

The Sports Medicine Milestone Project

A Joint Initiative of

The Accreditation Council for Graduate Medical Education,
The American Board of Emergency Medicine,
The American Board of Family Medicine,
The American Board of Pediatrics,
and
The American Board of Physical Medicine and Rehabilitation



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The Milestones are designed only for use in evaluation of fellows in the context of their participation in ACGME-accredited residency or fellowship programs. The Milestones provide a framework for the assessment of the development of the fellow in key dimensions of the elements of physician competency in a specialty or subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency, nor are they designed to be relevant in any other context.

Sports Medicine Milestones

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Milestone Reporting

This document presents Milestones designed for programs to use in semi-annual review of fellow performance and reporting to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for fellow performance as a fellow moves from entry into fellowship through graduation. In the initial years of implementation, the Review Committee will examine Milestone performance data for each program's fellows as one element in the Next Accreditation System (NAS) to determine whether fellows overall are progressing.

For each period, review and reporting will involve selecting milestone levels that best describe each fellow's current performance and attributes. Milestones are arranged into numbered levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert in the subspecialty. These levels do not correspond with post-graduate year of education.

Selection of a level implies that the fellow substantially demonstrates the milestones in that level, as well as those in lower levels (see the diagram on page v).

Level 1: The fellow demonstrates milestones expected of an incoming fellow.

Level 2: The fellow is advancing and demonstrates additional milestones, but is not yet performing at a mid-fellowship level.

Level 3: The fellow continues to advance and demonstrate additional milestones, consistently including the majority of milestones targeted for fellowship.

Level 4: The fellow has advanced so that he or she now substantially demonstrates the milestones targeted for fellowship. This level is designed as the graduation target.

Level 5: The fellow has advanced beyond performance targets set for fellowship and is demonstrating "aspirational" goals which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional fellows will reach this level.

Additional Notes

Level 4 is designed as the graduation *target* and *does not* represent a graduation *requirement*. Making decisions about readiness for graduation is the purview of the fellowship program director. Study of Milestone performance data will be required before the ACGME and its partners will be able to determine whether milestones in the first four levels appropriately represent the developmental framework, and whether Milestone data are of sufficient quality to be used for high-stakes decisions.

Examples are provided with some milestones. Please note that the examples are not the required element or outcome; they are provided as a way to share the intent of the element.

Some milestone descriptions include statements about performing independently. These activities must occur in conformity to the ACGME supervision guidelines, as well as to institutional and program policies. For example, a fellow who performs a procedure independently must, at a minimum, be supervised through oversight.

Answers to Frequently Asked Questions about Milestones are available on the Milestones web page:

<http://www.acgme.org/acgmeweb/Portals/0/MilestonesFAQ.pdf>.

The diagram below presents an example set of milestones for one sub-competency in the same format as the ACGME Report Worksheet. For each reporting period, a fellow's performance on the milestones for each sub-competency will be indicated by selecting the level of milestones that best describes that fellow's performance in relation to those milestones.

Team Coverage and Athletic Care: coverage of sporting events, pre-participation physical examinations, training room coverage — Patient Care 3				
Level 1	Level 2	Level 3	Level 4	Level 5
Participates in team and event medical coverage with direct supervision Participates in pre-participation physical examination with direct supervision	Performs pre-participation physical examination with indirect supervision Manages common sports medicine problems in the training room Performs minor procedures (e.g., laceration care, joint reduction) and basic resuscitation in the athletic environment with direct supervision	Organizes team and event medical coverage with indirect supervision Performs pre-participation physical examination independently Manages common sports medicine problems in the athletic environment (e.g., athletic field, mass participation events) Performs procedures and basic resuscitation in the athletic environment with indirect supervision	Independently organizes team and event medical coverage Directs a multidisciplinary team in providing pre-participation physical examination Treats and manages acute injuries, adverse clinical situations and determines return to participation	Serves as a resource or role model in the community for implementing care at athletic events
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments: <input type="checkbox"/> Not yet achieved Level 1 <input type="checkbox"/>				

Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.

