfactory: Utilizes patient education / counseling strategies and exercise training strategies that are consistent with what is 1) described in clinical practice guidelines for common musculoskeletal conditions, and 2) instructed during the classroom/lab portion of the residency curriculum.

Superior: Clinical reasoning, patient education / counseling strategies, and exercise training strategies are utilized consistently with a high level of skill or with a patient for which a high level of skill was required to achieve the desired outcome.

Appendix-I

Assessment

List of Formative Assessment Tools

(According to executive policy on continuous assessment, minimum of 4 tools are needed, should cover the three domains, resident should show competency in each assessment tool in order to be promoted to the subsequent training level; for further details please refer to the policy on www.scfhs.org)

Assessment	Domain	Tools
	Knowledge	- Written exams for each didactic class - Structured academic activities (assignments, presentations, discussions, case study report) - Structured Oral Exams
	Skills	- Weekly Feedback Form. (Appendix J) - Musculoskeletal Physical Therapy Procedures Performance Assessment Tool (Appendix G) - Clinical Performance Evaluation Tool (Appendix K) - Patient Demographic Data Form (Appendix L) - Body Region Log Book (Appendix M) - Research Activity
	Attitude	- Weekly Feedback Form. (Appendix J) - Orthopedic Physical Therapy Counseling and Exercise Education Assessment Tool (Appendix H) - Clinical Faculty Evaluation Form (Appendix N) - Classroom / Lab. Presentation Evaluation Form (Appendix O)

Appendix-J: DAILY / WEEKLY FEEDBACK FORM

INTERN:

DATE:

PATIENT:

SKILL LEVEL

COMMENTS

EXAMINATION TASKS

Identify Problems/Concerns

Obtain Symptom History

Administer Tests and Measures

Level of pain

Posture/structural assessment

Gait/balance assessment

Integumentary tissue quality

Circulatory assessment

Sensory integrity

Reflex integrity

Active range of motion

Motor function/coordination

Joint integrity

Muscle performance

EVALUATION TASKS

Interpret Data from History

Develop Working Hypothesis

Plan Tests and Measures (i.e., P.E.)

Respond to Emerging Data from P.E.

Interpret Data from Physical Exam

Correlate History & P.E. Findings

Identify Cause of Problem

Respond to Emerging Data from Rx

DIAGNOSIS TASKS

Establish Diagnosis

Determine Intervention Approach

PROGNOSIS TASKS

Establish Plan of Care

Choose Assessment Measures

INTERVENTION TASKS

Provide Patient Education

Implement Therapeutic Exercise Instruction

Implement Functional Training

Implement Manual Therapy Procedures

OUTCOMES REVIEW

Review Patient Satisfaction Outcomes

Review Activity Limitations Outcomes

Review Outcomes Related to Prevention Scores

0 = Not Acceptable

1 = Minimal Level of Competence

2 = Superior Level of Competence

3 = Exceptional Level of Competence

Appendix-K: CLINICAL PERFORMANCE EVALUATION TOOL

Name of Intern: _____

Evaluation Period: ()

Date: _____

First Name of Patient	Observations/Comments/Feedback	Corresponding Practice Competency(ies)

EXAMINATION

Directions: Place the date (month/day) in the box that reflects behavior observed on that date.	Unsatisfactory Performance	Satisfactory Performance	Superior Performance
1. Examination			
a. Obtain a history/perform an interview			
(1) Identify the patient's current level of activity and ability to participate in desired tasks			

