

# **FOUNDATIONS OF SPORTS MEDICINE I**

## Curriculum Content Frameworks

**Please note: All assessment questions will be taken from the knowledge portion of these frameworks.**

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# Curriculum Content Frameworks

## FOUNDATIONS OF SPORTS MEDICINE I

Grade Levels: 9-12  
Course Code: 494050

Prerequisite:

Course Description: This course provides students with a general overview of sports medicine and its history from the perspective of the healthcare community that includes injury prevention, treatment, rehabilitation, psychosocial, and administration concerns. Students will gain an understanding of sports medicine and the role it plays in the athletic community. It is recommended that Human Anatomy and Physiology be completed prior to enrolling in this course.

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# Unit 1: Introduction to Sports Medicine

Hours: 4

**Terminology:** Accrediting agencies, American Medical Association (AMA), Arkansas Athletic Trainers Associations (AATA), Athletic Trainer Certified (ATC), Athletic Training Student (ATS), Board of Certification (BOC), Licensed Athletic Trainer(LAT), National Athletic Trainers Association (NATA), Southwest Athletic Trainers Association (SWATA), Sports medicine, Sports medicine team, State board

<b>CAREER and TECHNICAL SKILLS</b>	
What the Student Should Know	What the Student Should be Able to Demonstrate
<b>Knowledge</b>	<b>Application</b>
1.1 Define terminology	1.1.1 Prepare a list of terms with definitions
1.2 Recognize the historical foundations of athletic training	1.2.1 Identify how the profession's history has impacted the profession today
	1.2.2 Discuss the importance the historical foundations may have for the future
1.3 Identify the various professional organizations dedicated to athletic training and sports medicine	1.3.1 Discuss the differences between state, local, and national levels of organization
	1.3.2 Describe the impact these professional organizations have made on the field of athletic training
1.4 Delineate the process for attaining certification and licensure for the athletic trainer	1.4.1 Explain the role of the BOC
	1.4.2 Describe the difference between "certification" and "licensure"
1.5 Recognize the difference in the roles and responsibilities of various professionals that make up the sports medicine team	1.5.1 Differentiate between the roles of the coach, the athletic training student, the athletic trainer, and the team physician
	1.5.2 Discuss the roles of other members of the sports medicine team
1.6 Describe the different types of job opportunities available to the Certified Athletic Trainer	1.6.1 Compare and contrast the job descriptions for an athletic trainer in these secondary school, clinical, occupational, university, and professional setting

## Unit 2: Legal and Ethical Concerns

### Hours: 6

Terminology: Assumption of risk, Foreseeability of harm, Good Samaritan Law, Liability, Malfeasance, Misfeasance, Negligence, Nonfeasance, Practice Act, Product liability, Sovereign immunity, Statute of limitations, Tort

<b>CAREER and TECHNICAL SKILLS</b>			
What the Student Should be Able to Do			
<b>Knowledge</b>		<b>Application</b>	
2.1	Define terminology	2.1.1	Prepare a list of terms with definitions
2.2	Explain legal considerations for the athletic trainer acting as a health care provider	2.2.1	Identify the legal limitations of coaches, athletic trainers, and athletic training students
2.3	Compare and contrast legal concepts of liability, negligence, torts, and assumption of risks	2.3.1	Give real life examples of all four terms
		2.3.2	Identify measures that can be taken to minimize chances of litigation
		2.3.3	Describe product liability
		2.3.4	Differentiate between ethical and legal responsibility

## Unit 3: Health Care Administration

**Hours: 8**

Terminology: Athletic training facility, Family Education Right and Protection Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA), Injury tracking, Medical documentation, Pre Participation Examination (PPE), Weaknesses Opportunities Threats Strengths Underline Planning (WOTSUP)

<b>CAREER and TECHNICAL SKILLS</b>	
What the Student Should be Able to Do	
<b>Knowledge</b>	<b>Application</b>
3.1 Define terminology	3.1.1 Prepare a list of terms with definitions
3.2 Recognize the necessary components that make up a well designed athletic training facility	3.2.1 Create plans for a functional, well designed athletic training facility
	3.2.2 Identify appropriate policies and procedures should be enforced in the athletic training room
3.3 Identify budgetary concerns	3.3.1 Create a budget for an athletic training program based on specific instructor determine parameters
	3.3.2 Project possible concerns for an individual program
3.4 Identify the legal importance of good record keeping	3.4.1 Differentiate between different types of documents must be kept
	3.4.2 Explain the importance of pre-participation physicals
	3.4.3 Compare and contrast current options for record keeping and injury tracking
	3.4.4 Give real life examples of HIPAA and FERPA violations