Selecting a response box on the line in between levels indicates that milestones in lower levels have been substantially demonstrated as well as **some** milestones in the higher level(s).

History and Physical Examination: Medical and Musculoskeletal — Patient Care 1				
Level 1	Level 2	Level 3	Level 4	Level 5
Obtains appropriate medical history	Obtains detailed history of sports-related medical condition or injury	Obtains advanced history of sports-related medical condition or injury (i.e., mechanism, risk factors, genetic history, nutritional deficiencies)	Independently obtains complex history of common and unusual conditions	Role models techniques to obtain subtle and sensitive information from patients and families
Performs basic medical examination	Performs specific organ-based medical examination for common sports medicine conditions (e.g., cardiac exam for murmurs, neurologic exam for concussion)	Performs appropriate medical examination for complex or high-risk sports medicine conditions (e.g., compartment syndrome, post-concussive syndrome, sudden cardiac arrest)	Independently performs complex examinations of common and unusual conditions	Role models efficiently performing problem-based examination
Performs basic musculoskeletal examination	Performs regional musculoskeletal examination with specific maneuvers (e.g., Lachman’s test, ankle drawer test, shoulder labral tests)	Consistently performs regional musculoskeletal examination with maneuvers specific to the presenting complaint	Integrates functional and dynamic testing (e.g., landing technique assessment, running gait analysis, ultrasound guided assessment)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Medical Management: Differential Diagnosis, Diagnostic Testing, Interpretation of Data and Treatment Planning — Patient Care 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>Develops a basic differential diagnosis pertinent to common medical conditions</p> <p>Orders and interprets basic diagnostic testing appropriate to common medical conditions</p> <p>Generates a basic treatment plan for common medical conditions</p>	<p>Develops a basic differential diagnosis pertinent to sports medicine conditions</p> <p>Orders and interprets basic diagnostic testing appropriate to common sports medicine conditions</p> <p>Generates a basic treatment plan for common sports medicine conditions</p>	<p>Develops a comprehensive differential diagnosis based upon history and physical examination findings</p> <p>Utilizes results of diagnostic testing to generate and modify a treatment plan for athletes with medical conditions (e.g., abnormal EKG, laboratory studies, imaging)</p> <p>With supervision, manages acute and chronic sports medicine conditions, including rehabilitation and return-to-participation decisions</p> <p>Refers patients to specialists appropriately</p> <p>Understands evidence-based principles and cost-effective strategies to generate and modify a treatment plan</p>	<p>Independently interprets diagnostic testing</p> <p>Utilizes evidence-based principles and cost-effective strategies to generate and modify a treatment plan for complex conditions</p> <p>Independently provides patient care in all aspects of sports medicine</p>	<p>Serves as a resource or role model for the evaluation and management of complex conditions in sports medicine</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Team Coverage and Athletic Care: Coverage of Sporting Events, Pre-participation Physical Examinations, Training Room Coverage — Patient Care 3				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>With direct supervision, participates in team and event medical coverage</p> <p>With direct supervision, participates in pre-participation physical examinations</p>	<p>With indirect supervision, organizes team and event medical coverage</p> <p>With indirect supervision, performs pre-participation physical examinations</p> <p>Manages common sports medicine problems in the training room</p> <p>With direct supervision, performs minor procedures (e.g., laceration care, joint reduction) and basic resuscitation in the athletic environment</p>	<p>Performs pre-participation physical examination independently</p> <p>Manages common sports medicine problems in the athletic environment (e.g., athletic field, mass participation events)</p> <p>With indirect supervision, performs procedures and basic resuscitations in the athletic environment</p>	<p>Independently organizes team and event medical coverage</p> <p>Directs and works collaboratively with a multidisciplinary team in providing pre-participation physical examinations</p> <p>Treats and manages acute injuries, adverse clinical situations, and determines return-to-participation</p>	<p>Develops policies for team and event medical coverage</p> <p>Serves as a resource or role model in the community for implementing care at athletic events</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Science of Sports Medicine, including Anatomy, Physiology, Cellular Biology, Epidemiology, Pharmacology, Nutrition, Biomechanics, Rehabilitation, and Psychology — Medical Knowledge 