UT Family Medicine Residency
Sports Medicine (Musculoskeletal) Rotation
Justin Turner, MD (Updated: June 2021)

Rotation Goal

The Sports Medicine rotation is a minimum 100 hours experience gained by a 4-week block rotation during the PGY3 year and other longitudinal experiences. Musculoskeletal complaints rank second only to upper respiratory infections as the reason people seek care but education in this area is lacking according to studies (Freedman 1998, Woodwell 2004). Therefore, the curriculum set forth is divided into several unique components with a purpose and focus to equip residents with the skills to provide optimal care of the athlete and patients with musculoskeletal complaints and promote health across the lifespan. Residents will gain longitudinal experience by caring for ambulatory patients in the UTFMC with musculoskeletal complaints, participating in pre-participation physical and on-site training for events such as high school athletics at Liberty, Humboldt, FHU, JSCC, Union, and Lane.

During this rotation, residents should achieve competency in the following areas:

i. Develop skills necessary to independently obtain an appropriate history and physical, including provocative techniques, on patients with musculoskeletal conditions. (Interpersonal and Communication Skills, Practiced-based Learning and Improvement, Patient Care)
ii. Develop an appropriate differential diagnosis and recommend treatment, including subspecialty care and therapy. (Patient Care, Systems-based Practice)
iii. Perform an age-appropriate and activity-specific preparticipation physical exam (Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism)
iv. Communicate effectively with other health care professionals concerning musculoskeletal diseases. (Interpersonal and Communication Skills, Professionalism)
v. Communicate effectively and compassionately with patients, their families, coaches, and others involved with the care of the athlete/patient. (Interpersonal and Communication Skills, Professionalism)
vi. Understand the importance of exercise and its impact on disease as well as a prevention strategy and be able to prescribe an appropriate exercise program. (Patient Care, Medical Knowledge, Interpersonal and Communication Skills)
vii. Understand the importance of treating the medical, as well as the musculoskeletal conditions in the athlete. (Patient Care)
viii. Quickly and effectively triage acute injuries in the athlete with an understanding of mechanism of action. (Patient Care, Medical Knowledge)

Musculoskeletal and Sports Medicine Experiences

a. Address: Sports Orthopedic and Spine
569 Skyline Drive Suite 100
Jackson, TN 38301
Phone # (731) 427-7888
b. Supervisor(s): Scott Johnson, M.D., Keith Nord, M.D., Justin Turner, M.D.
c. Rotation Structure:
    i. Three to four half-days per week in continuity clinic at the UTFMC.
    ii. Six to seven half-days per week at SOS.
d. Responsibilities:
    i. Residents should review the Residency Master Schedule to determine the exact times and dates that they are to work.
    ii. Residents are expected to act and dress in a professional and ethical manor at all times in accordance with the residency manual.

iii. **One week prior to the beginning of the rotation, residents should contact Allen, Dr. Johnson's nurse to ensure scheduling.**
iv. Residents should actively participate in the care of patients with musculoskeletal conditions and explore how improper nutrition and inactivity relate to disease.
v. Evaluate patients with musculoskeletal complaints in various settings.
vi. When participating in care, residents should develop a list of differential diagnoses and initial treatment plans for patient with musculoskeletal conditions and demonstrate effective exchange of information and collaboration with other health professionals.
vii. Residents should gain a better understanding of the role of the primary care physician, specialist, physical and occupational trainers, and athletic trainers in athletes or patients with musculoskeletal conditions to gain understanding of the importance of a multidisciplinary approach to optimize individualized care.
viii. Gain a better understanding of proper referral patterns.
ix. Residents should review diagnostic imaging with the supervisor and become familiar with common injuries and what imaging to order for proper evaluation.
x. The resident should spend with physical therapy to learn appropriate referral and types of therapy offered.
xi. The resident should spend time in casting and splinting of simple non-displaced fractures to understand basic management.
xii. They should become familiar with and perform proper techniques for large joint aspiration and injections.
xiii. Residents should demonstrate knowledge of common musculoskeletal disorders gained by reading selected topics.

