Curriculum Guide

Program Area: Sports Medicine

Standard 1.0 – USE MEDICAL TERMINOLOGY AS APPLIED IN HEALTHCARE					
Measurement Criteria		**Concepts**	**Implementation**	**Terminology**	**Testing Item**
1.1	Understand medical abbreviations and acronyms commonly used in sports medicine and rehabilitation services		PRICE- Protection, rest, ice, compression, elevation The movement of the arm moving toward the mid-line of the body The elbow is proximal to the wrist Inversion is the movement of turning the sole of the foot inward ROM refers to range of motion	Compression Elevation Adduction Proximal Inversion Body Mass Index (BMI)	X
			Use specific abbreviations found in: • physical therapy • Kinesiology • Sports medicine	CEU	
1.2	Use anatomical terms commonly used in sports medicine and rehabilitation services (e.g., position planes and directional movement)		A sprain is considered acute The anatomical term that describes the relationship between the radius and the ulna (Lateral) Supination is the motion of rotating the hand so the palm is facing up A moist hot pack is an example of a conductive therapeutic modality	Sprain Acute Sagittal Supination Flexion Inferior Medial Distal Therapeutic modality	X
			Define and identify terminology relative to:	Anatomical position	

			• Anatomical planes • Anatomical position • Anatomical direction • Anatomical movement Demonstrate proper use of terminology relative to • Anatomical planes • Anatomical position • Anatomical directions • Anatomical movement Use key rehabilitation terminology Use key assessment terminology Understand terminology related to assessment and care of muscle, bone and joint injuries	Frontal plane Sagittal plane Mid-Sagittal plane Median plane Transverse plane Anterior/Ventral Posterior/Dorsal Superior Lateral Proximal Plantar Palmar Prone Supine Deep Superficial Extension Abduction Adduction Rotation Circumduction Pronation Inversion Eversion Elevation Depression Retraction Plantarflexion Dorsiflexion	

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				Dorsum Ecchymosis Crepitus Edema Axillary\Axilla Bilateral Caudal Cephalic Contralateral External rotation Internal rotation Ipsilateral Lateral recumbent Protraction Reduction Subunglal Ventral Torsion	
1.3	Use root words, prefixes, and suffixes commonly used in sports medicine and rehabilitation services and state their meaning		Paresthesia is numbness and tingling Dermatome is the neurological sensory region on the body Define common prefixes, suffixes, and roots used in medical terminology	Root Prefix Suffix Itis Osteo Hyper Hypo myo	X
			Define, identify, and demonstrate proper use of	a-	

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			terminology relative to • Anatomical prefix • Anatomical suffix • Anatomical root Define common prefixes, suffixes, and roots used in medical terminology Recognize the root words of common medical terms Use a combining vowel to joint two root words Combine two root words to form a medical term Changed the meaning of a word by adding a: • Prefix • Suffix	bi- arthr- hydr/o- lateral- trophy- -ectomy -ia -therapy hemo- hema- Intra-	

STANDARD 2.0 – DEMONSTRATE AN UNDERSTANDING OF BODY SYSTEMS AND HUMAN ANATOMY

Measurement Criteria		Concepts	Implementation	Terminology	Testing Item
2.1	Examine the structure and function of the cardiovascular system		Blood circulation (Lungs) The purpose of the Atrioventrial Node The sinoatrial node works as a natural pacemaker and initiates the hearts rhythm	Atrioventrical Node Sinoatrial node	X

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			Define cardiovascular system Describe the basic functions of the heart and circulatory system that make up the cardiovascular system	Circulatory system Blood vessel Arteries Heart Capillaries Veins Venules Congenital Constriction Dilation Erythrocytes Fibrillation Hemopoiesis Hemothorax Hypoxia Ischemia Leukocytes Vascular Vasoconstriction Vasodilaton	
2.2	Examine the structure and function of the musculoskeletal system		The function of the skeletal system is to produce blood cells, protect vital organs, and facilitate body movement An endurance athlete should have a higher percentage of slow twitch muscle fibers Tendons connect bones	Skeletal System Joint laxity	X

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			Define anatomical terms from layman's terms to medical terms Identify and label the bones of the • axial skeleton • appendicular skeleton Define and identify • muscle types • muscle characteristics Define and identify the classification of bones Give examples of muscle types Recognize and identify relevant skeletal anatomy for the: • foot/ankle and lower leg • knee • hip • shoulder • forearm/elbow • hand/wrist • neck and spine • head and face Recognize relevant muscular anatomy and corresponding functions of the:	Skull Axial Skeleton Appendicular Skeleton Upper Extremity Lower Extremity Shoulder girdle Pelvic Girdle Long bone Short bone Sesamoid bone Flat bone Irregular bone Skeletal Smooth Cardiac Contractility Excitability Extensibility Elasticity Origin Insertion Hyperextension Traction Apophysitis Osteoporosis Amenorrhea Agonist Antagonist Bone density	

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			• foot/ankle and leg • knee • hip/thigh • shoulder • elbow/forearm • hand/wrist • neck/spine • Head/Face Recognize the types of joints Examine the factors that contribute to osteoporosis	Diaphysis Epiphysis Fascia Osteology Osteoblasts Necrosis Motor Unit	
2.3	Examine the structure and function of the neurological system		Structures of the central nervous system (brain and spinal cord) Cerebellum is responsible for muscular coordination, balance and posture	Cerebellum	X
			Define terms of the nervous system Identify functions of the nervous system	Central Nervous System Peripheral Nervous System Autonomic System Somatic System Epinephrine Neural Parapalegia	
2.4	Examine the structure and function of the integumentary system		Sudoriferous glands are to regulate temperature when sweating		X