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>Demonstrates knowledge of basic sciences, including anatomy, physiology, epidemiology, pharmacology, nutrition, biomechanics, rehabilitation, and psychology</p> <p>Demonstrates knowledge of anatomy and physiology related to growth, development, and aging</p>	<p>Demonstrates knowledge of basic sciences related to sports medicine in patients of all ages</p> <p>Demonstrates basic knowledge of rehabilitation, preventive strategies, and therapeutic modalities (e.g., ice, ultrasound, electrical stimulation)</p>	<p>Synthesizes scientific knowledge in managing common sports medicine conditions</p> <p>Demonstrates knowledge of factors associated with risk of injury, including age, gender, and disability</p> <p>Demonstrates both basic science and clinical knowledge of the details of tissue healing and cellular physiology across the lifespan in selecting treatment options (e.g., injections, medications, manual therapy)</p>	<p>Synthesizes and applies scientific knowledge in complex sports medicine conditions</p> <p>Integrates basic and clinical science knowledge of pathophysiology, tissue healing, and treatment interventions in return-to-activity decisions (e.g., ACL rehabilitation, high-risk stress fractures, concussion management)</p>	<p>Publishes peer-reviewed work related to the science of sports medicine</p> <p>Possesses the scientific, socioeconomic, and behavioral knowledge required to successfully incorporate basic and clinical science to diagnose and treat uncommon, ambiguous, and complex conditions</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Medical Issues in Sports Medicine — Medical Knowledge 2				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates general knowledge of medical issues in sports medicine	Demonstrates knowledge of illness and injury associated with athletic activities	Synthesizes knowledge of the pathophysiology, evaluation and management, and prevention of sports medicine-related illness and injury	Synthesizes and applies knowledge of the pathophysiology, evaluation and management, and prevention of sports medicine-related illness and injury	Publishes peer-reviewed scientific work related to medical issues in sports medicine
Demonstrates knowledge of pathophysiology of common medical conditions in sports medicine	Demonstrates knowledge of pathophysiology of common sports-related medical conditions and risk factors	Interprets common diagnostic studies used to evaluate medical conditions in sport medicine (e.g., EKG, pulmonary function test)	Demonstrates knowledge of return-to-activity and participation guidelines for life threatening medical conditions in sports medicine	Collaborates with other experts to advance the medical management of sports medicine-related conditions
	Demonstrates knowledge of diagnostic testing to evaluate sports-related medical conditions	Demonstrates knowledge of return-to-activity and participation guidelines for common medical conditions in sports medicine	Demonstrates knowledge of alternative approaches to the medical management of sports medicine conditions and associated controversies	Possesses the scientific, socioeconomic, and behavioral knowledge required to diagnose and treat uncommon, ambiguous, and complex medical conditions and injuries
		Demonstrates knowledge of complications of medical management in sports medicine conditions		
		Demonstrates knowledge of the role of performance enhancing drugs in sports, including doping regulations, testing, and risks		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Musculoskeletal Issues in Sports Medicine — Medical Knowledge 3				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates general knowledge of musculoskeletal issues in sports medicine	<p>Demonstrates knowledge of musculoskeletal injury associated with athletic activities</p> <p>Demonstrates knowledge of pathophysiology of common musculoskeletal conditions</p> <p>Demonstrates knowledge of diagnostic testing to evaluate sports-related musculoskeletal conditions</p>	<p>Synthesizes knowledge of the pathophysiology, evaluation, and management of sports medicine-related musculoskeletal injury</p> <p>Interprets common diagnostic studies used to evaluate musculoskeletal conditions in sport medicine</p> <p>Demonstrates knowledge of return-to-activity and participation guidelines for common musculoskeletal conditions in sports medicine</p> <p>Demonstrates knowledge of treatment options of operative and non-operative management of musculoskeletal conditions in sports medicine</p> <p>Demonstrates knowledge of biomechanics of injury and how it applies to preventive strategies (e.g., pitching mechanics, ACL prevention programs)</p>	<p>Synthesizes and applies knowledge of the pathophysiology, evaluation, and management of sports medicine-related musculoskeletal injury</p> <p>Demonstrates knowledge of return-to-activity and participation guidelines for life threatening musculoskeletal conditions in sports medicine</p> <p>Demonstrates knowledge of complications and controversies in operative and non-operative management of musculoskeletal conditions in sports medicine</p> <p>Integrates