(2) Identify the area(s) of the patient's symptoms			
(3) Identify the type/nature of the patient's symptoms			
(4) Identify the time behavior of the symptoms.			
(5) Identify the level of irritability or severity of the symptoms			
(6) Identify the symptom's aggravating factors			
(7) Identify the symptom's easing factors			
(8) Identify other therapeutic interventions employed by the patient - and their usefulness			
b. Examination/Re-examination. Administration of selected specific tests and measures, when appropriate.			
(1) Assess current level of function using a self-report questionnaire			
(2) Assess pain levels			
(3) Assess postural alignment during static and dynamic activities			
(4) Assess gait, locomotion, and/or balance			
(5) Assess integumentary and joint tissue quality (e.g., signs of inflammation, effusion)			
(6) Assess circulation (e.g., VBI, PVD)			
(7) Assess sensation, proprioception, and reflexes			
(8) Assess active range of motion and movement/pain relations			
(9) Assess joint passive mobility (range of motion, movement/pain relations)			
(10) Assess extremity joint accessory/joint play motions			
(11) Assess spinal segmental mobility (mobility and movement/pain relations)			
(12) Assess joint integrity (e.g., ligamentous stress tests)			
(13) Assess muscle flexibility/muscle length			
(14) Assess nerve mobility (range of motion, movement/pain relations)			
(15) Assess soft tissue mobility (e.g., fascia, myofascia, nerve entrapment sites)			
(16) Assess response of connective tissues (e.g., ligament, bone) to palpatory provocation.			

(17) Assess response of muscle tissues (e.g., trigger points) to palpatory provocation.			
(18) Assess muscle power – strength, endurance			
(19) Assess muscle power – force/pain relations (e.g., contractile tissue response to tests)			
(20) Assess movement coordination			
(21) Assess motor learning			

EVALUATION

Directions: Place the date (month/day) in the box that reflects behavior observed on that date.	Unsatisfactory Performance	Satisfactory Performance	Superior Performance
2. Evaluation			
a. Interpret data from history			
(1) Identifying relevant, consistent, and accurate data			
(2) Prioritize reported functional limitations and activity restrictions			
b. Develop working diagnosis (hypothesis)			
(1) Develop working diagnosis (hypothesis) for possible contraindications for physical therapy intervention			
(2) Develop working diagnosis (hypothesis) for the stage of condition			
(3) Develop working diagnosis (hypothesis) for the anatomical structures involved with the complaint(s)			
(4) Develop working diagnosis (hypothesis) for the probable cause(s) of the complaint(s)			
c. Plan the physical examination/select tests and measures			
(1) Select tests and measures that are consistent with the history for verifying or refuting the working diagnosis			
(2) Select tests and measures that are appropriately sequenced for verifying or refuting the working diagnosis			
d. Interpret data from the physical examination			
(1) Interpret data from the physical examination – related to the stage of the condition(s)			

(2) Interpret data from the physical examination – related to the irritability of the condition(s)			
e. Respond to emerging data from examinations and interventions			
(1) Respond to emerging data from examinations and interventions by modifying the intervention			

DIAGNOSIS			
3. Diagnosis			
a. Based on the evaluation, organize data into recognized clusters, syndromes, or categories			
b. Based on the diagnosis, determine the most appropriate intervention approach			

PROGNOSIS			
4. Prognosis			
a. Choose assessment measures			
(1) Choose re-assessment measures to determine initial responses to intervention			
(2) Choose re-assessment measures to determine long-term responses to intervention			
b. Establish plan of care			
(1) Establish plan of care, selecting specific interventions based on impairments			
(2) Establish plan of care, prioritizing specific interventions based on impairments			
c. Prognosticate regarding function			
(1) Predict the optimal level of function that the patient will achieve			

INTERVENTION			
Directions: Place the date (month/day) in the box that reflects behavior observed on that date.	Unsatisfactory Performance	Satisfactory Performance	Superior Performance
5. Intervention			
a. Provide patient education related to the plan of care			
(1) Educate patient on his/her diagnosis			
(2) Educate patient on his/her treatment			
(3) Educate patient on self-management strategies			

b. Implement therapeutic exercise			
(1) Implement therapeutic exercise to improve mobility			
(2) Implement therapeutic exercise to improve muscle performance			
c. Implement functional training			
(1) Implement functional training for injury prevention			
(2) Implement functional training using movement cuing			
(3) Implement functional training using endurance training			
d. Implement manual therapy procedures			
(1) Implement manual therapy procedures – soft tissue mobilization			
(2) Implement manual therapy procedures – joint mobilization			
(3) Implement manual therapy procedures – joint manipulation			
(4) Implement manual therapy procedures – passive range of motion			
(5) Implement manual therapy procedures – neuromuscular facilitation			
(6) Implement manual therapy procedures – mobilization with movement			
e. Apply physical agents			
(1) Apply physical agents – to facilitate tissue healing			
(2) Apply physical agents – to modulate pain			
f. Apply taping or external devices			
(1) Apply taping or external devices to prevent tissue injury			
(2) Apply taping or external devices to facilitate tissue healing or edema management			
(3) Apply taping or external devices for neuromuscular re-education			