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			The skin condition caused by inflammation of the sebaceous gland caused by blocked hair is acne		
			Identify bacterial skin infections that are potentially contagious Identify potential threatening viral skin infections	Cellulitis Integumentary system Rubidor	
2.5	Examine the structure and function of axial regions of the body		Properly fitted mouth guards prevent tooth fractures, mandible fractures, and maxilla fractures Segments of the spine that have an anterior curve are cervical and lumbar Dangers of a ruptured spleen	Mouth guards Tooth fractures Mandible fractures Maxilla fractures Spleen Anterior Curve	X
			Recognize relevant anatomy of the abdominal cavity Recognize relevant anatomy of the thoracic cavity	Absorption Antibodies Bile Chyme Detoxify Diaphragm Atrium Intercostal thorax Ventricle Vertebrae Cervical Thoracic	

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				Lumbar Sacrum Body of vertebrae Spinous process Transverse process Vertebral foramen Intervetebral disc Nerve root Spinal cord Trunk	
2.6	Examine the structure and function of upper extremities of the body		The bony landmark at the proximal end of the ulna	Olecranon Scapula	X
			Recognize and identify relevant skeletal anatomy for the: • shoulder • forearm/elbow • hand/wrist • neck and spine Recognize relevant muscular anatomy and corresponding functions of the: • shoulder • elbow/forearm • hand/wrist • neck/spine	Coracoid process Acromion process Epicondyle Extensor Supinator Carpals Metacarpals Phalanges Intracondylar Supracondylar Epicondylitis Little League Elbow Tennis Elbow	

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2.7	Examine the structure and function of lower extremities of the body		The Achilles tendon is the strongest tendon in the body	Fibula Achilles tendon	x
			Recognize and identify relevant skeletal anatomy for the: • foot/ankle and lower leg • knee • hip Recognize relevant muscular anatomy and corresponding functions of the: • foot/ankle and leg • knee • hip/thigh • shoulder	Tibial tuberosity Femoral condyle Intercondyler notch Quadriceps femoris muscle group Pes anserine Head of femur Acetabulum Neck of femur Greater trochanter Lesser trochanter Q-Angle	
2.8	Analyze the joints and their articular structures		A shoulder is classified as a ball and socket joint	Ball and socket joint Crepitus	X
			Define joints Identify the bony anatomy of the joints Give examples of the types of joints Understand the effects arthritis has on the joints	Joint Saddle joint Hinge joint Pivot joint Condyloid joint Gliding joint Amphiarthrosis Arthrology Articulation Athroscopy Diarthrosis	

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				Diastatsis Meniscus Dislocation Subluxation Synarthrosis Synovitis	
STANDARD 3.0 – EVALUATE HEALTH AND PERFORMANCE					
Measurement Criteria		**Concepts**	**Implementation**	**Terminology**	**Testing Item**
3.1	Describe nutritional concepts used to evaluate dietary intake and physical composition [e.g., 6 basic components of food (protein, carbohydrates, fats, vitamin, minerals, water)		Fats contains the highest concentration of calories per gram Osteoporosis is closely associated with a lack of calcium Anemia is commonly caused by a lack of iron Carbohydrates is a primary source of energy	Osteoporosis	X
			Identify all sections of My Plate and explain relationship to meeting nutritional needs Examine My Plate and Food Pyramid to discover how they complement each other Create nutritionally balanced breakfast, lunch, and dinner meal using My Plate Model	Nutrition Nutrients Undernourished Malnutrition My Plate Food Guide Pyramid USDA	
3.2	Explain nutritional concepts in		Calculate the total calories using given grams of	Fat	X

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	relation to basic nutrient caloric intake		fat, protein, and carbohydrates Protein builds muscle Calories measure the body's energy output Calculate calories needed lose a pound per week	Protein Carbohydrates Calories Basal Metabolism Rate (BMR)	
			Identify the six major types of nutrients and determine best sources of each major nutrient Calculate amount of calories to maintain, lose or gain weight	Vitamins Minerals Water BMI Metabolism Overweight Obese Underweight Caloric deficit	
3.3	Explain nutrition and exercise as related to special populations (e.g., diabetics, vegetarianism, and athletes who gain and lose weight)		The female triad syndrome is Eating disorder, Amenorrhea, osteoporosis The safest way to lose weight is to decrease calories taken in vs. Calories burned Move to 3.2 Identify factors that minimize the risk of (lowering cholesterol, losing weight, exercise) Identify the hormone that lowers the level of glucose in the blood by stimulating body cells to	Amenorrhea Osteoporosis Type II diabetes Cholesterol	X

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			take up and store excess glucose Decreasing caloric intake and increasing physical activity is the most effective way to reduce a person body weight		
			Identify contributing factors to body image Assess own body image Identify the different eating disorders and health consequences Identify what are pre/post game meals Explain how All-Day events require different meals Examine other therapy options that ay be beneficial for unique populations For the elderly population: • describe the benefits of strength and conditioning • examine modifications to ensure safety Identify athletes who may be anemic	Body Image Eating Disorders Anorexia Bulimia Binge Eating Female Athlete Triad Anemia	

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			Describe what sickle cell is, how it affects the body, and how to provide a safe environment for athletic participation Describe the two types of diabetes and examine what precautions need to be taken for safe athletic participation		
3.4	Describe general rules of athletic hydration		Weighing before and after an activity is the most effective way to determine loss of fluid during exercise Symptoms of dehydration include thirst, dark urine and headache	Dehydration	X
			Explain methods to monitor hydration levels Describe proper hydration processes Explain signs and symptoms of dehydration		
3.5	Interpret tests used to determine fitness for cardiorespiratory endurance, strength, flexibility, and body composition (appropriate fat values)		Hydrostatic weighing best determines body fat composition A healthy high school female will have between 19% and 25% body fat BMI is calculated on height and weight Push-ups to failure describes an athlete's upper	Hydrostatic weighing	x