knowledge of biomechanics into individual treatment plans and prevention programs</p>	<p>Publishes peer-reviewed work related to musculoskeletal issues in sports medicine</p> <p>Possesses the scientific socioeconomic and behavioral knowledge required to successfully incorporate basic and clinical science to diagnose and treat uncommon, ambiguous, and complex musculoskeletal conditions</p> <p>Develops policies for evaluation and management of sports medicine-related musculoskeletal injury, and return-to-activity and participation guidelines for life threatening musculoskeletal conditions in sports medicine</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Working with Inter-professional Teams (consultants, certified athletic trainers [ATCs], physical therapists [PTs], occupational therapists [OTs], chiropractors, etc.) to Enhance Athletic Care and Safety — Systems-based Practice 1				
Level 1	Level 2	Level 3	Level 4	Level 5
Collaborates with health care colleagues in the care of patients	<p>Demonstrates knowledge of the role of each team member</p> <p>Collaborates with health care colleagues in the care of athletes or active individuals</p> <p>Identifies emergency action plans for use in different settings (i.e., clinic vs. event)</p>	<p>Maintains an interdisciplinary and team-based approach and has situational awareness to the care of the athlete</p> <p>Implements emergency action plans (simulation or real scenario)</p> <p>Describes potential sources of system failure in clinical care, such as minor, major, and sentinel events</p> <p>Participates in quality improvement projects addressing athletic safety and clinical care</p> <p>Participates in the development or maintenance of emergency action plans</p>	<p>Leads the incorporation of quality improvement and athletic safety into clinical care</p> <p>Participates in a team-based approach to medical error analysis</p> <p>Leads the development and maintenance of emergency action plans</p>	Serves as a leader in the community for the development of interdisciplinary programs to enhance athletic care and safety
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Systems Thinking — Systems-based Practice 2				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic levels of systems of care for the athlete	Describes cost containment and value implications of care Demonstrates knowledge of the economic challenges of patient care within the health system	Prioritizes cost containment and value implications when coordinating care for individual athletes, balancing quality and safety Demonstrates knowledge of the financial implications of different health care systems for athletes Demonstrates knowledge of medicolegal issues related to sports medicine	Manages workflow of a sports medicine clinic and training room/athletic event Serves as a medical director for a team or event Utilizes a broad spectrum of resources to efficiently manage team care and event coverage Incorporates practices to mitigate medical-legal risk	Serves as a primary care sports medicine expert for a practice group or community Develops policies for team or event management Serves as a resource or role model for cost containment and value implications when coordinating care within sports medicine
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Self-directed Learning — Practice-based Learning and Improvement 1				
<ul style="list-style-type: none"> Identify strengths, deficiencies, and limits in one’s knowledge and expertise Set learning and improvement goals Identify and perform appropriate learning activities Use information technology to optimize learning 				
Level 1	Level 2	Level 3	Level 4	Level 5
Acknowledges gaps in knowledge and clinical expertise in sports medicine	Accepts external feedback regarding knowledge base and clinical performance, and understands plan for improvement	<p>Develops an appropriate learning plan based upon sports medicine experience</p> <p>Actively seeks external feedback regarding knowledge base and clinical performance, and independently develops a plan for improvement</p>	<p>Completes an appropriate learning plan based upon sports medicine experience</p> <p>Independently uses self-evaluation and peer feedback regarding knowledge base and clinical performance, and independently develops a plan for improvement</p> <p>Periodically re-evaluates improvement plan and makes adjustments as needed</p>	<p>Independently uses self-evaluation and external feedback, including patient feedback regarding clinical performance, and independently develops a plan for improvement</p> <p>Continuously re-evaluates improvement plan and makes adjustments as needed</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Locate, Appraise, and Assimilate Evidence from Scientific Studies Related to the Patient’s Health Problems — Practice-based Learning and Improvement 2				
Level 1	Level 2	Level 3	Level 4	Level 5
Uses information technology to search and access relevant and valid medical information	Uses scholarly articles and guidelines to address patient care issues in sports medicine	Critically evaluates scientific literature in sports medicine Understands the limits of evidence-based medicine in patient care	Incorporates appropriate evidence-based information into patient care	Publishes peer-reviewed scientific work related to sports medicine