2. Longitudinal Exposure to Musculoskeletal and Sports Medicine – Residents will receive longitudinal exposure to Musculoskeletal and Sports Medicine through their care of patients in the UTFMC as well as conferences given by faculty members. Residents are also expected to participate in pre-participation physicals to gain experience and to serve the community. Residents are expected to utilize these longitudinal experiences to improve their knowledge of Musculoskeletal and Sports Medicine and promote a healthy, active lifestyle in patients.

3. Didactic Experience – Residents will receive structured didactic lectures on issues related to Musculoskeletal and Sports Medicine throughout their three years of residency. The teaching of Sports Medicine is heavily due to hands-on training in core conferences and workshops, using films, patient demonstrations, and models. Residents will also receive hands-on MSK point-of-care ultrasounds training over the course of their residency through the POCUS curriculum.

Rotation Objectives

By the end of the Musculoskeletal and Sport Medicine rotation, PGY III residents are expected to expand and cultivate skills and knowledge learned during previous training and to achieve the following objectives based on the six general competencies. The resident should exhibit an increasing level of responsibility and independency as he or she progresses throughout the year.

Competency	Required Skill(s)	Teaching Method(s)	Formative Evaluation Method(s)	Frequency of Evaluation
Patient Care	**SPECIALTY SPECIFIC OBJECTIVES**			
	Perform an adequate history and physical examination of the adult and pediatric patient/athlete with a musculoskeletal disorder.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually

	Develop a differential diagnoses and rational plan of care for these patients including diagnostic testing, initiation and alteration of medications, and specialty consultation including therapy.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Develop skills that allow for up to date, compassionate care of the adult and pediatric patient with a musculoskeletal problem while integrating evidence based medicine, local standards of care, nationally defined quality care markers and specialty recommendations upon consultation.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Develop skills in the following procedures commonly performed in the musculoskeletal medicine • Joint aspiration and Injection, Injections for bursitis • Casting and Splinting • X-Ray Interpretation • Fracture management of simple non-displaced fractures • Uncomplicated Joint reduction • Surgical Assistance	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Establish a reasonable and safe method of outpatient follow-up of patients.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Maintain adequate, compassionate communication between the patient and medical staff.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
Medical Knowledge	**SPECIALTY SPECIFIC OBJECTIVES**			
	Develop an understanding of the general considerations when caring for a patient with a musculoskeletal disorder or sports related injury • Integration of family practice philosophy • Ethical, psychosocial, economic and medico-legal issues • Interaction with the sports medicine team • Integration of basic sciences ▪ Exercise physiology ▪ Anatomy ▪ Biomechanics and kinesiology • Nutrition, fluids and electrolytes, and dietary supplements	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually

	• Basic and clinical research			
	Integrate knowledge of patient care aspects into the care of patients with musculoskeletal disorders or sports injuries • The role of family physician as team physician, including on-site supervision • Assessment and care of acutely injured athletes, including transportation • Medical management of the athlete, including sports-specific injuries • Rehabilitation of ill and injured athletes • Exercise as treatment: physical and psychological problems • Medical care considerations for special athlete groups as outlined in selected readings • Medical equipment and supplies • Medical decision-making involving communication and interaction with athlete, coach, parents, significant others and consultants	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Summarize problems associated with exercise • Outlined in selected readings.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually