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			body muscular endurance Read physical fitness charts such as the Presidents Challenge Chart Identify the target heart rates of adults		
			Calculate BMI Determine healthy weight range for height using different tools Interpret and determine training zones for cardiovascular fitness Cardiovascular fitness testing: • explain and demonstrate a baseline test • conduct an assessment • assess level of fitness • review in relation to FITT formula Concerning body fat and body composition: • define terminology • determine influencing factors • identify ideal percentages • explore methods of calculations • accurately take measurements • interpret measurement results	Heart rate Max Heart rate Resting Heart rate Heart rate range Target Heart rate Body composition Skinfold measurement Skin caliper Percent body fat Muscular fitness Strength Endurance Atrophy Hypertrophy Progressive resistance Overload Essential body fat	

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			Describe the variables of the FITT formula Measure resting heart rate Assess upper and lower body flexibility Muscular fitness: • differentiate between strength and endurance • perform an endurance assessment		
3.6	Examine the use of supplements and performance enhancers and their safety and efficacy		Ergogenic acid aid is an athletic performance enhancer The best beverage to consume post endurance training would be a 6% carbohydrate sports drink Steroid use by females cause facial hair, stunted growth and male pattern baldness Steroids in males cause acne, aggression and increased muscles	Ergogenic aid	x
			Ergogenic aids/performance enhancers: • Explain purpose • Examine various forms • Analyze pros and cons • Assess market claims	Anabolic Androgenic Cycling Stacking Doping	

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			• Analyze athlete use • Examine negative effects on the body • Explain safety Explain the effects that steroids, androstinedione and human growth hormone have on the body and physician-prescribed use and illicit use Understand the process and purpose of the drug testing procedures at various levels of sport		
3.7	Develop a personal fitness plan based on the evaluation of an individual's fitness		Cardiovascular fitness, Muscular strength and flexibility are all part of a health-related fitness program Use the Target Heart Rate Formula in case studies Convert kilograms to pounds and pounds to kilograms Calculate exercise intensity during a workout	Cardiovascular Flexibility Aerobic Resistance Training	x
			Create a plan for a healthy diet and exercise program Calculate appropriate exercise heart rate Determine medical readiness prior to participating in physical activity	Frequency Intensity Specificity Physical activity readiness questionnaire Fitness profile	

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			Explain the importance of participating in a warm up before activity and a cool down after activity Write, and implement a fitness program for: • Flexibility • Cardiovascular fitness • Strength training • Muscular endurance Discuss some suggestions to make exercise more enjoyable Create a fitness profile Set goals for future fitness plan		
3.8	Explain general strength and conditioning training principles		Understand the difference between concentric muscle contraction and eccentric muscle contraction DOM best describes muscle soreness occurring 24-48 hours after an intense workout ATP is the energy source for muscles during activity Overload is used to increase muscle hypertrophy	Concentric muscle contraction Eccentric muscle contraction DOM ATP	x

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			20 minutes at the target heart rate is the minimum amount of time needed to achieve cardiovascular training Leg extension is an open-chain exercise that isolates the quadriceps muscle		
			Define, identify, discuss, and describe wellness concepts and elements of active living Health promotion: • Identify methods • List steps to evaluate • Create a promotion product to present Demonstrate knowledge of the importance of regular exercise in maintaining a healthy weight Differentiate between aerobic and anaerobic exercise Review guidelines for endurance	Power Speed Health Wellness Prevention Active Living Physical Fitness Stress Nutrition Lifestyle Choices Substance Abuse Aerobic Anaerobic Cardiorespiratory training effect Duration Dynamic stretching Endurance Manual Resistance Overload principle Periodization	

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				Resistance Static stretch	
STANDARD 4.0 – DEMONSTRATE SAFETY AND INFECTION CONTROL					
Measurement Criteria		**Concepts**	**Implementation**	**Terminology**	**Testing Item**
4.1	Describe maintaining a safe and sanitary treatment area, including the use of disinfectants, antiseptics, and sanitization techniques		Proper procedure for sanitizing a floor with blood on it (disinfectant an paper towels) After using a treatment table disinfect the table Procedure for cleaning a treatment table in between patients		X
			Describe guidelines and procedures to maintain a clean and sanitary • Gymnasium • Treatment area • Patient	Anesthetic Disinfectants	
4.2	Identify body fluids that require universal precaution		Safety probations used by a trainer when dealing with athletes who have body fluids present (Gloves) Ways to transmit Hepatitis (most and least common)	Hepatitis	X
			Identify how disease is spread Be able to describe what is a pathogen and how they are spread	Pathogen Jaundice Lymphocytes Lesion	

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			Examine the various infectious agents that can be encountered in the health care field Visually and symptomatically identify common skin infections	Erythma Pustules MRSA Mononucleosis	
4.3	Use guidelines for universal precautions to avoid contact with body fluids (e.g., use of PPE equipment)		Always wear gloves when tending to a person with an open wound		X
			Explain how to prevent disease transmission Utilize exposure prevention techniques Provide appropriate care to skin infections Analyze various types of standard precautions available for infection prevention Practice using personal protective equipment to prevent disease transmission	PPE Universal Precautions OHSA	
4.4	Describe how to dispose of wound care cleaning supplies and sharps		Proper disposal of bloody dressings	Sharps container Latex gloves Non-latex gloves	x
			Explain usage of biohazard bags and sharps containers	Biohazard Bags Antiseptic	