Clinical Performance Evaluation Tool - Summary

Of the __ practice competencies that were observed during this clinical skills performance evaluation period, you were Superior or Satisfactory on __ of the areas and Unsatisfactory on __ of the areas. Thus, you performed satisfactorily on __ % of the skills observed (__ divided by __ times 100).

Summary Comments:

-
-
-

Areas to work on in the upcoming week/months:

- 1.
- 2.
- 3.

Appendix-L: Patient Demographic Data

Name of Resident: Condition	Total number of conditions examined and treated	Percent of total body regions number
NERVOUS SYSTEM		
Carpal Tunnel Syndrome		
Cervical Radiculopathy		
Cubital Tunnel Syndrome		
Lumbar Radiculopathy		
Thoracic Outlet Syndrome		
MUSCULOSKELETAL SYSTEM		
Chronic Pain Syndromes (eg, fibromyalgia)		
Ankle / Foot Fracture		
Ankle / Foot Ligamentous Injuries		
Ankle / Foot Tendinopathies		
Hallux Valgus		
Other Disorders of the Lower Leg, Ankle and Foot		
Plantar Fasciitis		
Elbow / Forearm Fracture		
Elbow Instability (eg, subluxation/dislocation, ligamentous)		
Elbow Tendinopathies		
Other Disorders of the Elbow and Forearm		
Wrist, Hand, Finger Fracture		
Wrist, Hand, Finger Instability (eg, subluxation/dislocation, ligamentous)		
Wrist, Hand, Finger Tendinopathies		
Other Disorders of the Wrist and/or Hand		
Cervical Disc Pathologies (eg, DDD, protrusion, herniation)		
Cervical Instability		
Cervical Sprain/Strain		
Cervicogenic Headache		
Other Disorders of Cervical Spine		
Temporomandibular Dysfunction		
Femoroacetabular Impingement		
Hip Fracture		
Hip Osteoarthritis		
Hip Tendinopathies		
Trochanteric Bursitis		
Other Disorders of the Hip and Thigh		
Knee Fracture		
Knee Ligamentous Injuries		
Knee Osteoarthritis		
Knee Tendinopathies		
Meniscal Pathology		

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

Appendix-M: Body Region Log

Name of Resident _____

Date	Patient Name or MR#	Body Region(s) Examined and Treated	Body Region Code(s)

Body Region

Cranio/Mandibular

Cervical Spine

Thoracic Spine/Ribs

Lumbar Spine

Shld/Shoulder Girdle

Code

TMJ

CS

TS

LS

SH

Body Region

Arm/Elbow

Wrist/Hand

Pelvic Girdle/SI/Abd

Hip

Thigh/Knee

Leg/Ankle/Foot

Code

AE

WH

PG

HP

KN

AF



Appendix-N: CLINICAL FACULTY EVALUATION FORM

Date: _____ Name of Trainee: _____

Name of Clinical Faculty: _____

The Clinical Faculty Member mentioned above:	<u>Consistently</u>	<u>Occasionally</u>	<u>Infrequently</u>
1. Is able to build rapport with patients	_____	_____	_____
2. Is able to identify the needs of the patients.	_____	_____	_____
3. Is able to identify my needs as a resident.	_____	_____	_____
4. Demonstrates superior clinical reasoning.	_____	_____	_____
5. Demonstrates superior treatment skills.	_____	_____	_____
6. Is able to provide the cues I need to improve my clinical reasoning and treatment skills.	_____	_____	_____
7. Is on time and fully present during our designated clinical supervising periods.	_____	_____	_____
8. Is considerate and professional when providing feedback to me when the patient is present.	_____	_____	_____
9. Participates in data collection and publication of clinical research.	_____	_____	_____
10. Has a thorough understanding of the curriculum and performance measures utilized in this residency.	_____	_____	_____
11. Has a pleasant demeanor and mood.	_____	_____	_____