	Integrate knowledge of performing a history and physical examination into patient care • Focused history and examination of the musculoskeletal, neurologic, and cardiovascular systems • Psychological assessment and counseling	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Promote preventive techniques, including physical training and safety and assessment of the exercise environment	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Develop an understanding of the medical management of an athletic event • Roles and responsibilities of the team physician • Administrative preplanning and communication	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Recommend the appropriate comprehensive management strategy of the athlete • Assessment and care of the acutely injured athlete and recognition of orthopedic emergency • Closed head injuries • Sprains and strains • Fractures/dislocations • Spine injuries • The acutely ill athlete • Sports-specific injuries • Overuse/chronic injuries • Acute Compartment Syndrome • Indications for consultation and referral to orthopedic surgery and other appropriate specialties	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Apply knowledge of rehabilitation techniques to the care of patients • Role of sports physical therapy • Home rehabilitation techniques	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Plan and implement the techniques in pre-participation evaluation • Use of graded exercise testing • Body fat determination • Flexibility determination • Cardiac risk assessment • Organization of large group screening	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually

	Integrate knowledge of the use of medical equipment and supplies into treatment of patients • Taping and strapping techniques • Casting and immobilization techniques • Bracing techniques • Team physician's equipment bag	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Develop adequate knowledge of the common disorders in the musculoskeletal system of the adult and pediatric patient with assistance from upper level residents, faculty and specialists.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Describe and apply to patient care health promotion & prevention techniques applicable to patients with musculoskeletal disorders and/or sports related injuries • Role of exercise in mental and physical health promotion • Pre-participation evaluation • Injury prevention ▪ Equipment ▪ Taping techniques ▪ Coaching techniques ▪ Environment • Conditioning and training techniques, including principles of aerobic and resistance training • Exercise prescription ▪ Age-related ▪ Patients with chronic illness ▪ The physically challenged athlete ▪ Cardiac rehabilitation • Community programs and facilities • Establishing the community sports medicine system (network) • Epidemiology of exercise and injury • Promotion of patient education • Exercise in pregnancy	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
Practice Based Learning and Improvement	**SPECIALTY SPECIFIC OBJECTIVES**			
	See General Family Medicine Objectives for a comprehensive list.			
	Develop tools to help meet the needs of patients	Conferences/Didactics Daily Rounds	Direct Feedback Global Evaluation	Daily Monthly

		Research Discussions Self Directed Learning	Procedure Certification In-training Exam	Quarterly Annually
	Incorporate evidence based medicine and resources into the care of musculoskeletal problems.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Review current literature relevant to the care of individual patients and the community.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
Interpersonal and Communication Skills	**SPECIALTY SPECIFIC OBJECTIVES**			
	See General Family Medicine Objectives for a comprehensive list.			
	Communicate effectively with patients and their families while in the presence of their daily preceptor.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Convey information in a clear and concise manner to patients, families, and other health professionals (i.e., use appropriate vocabulary choice, realistic outcomes, and working with difficult patients and family)	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
Professionalism	**SPECIALTY SPECIFIC OBJECTIVES**			
	See General Family Medicine Objectives for a comprehensive list.			
	Provide compassionate and high quality care to all patients regardless of gender, age, culture, race, religion, disabilities, sexual orientation or socioeconomic class	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Determine best methods for consultation of subspecialty physicians while caring for the musculoskeletal/sport medicine patient	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Behave in a professional manner when interacting with patients or other health care providers.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
Systems-Based Practice	**SPECIALTY SPECIFIC OBJECTIVES**			
	See General Family Medicine Objectives for a comprehensive list.			

	Develop an understanding of the appropriate role of subspecialty medicine in evaluation and treatment of patients with injuries related to sports and musculoskeletal disorders.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Demonstrates understanding of the role of various ancillary modalities of patient care that are available including physical therapy, nutritional education and home health.	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Incorporate considerations of cost awareness and risk-benefit analysis in patient care	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually
	Advocate for quality patient care and optimal patient care systems	Conferences/Didactics Daily Rounds Research Discussions Self Directed Learning	Direct Feedback Global Evaluation Procedure Certification In-training Exam	Daily Monthly Quarterly Annually

Selected Reading Topics:

1) Normal anatomy and physiology
2) Normal growth and development
3) Musculoskeletal history taking
4) Principles of musculoskeletal physical examination
5) Indications, contraindications, and interpretation of laboratory data (e.g.,jointfluid)
6) Indications, limitations, contraindications, and informed consent for office-based musculoskeletal procedures such as:
    a) Common joint aspirations
    b) Common joint injections
    c) Common injections for bursitis
    d) Common injections for tendinopathy
7) Testing
    a) Interpretation of radiographs
    b) Use of magnetic resonance imaging (MRI), computed tomography (CT) scanning, bone scanning, and musculoskeletal ultrasound
    c) Indications for arthrogram, myelogram and arthroscopy
    d) Application of electromyography (EMG) and nerve conduction studies
8) Pathogenesis/pathophysiology and recognition of:
    a) Joint pain, swelling, and erythema
    b) Muscular pain, swelling, and injury
    c) Musculoskeletal trauma

d) Fractures
e) Dislocations
f) Tendinopathy spectrum
g) Tendon ruptures (partial and complete)
h) Nerve injuries
i) Bone and joint deformities
j) Bone and joint infections
k) Metabolic bone diseases
l) Musculoskeletal congenital anomalies
m) Musculoskeletal birth injuries
n) Compartment syndrome
o) Avascular necrosis
p) Osteoporosis
q) Over use syndromes
r) Back pain syndromes

9) Pediatric problems
a) Hip dislocation
b) Congenital hip dysplasia
c) Legg-Calvé-Perthes disease
d) Osgood-Schlatter disease
e) Slipped capital femoral epiphysis
f) "Clubfoot" (talipes equinovarus)
g) Intoeing (metatarsus adductus, tibial torsion, femoral anteversion)
h) "Bowleg" (genu varum) and "knock knee" (genu valgum)
i) Physeal injuries (Salter-Harris classification)
j) Transient synovitis
k) Child abuse patterns of injury
l) Dislocation of the radial head (nursemaid's elbow)
m) Blount disease
n) Rickets
o) Osteogenesis imperfecta
p) Thoracolumbar scoliosis

10) Sports medicine-specific considerations
a) General considerations
b) Ethical, psychosocial, economic, and medicolegal issues
c) Interaction with members of the sports medicine team
d) Nutrition, fluids and electrolytes, and dietary supplements
e) Injury prevention
i) Discouraging use of improper techniques
ii) Promoting rule changes and enforcement of rules designed to enhance participant safety

iii) Proper equipment, fit, and maintenance
iv) Taping, strapping, and bracing techniques
v) Environmental factors affecting participant and spectator safety

f) Conditioning and training techniques, including principles of aerobic and resistance training
g) Appropriate exercise prescription for:
i) Healthy persons of all ages, taking into account physiologic differences related to age and sex
ii) Patients who have chronic illnesses, including diabetes, hypertension, congestive heart failure, asthma, and chronic obstructive pulmonary disease
iii) Pregnant women
iv) Physically or mentally challenged athletes
v) Patients who have various cardiovascular conditions, especially those known to increase the risk of sudden death
h) Sports medicine education promotion for patients and their families, athletes and their families, allied health professionals, coaches, and school administrators
i) Patient care aspects
i) The important role of family physicians as part of a team of physicians for organized sports
ii) The role of family physicians as medical directors and/or on-site medical care providers for mass participation sporting events
iii) Appropriate assessment and care of acutely injured athletes, including, but not limited to:
(1) Evaluation, on-field management, and transport of suspected cervical spine injury
(2) Evaluation, and on-field and sideline management of suspected concussion or other head injury
(3) Evaluation, on-field management and transport of severe fractures and dislocations
iv) Medical management of ill and injured athletes, taking into account important sport-specific considerations
v) Rehabilitation oversight for ill and injured athletes, and return to play decision- making
j) Medical care considerations for special athlete groups
i) Preadolescent athletes
ii) Adolescent athletes
iii) Female athletes
iv) Geriatric athletes
v) Physically challenged athletes
vi) Student athletes
vii) Recreational athletes
viii) Athletes who have chronic diseases
k) Communication and interaction with patients and their families, athletes and their families, coaches, and school administrators
l) Exercise-induced asthma testing
m) Understanding of cardiac screening for exercise-related cardiac problems