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			Demonstrate proper removal of contaminated gloves		
4.5	Use proper hand-washing techniques		Properly washing hands is the best way to prevent the spread of disease		x
			Hand washing is single most important factor in preventing the transmission of disease Hands should be washed between each patient		
4.6	Apply strategies of risk management according to OSHA compliance, SDS chemical management, and injury and illness compliance solutions		Explain the use of biohazard bags and when they would be used Explain disinfecting procedures		x
			Recognize and properly report exposure incidents Identify childhood diseases and illnesses Examine techniques to prevent skin infections	Virus Bacteria Vesicles	
4.7	Demonstrate proper procedures for removing and transporting an injured patient/client, including the use of proper body mechanics (e.g., logroll, spine board, stretcher)		Log rolling is the best method for turning an injured athlete from prone to supine position Identify in what cases the two person carry is needed Identify various ways to remove athletes from a field with an ankle sprain (two person carry, walking assist)	Log rolling Prone Supine position	x

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			Proper lifting techniques include bent knees, and back straight thus keeping the caregiver from back injury Neck pain and numbness in the hands requires a cervical collar be applied and a backboard used, then removed by a stretcher		
			Demonstrate proper lifting and carrying procedures to prevent secondary injuries List steps in transporting injured individuals using different types of stretchers Demonstrate the proper steps in transporting an injured individual using proper body mechanics Identify situations in which a victim may need to be placed on a spine board Review proper mechanics and techniques and demonstrate proper steps in placing a victim on a spine board	Extrication Ambulatory athletes Proper body mechanics Ambulate 3 point gate 4 point gate Stretchers Scoop Stretchers Spine Boards	
4.8	Select personal protective equipment that prevent, support, or treat injuries and conditions (e.g., headgear,		A prophylactic knee brace is used as a preventative measure Should pads should cover the deltoid muscle	Deltoid muscle Compartment syndrome Cauliflower ear	x

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	mouth guards, shoulder pads, eyewear, thigh and knee pads, shin guards)		Shin guards decrease the potential for compartment syndrome injury Protective headgear in wrestling helps prevents cauliflower ear		
			Identify supplies and equipment Protective equipment: • Describe when needed • Explain rationale • Identify steps to ensure safety Review the protocol for a catastrophic injury	Personal protective equipment Biohazard Container NOCSAE Catastrophic injury	
STANDARD 5.0 – MANAGE ACUTE CARE EMERGENCY AND NON-EMERGENCY SITUATIONS					
Measurement Criteria		**Concepts**	**Implementation**	**Terminology**	**Testing Item**
5.1	Assess vital signs (normal vs. abnormal) (e.g., pulse, respirations, skin, pupils, blood pressure)		Normal pulse range for an adult 60-100	Hypertension PEARRL	X
			Recognize and safely respond to an emergency List vital signs Explain how to measure vital signs	Vital signs Bradycardia Diastolic Sphygmomanometer Tachycardia Systolic	

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			Demonstrate taking a victim's vital signs		
5.2	Describe sudden illnesses and their treatment (e.g., fainting, seizures, diabetic shock, anaphylactic shock)		Supine is the position recommended for a person in shock Identify signs of diabetic shock and/or distress and what should be done immediately Once a scene is determined safe, the first step in CPR is to check the victim for responsiveness A dizzy patient should be laid down and have their feet elevated Explain treatment for a person experiencing a seizure A patient experiencing decreased oxygen, a rash and low blood pressure should be treated with an epi-pen	Supine Shock Epi-pen	X
			Identify general signals of sudden illness Identify signals and steps for care of specific illnesses including fainting, stroke, seizures, poisonings, allergic reactions and diabetes Identify heart and circulatory conditions which may cause health concerns	Anaphylaxis Diabetes Angina Dyspnea Syncope	

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			Analyze the different conditions that effect the lungs and upper respiratory tract and identify the illness based on symptoms		
5.3	Recognize cause, signs, symptoms, and treatment of environmentally-related emergencies (e.g., effects of heat and cold)		Identify the symptoms of heat stroke and the order of progression	Hypothermia	X
			Identify signals of heat illness and provide care Identify signals of hypothermia	Heat illness Heat cramps Heat exhaustion Heat stroke Cold illness Frostbite Hyperthermia	
5.4	Perform CPR (cardiopulmonary resuscitation) and AED (automated external defibrillator) procedures for infants, children, and adults		Identify the signs of choking CPR should never be stopped to check for signs of life on an adult An AED is used to deliver electric shock to help resume effective heart rhythm	Cyanotic AED	X
			Review and practice procedure for consent to treat Practice and demonstrate proper recognition of and care for: • Unconscious victim	Check, Call, Care Life threatening conditions EMS Signs of life Recovery position Hyperventilation	

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			• Breathing emergencies • Cardiac victim • Conscious choking victim • Unconscious choking victim Demonstrate emergency response skills for: • Primary adult, child, infant assessment • Resuscitation • Rescue breathing • Bag-valve mask • CPR • Two-person CPR • AED Use the check, call, care process Properly prioritize care Describe the importance to each link in the cardiac chain of survival Explain the steps involved in the primary assessment procedure and justify their use Describe the role as professional rescuer with EMS organizations	Heart (Cardiac) disease Cardiac chain of survival Cardiac arrest CPR Defibrillation Normal heart rhythm V-Tach V-Fib Asystole AVPU	
5.5	Demonstrate common taping techniques that prevent, support,		Recommended mild hip flexor strain treatment might be applying a hip flexor wrap on the hip	Inversion Flexor strain	X

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	or treat injuries and conditions		spica Injuries that benefit from taping such as turf toe, AC sprain, contusion of the quadriceps Mild ankle sprains can be taped directly on the injury to stabilize the injury Inversion can be prevented by pulling stirrup strips from medial to lateral when taping an ankle	Hip Spica Turf Toe Contusion Quadriceps Stabilize Inversion Medial Lateral	
			Identify supplies and equipment Demonstrate proper taping and wrapping techniques and for: • Ice bags • Protective padding application • Strains • Great toe • Arch • Ankle • Achilles tendon • Knee • Elbow • Shoulder • Hand • Wrist	Ace Bandage Athletic tape Bandage scissors Conform/lightplast Elastikon Heal and lace pads Pre-wrap Skin lube Taping base Overlapping strips Shin splints Hamstring strain Quadriceps strain Quadriceps contusion Shoulder Spica Elastic wrap Elastic tape Non-elastic tape	