## Unit 4: Training and Conditioning Techniques

### Hours: 8

**Terminology:** Adenosine Di Phosphate (ADP), Adenosine Tri Phosphate (ATP), Aerobic metabolism, Agonist Muscle, Anaerobic metabolism, Antagonist muscle, Cardiac output, Creatine Phosphate (CP), Domains of fitness, Functional progression, Golgi Tendon Organ (GTO), Muscle contractions, Muscle spindle, Neuromuscular Control (NMC), Overload principle, Plyometric, Proprioception, Range of Motion (ROM), Training affect

<b>CAREER and TECHNICAL SKILLS</b>	
What the Student Should be Able to Do	
<b>Knowledge</b>	<b>Application</b>
4.1 Define terminology	4.1.1 Prepare a list of terms with definitions
4.2 Examine the roles of the athletic trainer and the strength and conditioning coach and their affect on an athlete's fitness	4.2.1 Differentiate between two roles and their impact on the athlete
4.3 Identify the principles of conditioning	4.3.1 Express the importance of the warm-up and cool down periods 4.3.2 Evaluate the importance of flexibility, strength, and aerobic endurance for athletic performance and injury prevention 4.3.3 Compare and contrast techniques for improving flexibility, strength, and aerobic endurance 4.3.4 Apply the concept of periodization and identify the various training periods in each phase
4.4 Explain the role that overtraining plays in the risk of injury	4.4.1 Discuss the consequences the detrimental effects that overtraining can have on a given group of athletes
4.5 Develop goals of a training and conditioning program	4.5.1 Describe how to increase neuromuscular control 4.5.2 Create a plan for improving range of motion 4.5.3 Discuss how to improve postural stability and balance 4.5.4 List ways to maintain cardiorespiratory fitness during rehabilitation
4.6 Identify the tools needed for a comprehensive training and conditioning program	4.6.1 Compare core stabilization training with plyometric techniques

## Unit 5: Nutrition

**Hours: 5**

Terminology: Amino acids, Anabolic steroids, Anorexia nervosa, Body composition, Bulimia, Calorie, Electrolytes, Glycolysis, Human Growth Hormone (HGH), Minerals, Nutrients, Saturated fats, Supplements, Unsaturated fats, Vitamins

<b>CAREER and TECHNICAL SKILLS</b>	
What the Student Should be Able to Do	
<b>Knowledge</b>	<b>Application</b>
5.1 Define terminology	5.1.1 Prepare a list of terms with definitions
5.2 Distinguish the six classes of nutrients	5.2.1 Describe the major function of each nutrient
5.3 Explain the importance of good nutrition in enhancing performance and injury prevention	5.3.1 Assess the pros and cons of supplementing nutrients in the athlete's diet
	5.3.2 Discuss parameters for consuming a pre-event meal
5.4 Identify the difference between body weight and body composition along with the factors that influence both of them	5.4.1 Discuss the idea of caloric balance and how to assess it
	5.4.2 Assess body composition using skin calipers
5.5 Identify various methods for weight loss, as well as gaining weight	5.5.1 Compare and contrast the various weight manipulation methods
	5.5.2 Recognize signs of eating disorders and psychological factors that influence them
	5.5.3 Create a personalized nutrition and training regiment for a specific athlete

## Unit 6: Environment

**Hours: 6**

Terminology: Altitude illness, Ambient temperature, Conduction, Convection, Evaporation, Heat index, Humidity, Hydration, Thermal injuries, Wind chill

<b>CAREER and TECHNICAL SKILLS</b>	
What the Student Should be Able to Do	
<b>Knowledge</b>	<b>Application</b>
6.1 Define terminology	6.1.1 Prepare a list of terms with definitions
6.2 Recognize atmospheric conditions that contribute to environmental injury	6.2.1 Compare and contrast the differences between heat exhaustion and heat stroke
	6.2.2 Describe cold injuries and their causes
	6.2.3 Explain the physiology of hypothermia and how it can be prevented
	6.2.4 Identify unstable atmospheric conditions and develop a lightening policy
6.3 List the environmental factors to be considered when caring for athletes	6.3.1 Explain the importance of facility inspection
	6.3.2 Investigate the effect of synthetic turf on the incidence of injury and report the findings
	6.3.3 Explain the affects of high altitude on training and performance

## Unit 7: Protective Gear, Taping, and Bracing

### Hours: 9

Terminology: Bracing, Cantilever padding, Customized, Fabricated bracing, Foam padding, NOCSAE, Off the shelf, Orthotics, Prophylactic taping, Restricted movement brace, Structural stability