11) Problems associated with exercise
a) Exercise addiction
b) Abuse of anabolic steroids and other performance-enhancing drugs
c) Pressures placed on athletes by themselves, family members, teammates, coaches, and fans to participate even when injured
d) Performance pressures placed on athletes by themselves, family members, teammates, coaches, and fans
e) The intermittent exerciser
f) How to deal with unmet and unrealized expectations

g) Alcohol and illicit drug use and abuse
h) Eating disorders

12) Management and therapy
a) Outline of expected course with and without therapy
b) Patient education for acute and chronic problems
c) Targeted pharmacologic treatment
d) Supportive/corrective devices, including braces, casts, splints, and orthotics
e) Complementary and alternative modalities
f) Prevention
i) Preparticipation screening
ii) Conditioning and training
iii) Injury prevention
iv) Physical fitness/exercise prescription
v) Bone loss
g) Rehabilitation
i) Physical therapy
(1) Cold, heat
(2) Ultrasound and phonophoresis
(3) Exercises
(4) Electrical stimulation (e-stim) and iontophoresis
ii) Occupational therapy
iii) Complementary modalities (e.g., osteopathic manipulative therapy [OMT], massage, acupuncture)
iv) Psychosocial aspects of trauma
h) Surgery and follow-up care
i) Internal and external fixation devices
ii) Artificial joint replacement
iii) Arthroscopy

13) Other problems
a) Costochondritis
b) Bursitis, tendiopathy, tenosynovitis
c) Meniscal tears
d) Synovial cysts
e) Osteochondroses/aseptic necrosis
f) Gout, Pseudogout
g) Common fracture
i) Closed tarsal and carpal bones, particularly navicular
ii) Smith and Colles fracture
iii) Nondisplaced medial or lateral epicondyle of humerous
iv) Dancer’s and Jones fractures
v) Nondisplaced humeral neck fractures.

Resources:

Books

Eiff MP, Hatch RL. *Fracture Management for Primary Care*. 3rd ed. Philadelphia, PA: Elsevier Saunders; 2011.

Organizations

American Academy of Family Physicians. www.aafp.org

American Academy of Orthopaedic Surgeons. www.aaos.org

American College of Radiology. http://acr.org

American College of Rheumatology. www.rheumatology.org

American College of Sports Medicine. www.acsm.org

American Medical Society for Sports Medicine. www.amssm.org

American Orthopaedic Society for Sports Medicine. www.sportsmed.org

Arthritis Foundation. http://arthritis.org

References

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Azar, F., Canale, S. and Beaty, J. (2017). *Campbell's Operative orthopaedics*. 13th ed. Philadelphia: Elsevier.

Cleland, J., Koppenhaver, S., Su, J. and Netter, F. (2016). *Netter's Orthopaedic Clinical Examination: An Evidenced-Based Approach*. 3rd ed. Philadelphia, PA: Elsevier.

Eiff, M. and Hatch, R. (2018). *Fracture Management for Primary Care*. 3rd ed. Philadelphia, PA: Elsevier.

Jacobson, J. (2017). *Fundamentals of Musculoskeletal Ultrasound*. 3rd ed. Philadelphia, PA: Elsevier Health Sciences.

Madden, C., Putukian, M., McCarty, E., Young, C. and Netter, F. (2018). *Netter's Sports Medicine*. 2nd ed. Philadelphia, PA: Elsevier.

***Updated June 2021 using ACGME program requirements for Graduate Medical Education in Family Medicine and AAFP Musculoskeletal and Sports Medicine Recommended Curriculum Guidelines for Family Medicine Residents.**