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			Define and use terminology appropriately Describe the purpose relating to taping, bandaging, and wrapping Select appropriate tape, bandages, and wraps for various injuries Demonstrate critical thinking skills related to advanced taping and bandaging	Closed basket weave Open basket weave Anatomical snuffbox Thenar eminence Binder Swathe	
5.6	Describe common open and closed skin wounds, including controlled bleeding control techniques (e.g., abrasions, incisions, lacerations, punctures, and blisters)			Abrasion Avulsion Laceration	
			Choose appropriate supplies to properly care for wound injuries Apply appropriate care for wound injuries Recognize the signals of bleeding injuries Provide appropriate care for a burn victim Define vocabulary words related to types of athletic injuries	Infection Open wound Closed wound Internal bleeding Cut Puncture wound First degree burn Second degree burn Third degree burn Incision Laceration	

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			Review common types of wounds Understand terminology related to wound care	Blister Hematoma Anitseptic Dressings Bandages Occlusive dressings Hemorrhage Profuse bleeding Ulcer	
5.7	Demonstrate proper wound care (e.g., cleaning, bandaging, and dressing)		The procedure for caring for a bleeding would when a bandage becomes saturated Identify items used to clean a wound: Peroxide, Water and soap, antibiotic ointment	Roller gauze	
			Explain and demonstrate steps involved in properly caring for an open wound Identify and explain situations in which an open wound would need to be referred for further care		
5.8	Demonstrate splinting techniques (e.g. soft, rigid, anatomical)		In a cervical injury the head and neck should be stabilized Dislocated shoulders should be stabilized with a sling and swathe	Sling and swathe	
			Demonstrate stabilization techniques	Immobilization Shoulder sling	

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			Identify reasons that elastic wraps are applied to acute injuries Demonstrate elastic wrap application to acute injuries Demonstrate and explain the various types of splinting techniques and the rationale behind splinting a body part Differentiate between acute care immobilization and immobilization for the healing process	Splint	
5.9	Explain the principals of triage with numerous injuries		A victim who is unresponsive should receive care prior to those who are responsive A fractured femur requires immediate emergency medical transportation		
			Utilize knowledge of basic first aid to provide care to victims	Triage	
5.10	Describe key components of emergency action plans and conditions for activation		Identify when to call 911 for injuries (hip dislocation, unresponsive, etc) Identify parts of an emergency plan, identify who is in charge, know where emergency equipment is located, know emergency exits If a parent cannot be reached and an athlete		

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			needs to be transported by ambulance a coach or athletic trainer should go with the athlete		
			Identify risk factors that cause injury and how to reduce chances of accidents Identify the various components of ad develop an Emergency Action Plan for a facility Identify the jobs associated with each component Create an emergency action plan for a specific sport venue	Emergency Action Plan First responder Mobilization	
5.11	Describe the appropriate supplies for an athletic first-aid kit		Identify what types of supplies should be stocked in a first aid kit		
				Supplies Equipment Antibiotic ointment	

STANDARD 6.0 – ASSESS THE IMPACT OF INJURIES, SPORTS TRAUMA, AND PHYSICAL DYSFUNCTIONS AND DISORDERS

Measurement Criteria		Concepts	Implementation	Terminology	Testing Item
6.1	Use the injury assessment and evaluation process [e.g., H.O.P.S. (history, observation, palpation, special tests)		A balance board demonstrates proprioception during rehabilitation Identify the parts of HOPS evaluation and what each section covers	Proprioception HOPS History	X

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			Comparing ankles bilaterally would provide a clinician with information regarding range of motion, a presence of skin discoloration, deformity, tendon strength and laxity. If an athlete complains of an injury it should be noted in the history section of the chart		
			Define, describe and explain the evaluation process List and differentiate between signs and symptoms Differentiate between signs and symptoms Use effective questioning techniques to gather pertinent information Justify appropriate evaluation techniques using organizational tools Accurately record data to evaluate injury Understand the purpose of taking SAMPLE Create and practice documenting SAMPLE for an emergency situation	Objective Subjective Sign Symptom Observation Palpation Stress Tests Etiology Pathology Mechanism Acute Chronic Idiopathic Indication	

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6.2	Understand signs and symptoms and identify injuries to the head		Characteristics of a concussion include loss of consciousness, decreased balance and a positive Rhomberg test	Concussion Retrograde amnesia Consciousness Rhomberg test Second impact syndrome	X
			Differentiate between common injuries and their mechanisms, signs, symptoms and treatments for neck, spine, ear, nose, and mouth Identify signs/symptoms and provide immediate care for someone who has suffered a concussion/traumatic brain injury Explain protocol when returning an athlete to play after a concussion Identify potential risks of returning an athlete too soon after a concussion	Cervical collar Intermittently Radiating Photophobia Epistaxis Malocculsion TBI MTBI Tinnitus Otorrhea Rhinorrhea Battle's Signs Baseline testing ImPACT Testing SAC Testing BESS Testing Post concussive syndrome	
6.3	Understand signs and symptoms and identify injuries to axial regions		An athlete diagnosed with mononucleosis they should be excluded from participation	Quadriplegic Cyanotic Pneumothorax Mononucleosis	X
			Define vocabulary related to abdominal injuries	Hernia	