<b>CAREER and TECHNICAL SKILLS</b>	
What the Student Should be Able to Do	
<b>Knowledge</b>	<b>Application</b>
7.1 Define terminology	7.1.1 Prepare a list of terms with definitions
7.2 List the considerations to be given when fitting head gear	7.2.1 Fit a football helmet properly
7.3 Recognize the advantages and disadvantages between customize versus commercial protective devices	7.3.1 Describe the controversies surrounding the use of certain protective devices
7.4 List the types of marketed and fabricated bracing devices	7.4.1 Demonstrate the appropriate application of each type of bandage for various types of injuries
	7.4.2 Demonstrate the application of a cloth ankle wrap
	7.4.3 Compare effectiveness of taping versus bracing
	7.4.4 Discuss financial consideration of taping versus bracing
7.5 List 4 basic tape jobs and the procedures for application of each	7.5.1 Demonstrate arch taping
	7.5.2 Demonstrate ankle taping
	7.5.3 Demonstrate hand and wrist taping
	7.5.4 Demonstrate elbow taping
	7.5.5 Explain the purpose of each type of taping

# Glossary

## Unit 1: Introduction to Sports Medicine

1. Accrediting agencies – agencies that provide accreditation to college programs that meet all standards in professional preparation
2. American Medical Association (AMA) – a group of medical professionals that set standards for health care practices
3. Arkansas Athletic Trainers Associations (AATA) – a state organization for ATCs and ATs in the state of Arkansas
4. Athletic Trainer Certified (ATC) – a person who has passed the Board of Certification (BOC) exam and practices under his or her State Practice Act
5. Athletic Training Student (ATS) – a student participating in an accredited CAAHEP program as an undergraduate student
6. Board of Certification (BOC) – the organization that sets the standards for athletic training and credentials professionals through a national certification examination
7. Licensed Athletic Trainer – an athletic trainer who holds a valid license which allows him or her to practice in a given state
8. National Athletic Trainers Association (NATA) – a national organization for ATCs and ATs
9. Southwest Athletic Trainers Association (SWATA) – a regional organization for ATCs and ATs in the states of Arkansas and Texas
10. Sports medicine – a field of medicine that specializes in physical activity and sport related injuries and involves the prevention and treatment of those injuries
11. Sports medicine team – a team made up of professionals involved in all aspects of caring and dealing with an athlete
12. State board – board of certified athletic trainers in each state that helps to determine the practice acts of the state for certified athletic trainers

## Unit 2: Legal and Ethical Concerns

1. Assumption of risk – when a person knows that an activity in which they are participating could potentially cause harm to them, and they still chose to participate in the activity and will not be compensated for any injury that they sustain
2. Foreseeability of harm – the reasonable anticipation that one might foresee that harm or injury could result from an act, the failure to act, or unmaintained facilities and equipment
3. Good Samaritan Law – a law that protects individuals that attempt to render aid to injured person(s) when the aid is being given in good faith
4. Liability – the act of taking responsibility for an action that has caused bodily harm to another person(s)
5. Malfeasance – the performance of an act that should not be performed
6. Misfeasance – the performance of a lawful act in an improper manner
7. Negligence – when a person fails to act when there was a duty to act or when a person invades another person's interests
8. Nonfeasance – failure to act when there is a duty to act
9. Practice Act – legal guidelines set by state government that stipulates what an individual can and cannot do as a practicing professional. These vary from state to state
10. Product liability – the liability of the manufacturer, seller or supplier of goods or equipment to a buyer in the case of injuries that are sustained from defective products
11. Sovereign immunity – a doctrine that exempts the government from liability for harm caused by their employees
12. Statute of limitations – the legal limit of time allowed to file suit which may vary from state to state
13. Tort – a wrongful act committed by a person against another person or that person's property and requires that person to be compensated for the damages

## Unit 3: Health Care Administration

1. Athletic training facility – a clinic concerned specifically with the care, prevention, and rehabilitation of athletic injuries
2. Family Education Right and Protection Act (FERPA) – protects a student’s educational records from being shared unless otherwise specified by a parent or student who is 18
3. Health Insurance Portability and Accountability Act (HIPAA) – regulates how healthcare professionals share a patient’s health information with others
4. Injury tracking – collection of all injuries that occurred within a specified time frame used for future research purposes
5. Medical documentation – detailed accounts of all aspects and actions involved in working as a healthcare professional
6. Pre Participation Examination (PPE) – an exam given prior to participating in a sport which provides a baseline with which to compare and injury as well as reveal an athlete who may not be completely fit to complete
7. Weaknesses Opportunities Threats Strengths Underline Planning (WOTSUP) – a technique in the strategic planning for existing sports medicine programs