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Compassion, Integrity, Accountability, and Respect for Self and Others — Professionalism 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>Demonstrates compassion, sensitivity, and responsiveness to patients and families</p> <p>Demonstrates non-discriminatory behavior in all interactions, including with diverse and vulnerable populations</p> <p>Consistently demonstrates professional behavior, including dress and timeliness</p>	<p>Describes effects of sleep deprivation and substance abuse on provider performance</p> <p>Demonstrates knowledge of appropriate steps to address impairment in self or colleagues</p>	<p>Demonstrates compassionate practice of medicine, even in the context of disagreement with patient beliefs and expectations</p> <p>Incorporates patients' socio-cultural needs and beliefs into patient care</p>	<p>Mentors others in the compassionate practice of medicine, even in the context of disagreement with patient beliefs</p> <p>Mentors others in sensitivity and responsiveness to diverse and vulnerable populations</p> <p>Advocates for quality patient care and well-being, even when faced with competing outside interests (e.g., employer, coach, administrator, sports agent)</p> <p>Fosters collegiality that promotes a high-functioning inter-professional team</p>	<p>Serves as a resource or role model for professionalism in sports medicine</p> <p>Role models compassion, empathy, and respect for patients</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Knowledge about and Adherence to the Ethical Principles Relevant to the Practice of Sports Medicine — Professionalism 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>Describes basic ethical principles</p> <p>Demonstrates integrity and respect for patients and colleagues</p>	<p>Determines presence of ethical issues in sports medicine</p>	<p>Analyzes and manages ethical issues in straightforward clinical situations</p> <p>Analyzes and describes ethical issues inherent in clinical research</p> <p>Promotes integrity and respect for patients and colleagues</p>	<p>Analyzes and manages ethical issues in complex clinical situations, including removal from competition (e.g., career-ending injury)</p> <p>Role models respectful interactions between patients and colleagues</p>	<p>Demonstrates leadership and mentorship in applying ethical principles in sports medicine settings</p> <p>Role models and sets expectations for others in regards to respectful interactions between patients and colleagues</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Relationship Development, Teamwork, and Managing Conflict — Interpersonal and Communication Skills 1				
Level 1	Level 2	Level 3	Level 4	Level 5
Develops a positive relationship with patients in uncomplicated situations Actively participates in team-based care	Manages patient- and/or family-related conflicts Uses easy-to-understand language in all phases of communication	Manages conflict in complex situations Engages patients in shared decision making	Manages conflict across specialties and systems of care Leads team-based patient care activities Effectively communicates as to minimize the occurrence of conflict	Serves as a resource or role model for teamwork and conflict management Role models effective communication and relationship development
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>

Information Sharing, Gathering, and Technology — Interpersonal and Communication Skills 2				
Level 1	Level 2	Level 3	Level 4	Level 5
Effectively communicates patient-related information	Provides effective and timely communication with members of the health care team during clinical activities and event coverage	Effectively communicates the results of a sports medicine consultation in a timely manner	Effectively leads patient care meetings, including those related to career ending injuries	Serves as a role model for interpersonal communication in sports medicine
Accurately documents transitions of care	Educates patients and families about the illness or injury and management, including risks and benefits of treatment options	Educates coaches and other health care professionals about the illness or injury and management, including risks and benefits of treatment options	Effectively and ethically uses all forms of communication in a manner that protects patient confidentiality	Serves as an expert in the discovery, integration, or teaching of knowledge related to primary care in sports medicine
Completes documentation in a timely fashion	Effectively gathers information from appropriate additional resources when necessary	Provides effective and timely communication regarding changes in patient status, including removal or return to participation	Develops patient education materials related to the field of sports medicine	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				Not yet achieved Level 1 <input type="checkbox"/>