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			Differentiate between common abdominal injuries and their mechanisms, signs and symptoms, and treatments Describe proper hitting techniques in football to prevent spinal cord injury Explain axial loading	Solar plexus Kehr's sign Referred pain Lordosis Kyphosis Hemothorax Scoliosis Spondylolisthesis Spondylosis Axial loading	
6.4	Understand signs and symptoms and identify injuries to upper body extremity		Tennis elbow symptoms include decreased grip and pain along the lateral structure of the elbow Symptoms of right brachial plexus is burning or stinging in the right arm The most common mechanism of an injury for an anterior dislocation of the glenohumeral joint is abduction, external rotation The ulnar collateral ligament of the elbow is most commonly strained	Tennis elbow Glenohumeral joint Brachial plexus	X
			Differentiate between common injuries and their mechanisms, signs, symptoms, and treatments for the: • Shoulder • elbow/forearm • hand/wrist,	Anatomical snuffbox Avascular necrosis Boxer's Fx Colles Fx Carpal tunnel Paraesthesia	

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			Differentiate between chronic injuries and unique upper extremity injuries; and their mechanisms, signs, symptoms, and treatments	Osteophytes Impinge Transitory Posterolateral Extrudes Idiopathic	
6.5	Understand signs and symptoms and identify injuries to lower body extremity		Characteristics of an Achilles Tendon rupture Symptoms of Patellar tendonitis Symptoms of meniscal tear Symptoms of an ACL injury Components of a knee triad (MCL, ACL, Media Meniscus) The rectus femoris is involved in a hip flexor injury	Achilles Patellar Anterior talofibular ligament	X
			Differentiate between common injuries and their mechanisms, signs, symptoms, and treatments for the: • ankle • knee • hip Differentiate between chronic injuries and unique lower extremity injuries; and their mechanisms, signs, symptoms, and treatments Justify appropriate evaluation techniques using	Unhappy Triad Varus Stress Valgus Stress Tendonitis Inflammation Compartment syndrome Genu Vagum Genu Varum Pes Planus Pes Cavus	

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			organizational tools		
6.6	Recognize the etiology (mechanism of injury) for common physical injuries	These ideally would be addressed with each body part/injury.	Prevention techniques to reduce the risk of cervical spine injury in American Football include coaching techniques to reduce the incidents of head down contact Inversion/planter flexion is the most common mechanism for an lateral ankle sprain Valgus stress is the most common mechanism of injury for a medial collateral ligament sprain Proper foot ware prevents blisters, medial tibia stress and lower back pain Medial tibial stress syndrome can be caused by improper footwear, pes planus and a change of surface An AC sprain can be cause by landing on an outstretched hand	Dislocation Sprain Cervical spine injury Greenstick fracture Contusion	X
			Identify various musculoskeletal injuries Identify signals of head, neck and back injuries Identify types of fractures List signs and symptoms of fractures	Strain Fracture Avulsion fracture Blowout fracture Comminuted fracture Contrecoup fracture Depressed fracture	

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			Explain the impact of fractures on the body Differentiate between common mechanisms of injuries to the ankle, knee, hip, shoulder, elbow/forearm	Epiphyseal fracture Impacted fracture Longitudinal fracture Oblique fracture Serrated fracture Spiral fracture Stress fracture Transverse fracture Injury prevention Injury mechanism Hyperflexion Hyperextension Closed fracture Open fracture	
6.7	Identify and describe common special tests used to evaluate joints (e.g., ligament, valgus and varus, anterior and posterior drawer, apprehension)	Again, these ideally would be listed with the injuries.	Empty can is the most accurate to determine a strain to the rotator cuff A greater amount of laxity on an injured knee likely affects the MCL An Acromioclavicular test checks the clavicle and scapula by assessing the downward movement of the clavicle PRICE- protection, rest, ice, compression and elevation	Rotator cuff Empty can Valgus stress test Laxity MCL Anterior Drawer test PRICE	X
			Define terms related to range of motion	Range of motion	

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			Explain and demonstrate the various types of ROM methods used during rehabilitation Demonstrate the following special tests: • Anterior drawer (ankle/knee) • Posterior drawer (ankle/knee) • McMurray's Click (knee) • Talar dome (Talus fx) • Apprehension (knee/shoulder) Demonstrate manual resistance testing for each joint	Passive ROM Active ROM Resisted ROM Agility Active assisted ROM Effusion Lachman's Test Posterior Drawer test McMurray's Click Apprehension test Varus stress test	
6.8	Analyze the tissues' response to injury		Osteoblasts are most active during a fracture healing Spasms, pain and inflammation are initial responses of the body to injury Events that occur in Stage 1 of an injury	Osteoblasts Atrophy Phagocytosis Avascular neccrosis	X
			Relate the demands of exercise to injury Identify and recognize the physical reaction to injury The phases of soft tissue healing: • Identify and explain each • Define terminology	Compression force Tension force Shearing force Muscle cramp Muscle spasm Acute onset muscle soreness Delayed onset muscle	

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			• Contrast phases Identify terminology specific to bones Understand and describe the purpose of bones in the body Describe the phases of fracture healing Compare/contrast soft tissue healing with bone healing Understand terminology associated with the tissue healing and rehabilitation process Examine conditions or situations that can help or hinder the healing process Understand how tissue healing and modalities will influence a rehabilitation program	soreness Tendonitis Muscle contusion Strain 1st Degree strain 2nd Degree strain 3rd Degree strain Sprain 1st Degree sprain 2nd Degree sprain 3rd Degree sprain Dislocation Subluxation Bursitis Hypoesthesia Paresthesia Hyperesthesia Inflammation Pain Spasm Osteoblasts Osteoclasts Stem cells Wolff's Law Arthritis Fibroplasia Homeostasis	
6.9	Investigate the cause of		An ankle sprain most likely leads to Achilles	Atrophy	X