Up to this point, the aspects most valuable to me during our clinical supervision periods are:

I would have a better experience if the following changes could be made:

(Feel free to use space on additional pages when providing feedback)

Appendix-O: CLASSROOM / LAB PRESENTATION EVALUATION FORM

Date: _____ Name of Instructor: _____

Topic: _____

<i>1. The Instructor mentioned above:</i>	<u>Consistently</u>	<u>Occasionally</u>	<u>Infrequently</u>
<i>2. Began presentation(s) promptly on time.</i>	_____	_____	_____
<i>3. Was able to identify the learning needs of the residents.</i>	_____	_____	_____
<i>4. Clearly communicated the objectives on the instruction.</i>	_____	_____	_____
<i>5. Utilized content that was appropriate to the level of instruction and interest to the resident.</i>	_____	_____	_____
<i>6. Has a thorough understanding of the content area of the topic(s) presented.</i>	_____	_____	_____
<i>7. Utilized audiovisuals/explanations that were helpful in describing the key concepts of the presentation.</i>	_____	_____	_____
<i>8. Is a skilled and effective teacher/educator.</i>	_____	_____	_____
<i>9. Has a pleasant demeanor and mood.</i>	_____	_____	_____
<i>10. Ended presentations at an appropriate time.</i>	_____	_____	_____
<i>11. The content of this presentation was appropriate for the 7-8 hour block of instruction provided</i>	_____	_____	_____

The aspects of this presentation that were most valuable to me were:

Appendix-P: PROGRAM EVALUATION FORM

Date:

Module:

Name of Trainee:

Up to this point in the Residency program, with regard to the following points, I am

Dissatisfied

Satisfied

Highly Satisfied

1. *with the extent and breadth of clinical practice opportunities*

2. *with the quality and content of classroom/lab instruction*

3. *with the 1:1 clinical supervision while treating patients*

4. *with the performance evaluations (daily feedback, procedure check-off lists, clinical performance evaluation)*

5. *with the administrative aspects of the program (i.e., scheduling, administrative supervision, clerical support)*

6. *with the opportunities and resources for mentoring students*

7. *with the opportunities and resources for improving cultural competence*

Please provide any feedback you have regarding the above issues.

Up to this point, the most valuable aspects of this program for me are:

I would have a better experience if the following changes could be made:

(Feel free to use space on additional pages when providing feedback)

Appendix-Q

Glossary

Glossary	
Blueprint	Description correlating educational objectives with assessment contents. For example, test blueprint defines the proportion of test questions allocated to each learning domain and/or content.
Competency	Capability to function within a defined professional role that implies entrustment of a resident by graduation of the program with the required knowledge, skills, and attitude needed to practice unsupervised.
Specialty Core Content (skills, knowledge, and professional attitude)	A specific knowledge or skill or professional attitude that is specific and integral to the given specialty.
Formative assessment	An assessment that is used to inform the trainer and learner of what has been taught and learned, respectively, for the purpose of improving learning. Typically, the results of formative assessment are communicated through feedback to the learner. Formative assessments are not intended primarily to make judgments or decisions (though it can be as a secondary gain).
Mastery	Exceeding the minimum level of competency to the proficient level of performance indicating rich experience with possession of great knowledge, skills, and attitude.

Portfolio	A collection of evidence of progression towards competency. It may include both constructed components (defined by mandatory continuous assessment tools in curriculum) and unconstructed components (selected by the learner).
Summative assessment	An assessment that describes the composite performance of the development of a learner at a particular point in time and is used to inform judgment and make decisions about the level of learning and certification.
Universal Topic	A knowledge, skills, or professional behavior that is not specific to the given specialty but universal for the general practice of a given healthcare profession.



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