## Unit 4: Training and Conditioning Techniques

1. Adenosine Di Phosphate (ADP) – produced through the hydrolysis of ATP and can be converted back to ATP when needed for muscle contraction
2. Adenosine Tri Phosphate (ATP) – produced in the muscle from glucose and serves as an immediate source of energy for muscular contraction
3. Aerobic metabolism – system which requires oxygen to produce energy
4. Agonist muscle – the muscle that generates a movement
5. Anaerobic metabolism – energy producing system which does not require oxygen
6. Antagonist muscle – responsible for returning the muscle to its original position and works in opposition of the agonist muscle
7. Cardiac output – the amount of blood pumped through the heart in one minute
8. Creatine phosphate – substance stored in skeletal muscle utilized during aerobic activity to produce ATP
9. Domains of fitness – components of fitness which include cardiorespiratory endurance, muscular strength, flexibility, muscular power, muscular endurance
10. Functional progression – a series of sport specific activities that progress from simple to complex
11. Golgi Tendon Organ (GTO) – a protective reflex which prevents overstretching of the tendons that cross a joint
12. Muscle contractions – various ways a muscle reacts to force while doing work
13. Muscle spindle – protective reflex which prevents overstretching of a muscle
14. Neuromuscular Control (NMC) – maintaining a smooth relationship between the neurological and muscular systems
15. Overload principle – adaption of muscle will occur when imposed with greater than normal stressors
16. Plyometric – type of exercise used to create large, bounding-type motions by the stretching and then immediate contraction of a muscle
17. Proprioception – maintaining balance through body awareness
18. Range of Motion (ROM) – the total amount of movement in a joint
19. Training affect – a decrease in resting heart rate and increase in stroke volume as a result of conditioning

## Unit 5: Nutrition

1. Amino acids – the building blocks of protein used to build and repair body tissue
2. Anabolic steroids – synthetically manufactured hormones derived from testosterone used to increase muscle development
3. Anorexia nervosa – a disorder in which an individual has a distorted self image and refrains from eating to prevent weight gain
4. Body composition – combination of lean body weight and fat
5. Bulimia – a disorder in which an individual who binges on food after a period of starvation and then purges all contents of the stomach in an effort to preventing weight gain
6. Calorie – a measurement of energy
7. Electrolytes – electrically charged ions which are dissolved in water and include sodium, potassium, magnesium, calcium, and chloride
8. Glycolosis – the metabolism of glucose to produce energy
9. Human Growth Hormone (HGH) – a substance that is naturally occurring in the pituitary gland used to enhance skeletal and visceral growth by influencing the metabolism of carbohydrates, proteins, and lipids
10. Minerals – elements supplied by the diet that play an instrumental role in body function
11. Nutrients – substances that are needed for growth and repair, maintenance of all tissues, the regulation of body processes, and energy production
12. Saturated fats – fats typically found in food from animals
13. Supplements – anything introduced to the digestive system in addition to an individual's diet
14. Unsaturated – fats typically supplied by plant sources
15. Vitamins – substances needed in small amounts to regulate body processes

## Unit 6: Environment

1. Altitude illness – an individual's physiological response to high altitudes that can include acute mountain sickness, pulmonary edema, cerebral edema, and an adverse reaction for athletes carrying the sickle cell trait
2. Ambient temperature – temperature of the environment
3. Conduction – heat lost or gained via contact with another object
4. Convection – heat lost or gained as a result of an individual being surrounded by water or air
5. Evaporation – occurs when sweat glands excrete water onto the skin's surface which then evaporates, taking heat with it
6. Heat index – a temperature measurement formed from the combination of ambient temperature, humidity, and heat radiation from the sun
7. Humidity – measurement of the amount of water in the air
8. Hydration – maintenance of appropriate fluid levels in the body by the intake of water and/or electrolyte solutions
9. Thermal injuries – injury or illness caused by extreme hot or cold atmospheric conditions
10. Wind chill – combination of ambient temperature and wind speed

## Unit 7: Protective Gear, Taping, and Bracing

1. Bracing – rigid device that adds structural stability to anatomical parts that may or may not allow motion
2. Cantilever padding – a type of football padding which are designed to disperse impact forces through the padding instead of the shoulder, usually bulkier than non-cantilever padding
3. Customized – padding or supports constructed specifically for an individual
4. Fabricated bracing – bracing which is created for a specific individual for a particular injury
5. Foam padding – resilient and nonabsorbent materials used to protect against compressive forces
6. NOCSAE – National Operating Committee on Standards for Athletic Equipment
7. Off the shelf – cost effective way to provide support or padding for general ailments which only come in 3-4 basic sizes
8. Orthotics – used to correct biomechanical issues of the foot that may cause injury
9. Prophylactic taping – preventative measures taken with use of adhesive and cohesive materials in an effort to prevent injury or further damage to an existing injury
10. Restricted movement brace – adjustable device used to restrict the ROM of a joint
11. Structural stability – pertains to the integrity of a given structure in the body and its ability to withstand various forces acting against it