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	secondary injuries (e.g., gait and carrying capacity)		tendonitis	Immobilized	
			Identify the effects of exercise Distinguish between primary and secondary injuries Identify secondary injuries in sports Demonstrate proper lifting and carrying procedures to prevent secondary injuries Understand biomechanical changes and secondary injuries that can occur during healing process and rehabilitation	Primary injury Secondary injury Gait Atrophy Contracture Compensation injury	
6.10	Demonstrate the proper use of PRICE (protection, rest, ice, compression, and elevation)		Appropriate treatment for an acute compartment syndrome		X
			Demonstrate how to care for head, neck and back injuries Demonstrate how to care for musculoskeletal injuries Demonstrate elastic wrap application to acute	Signs of Circulation Cravat PRICE	

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			injuries Demonstrate ice bag/protective padding application using an Ace/elastic wrap Demonstrate various Ace/elastic wrapping methods learned		
STANDARD 7.0 – APPLY THERAPEUTIC EXERCISE, TRAINING, AND RECONDITIONING					
Measurement Criteria		**Concepts**	**Implementation**	**Terminology**	**Testing Item**
7.1	Differentiate among various kinds of exercises (e.g., isometric, isotonic, manual resistance, isokinetic, circuit training)		A wobble board is appropriate when exercise is focused on proprioception Muscle endurance is obtained by moderate weight with high repetition Isometric exercises is appropriate for an athlete with an immobilized injury	Proprioception Wobble board Isometric	X
			Distinguish between various types of muscle contractions Explain and demonstrate early and advanced strengthening, endurance and proprioceptive exercises for a rehabilitation program	Isometric Isotonic Isokinetic Eccentric Concentric Set Repetition PRE Manual Resistance	

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				SLR Open-kinetic chain Closed-kinetic chain Neuromuscular control Agility Plyometric exercise 1 rep. max UBE	
7.2	Consider indications, contraindications, and safety precautions in strength, conditioning, and exercise activities (e.g., isotonic, isometric, and isokinetic)		A spotter should be used to prevent an injury while bench pressing Cable assisting pull-ups should be used to be safe for an athlete lifting alone Bench pressing requires a spotter		X
			Review FITT formula guidelines for muscle strength Learn basic lifts for major muscle groups Implement an individual strength training program Review the goals of a rehabilitation program and understand the role a therapist will play in program implementation Understand the differences and similarities	ADLs Functional Training Specificity SAID Principle	

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			between functional training and sports specific training		
7.3	Describe types of stretching and flexibility strategies (e.g., static, ballistic, dynamic, proprioceptive neuromuscular facilitation)		Explain the purpose of Dynamic Stretching Proprioceptive exercise is used to increase balance Range of motion methods used by clinicians include active-assisted, active resistive and passive Passive range of motion prevents joint tightness and are performed by the practitioner without the aid of the patient	Dynamic Stretching Static Stretching Ballistic Stretching Proprioceptive Neuromuscular Facilitation (PNF) Range of motion	X
			Define terminology related to flexibility and stretching Explain how stretching increases flexibility Discuss FITT guidelines for stretching Review basic stretching guidelines Learn basic stretches for major muscle groups	Flexibility Slant board	
7.4	Explain strength, mobility, and balance as related to performance and injury prevention		Isometric exercises are used primarily in the early phases of rehabilitation when a joint is immobilized	Isometrics	X
			Core strengthening permits: • Optimal acceleration	Slant board	

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			• Optimal deceleration • Dynamic stabilization • Proper kinetic chain functioning throughout • Efficiency Balance is essential for complex motor skills		
7.5	Apply appropriate rehabilitation progression [e.g., return- to-play criteria (full strength, free from pain, skill performance tests, emotional readiness)		ACL reconstruction patients benefit from active-range-of-motion and resistance training During return to play rehabilitation, the athlete running cutting ad jumping are classified as functional	Resistance training ROM	X
			Identify, list and recognize steps for return-to-play Identify sequential phases and actions for each phase of rehabilitation Identify specific therapeutic actions for each phase of rehab Describe safe return to play guidelines and rationale following a head injury Use terminology relevant to the rehabilitation process Develop an exercise regimen for each functional	Basic strength Full return-to-play Partial return-to-play Return-to-play Sport specific function Criteria Asymptomatic	

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			and sports specific training Formulate an appropriate therapy and exercise regiment for a given injury scenario and justify prescribed exercises Examine other therapy options that may be beneficial for unique populations		

STANDARD 8.0 – DEMONSTRATE AN UNDERSTANDING OF THERAPEUTIC MODALITIES AND PAIN MANAGEMENT

Measurement Criteria		Concepts	Implementation	Terminology	Testing Item
8.1	Prepare the patient/client for treatment expectations, physiological changes, and special instructions for specific modality/therapy usage		When icing a quadriceps contusion the knee should be flexed A hamstring strain should be prone when placed for an ultrasound A cold whirlpool causes a patient the sensations of cold, burning, aching and numbness Electrical stimulation addresses pain control, muscle re-education and prevent muscle atrophy When a patient experiences pain from treatment is should be stopped immediately	Prone Ultrasound Hamstring	X
			Define therapeutic modalities	Therapeutic modalities	

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			List the basic types of modalities Explain the purposes of modalities Review the physiological effects of cold and heat Treating a patient with modalities • Prepare area • Instruct patient • Select appropriate equipment • Properly apply • Complete treatment chart Explain the benefits of and uses for: • Heat • Cold • Contrast bath • Cryokinetics • Ultrasound • Massage • Electrical Stimulation	Contrast bath Cryokinetics Massage Effleurage Petrissage Vibration massage Percussive massage (tapotement) Friction massage E-STIM TENS Paraffin	
8.2	Explain indications, contraindications, safety precautions, and applications related to modalities (e.g., thermotherapy, cryotherapy, electric stimulation, ultrasound,		A paraffin bath would be used for a thumb with tendonitis A cold whirlpool would be most effective 72 hours following an injury	Thermal modality Hydrocollater Contraindication	X

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	hydrotherapy, compression)		To increase blood flow in a deep thigh contusion a moist heat pack would be beneficial Loss of circulation is a symptom of contraindication for the use of ice A pacemaker is a contraindication for electrical stimulation		
			Explain the indications and contraindications for: • Heat • Cold • Contrast bath • Cryokinetics • Ultrasound • Massage • Electrical Stimulation Identify methods of thermal energy transmission Identify factors that affect energy transfer	Indications Contraindications Conduction Convection Conversion Radiation Cryotherapy Thermotherapy Electrotherapy	
8.3	Explain indications, contraindications, safety precautions, and proper techniques for gait training (e.g., weight bearing assistive device, prosthetics, orthotic devices, crutches and canes)		Crutches should be adjusted to allow approximately 30 degrees of elbow flexion Axillary nerve damage can be caused by improper crutch fitting A patient with an right injured hip holds the cane on the uninjured side	Parasitic	X

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			Demonstrate and analyze effects of abnormal gait on the gait cycle Learn new gait terminology Understand and demonstrate the components of the gait cycle Demonstrate ability to calculate gait measurements	Gait Gait cycle Cadence Velocity Stride length	
8.4	Analyze methods of managing pain, including medication and complementary approaches		The purpose of PRICE is to minimize inflammation and tissue damage Cryotherapy is effective pain management Anti-inflammatories and analgesics are usually prescribed after a fracture	PRICE Inflammation Cryotherapy Anti-inflammatories Analgesics Fracture Ibuprofen	X
			Analyze various pain theories and methods of pain control Identify the differences between therapeutic and recreational drugs Describe the 5 rights involved in the use of medication Explain the effects the medications may have on the body and various methods of delivery	Pain Referred pain Endorphins Modality Pharmacology Therapeutic drug Recreational drug Over the counter Prescription Drug actions Indications	

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			Examine the various legal issues that can be involved with the use and delivery of medication Recognize and identify common uses of medications used in society and justify their use Understand the physiological affects of asthma and recognize its signs and symptoms Compare/contrast the difference between control and quick relief medications Utilize a Peak Flow Meter and justify its purpose in asthma control Explain the best forms of treatment for common cold and flu viruses and their symptoms Identify symptoms of mild allergic reactions and common medications used in treatment Identify anaphylaxis and demonstrate use of an Epi-pen to treat Active ingredients in OTC medications: • Commonalities • Medicinal purposes	Contraindication Side effects Dos Routes of administration Sublingual Topical Administering medications Dispensing medications Antibiotics Antifungal Tinea Antipyretic Analgesic Narcotic Counter Irritant NSAIDs Anatacid Asthma Peak Flow Meter Antitussive Expectorant Decongestive Antihistamine Antipruitic Active ingredient Psychological dependence Physical dependence NSAIDs	

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			• Appropriate uses • Importance of Drug abuse: • Factors that contribute • Commonly abused drugs • Consequences • Initiating treatment	Placebo	
8.5	Distinguish among pain characteristics (sharp, dull, or achy; stabbing or throbbing; constant, cramping, or intermittent) and assess pain level using a rating scale (e.g., 1-10 scale; smiley face scale)		A runner with a 2nd metatarsal fracture would describe pain as dull and aching An athlete complains of tingling and numbness would indicate a nerve injury	Carrying Capacity Appendicitis	X
			Understand key terminology related to pain and pain control Analyze various pain theories and methods of pain control Review and identify pain control methods used during rehabilitation program		

STANDARD 9.0 – APPLY PSYCHOLOGICAL TECHNIQUES TO PHYSICAL PERFORMANCE INJURY EVALUATION AND REHABILITATION

Measurement Criteria	Concepts	Implementation	Terminology	Testing Item

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9.1	Describe emotional/psychological responses to injury and rehabilitation (e.g., depression, anxiety, fear)		Denial is the first stage of an athletes psychological response to an injury Alienation describes an athlete's lack of confidence in a body part that has been injured	Psychological response Alienation	x
			List, identify and recognize the psychological reaction to injury Utilize a psychological approach upon analyzing a scenario Identify the different types of sport psychology fields Identify risk factors that are associated with increased level of stress and methods to reduce stress Analyze the five stages of grief and understand behaviors found in each stage Respond appropriately for behaviors exhibited in each stage of grief Behaviors that are representative of stress and apply appropriate coping mechanisms to such stressors	Acceptance Anger Bargaining Denial Depression Psychology Sports psychology Physiological needs Cognitive needs Hypothesis Theory Education sports psychologist Clinical sports psychologist Academic sports psychologist Stress Homeostasis Bruxism	

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9.2	Explain motivational techniques for physical conditioning and rehabilitation (e.g., goal-setting, positive reinforcement, celebrate successes)		A patients compliance with rehabilitative exercises generally depends on personal motivation Short term rehabilitation goals include specific, measurable and attainable goals.	Rehabilitative Compliance	x
			Recognize factors that influence the way people behave and interact with others Demonstrate methods of communication with individuals of varying developmental levels Identify the five basic human needs and provide examples of each Understand the differences between extrinsic and intrinsic motivation and apply them to various situations Recognize symptoms and conditions that are indicators of overtraining/burnout and PTSD Explain the rationale behind setting goals Demonstrate the use of goal setting in various situations Examine the effect society has on sport and the	Motivation Extrinsic motivation Intrinsic motivation PTSD Goal Setting	

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			effect that sport has on society		
9.3	Determine psychological needs of special populations [e.g., eating disorders, TBI (traumatic brain injury), and career-ending conditions		Identify professionals to be notified when an athlete has an eating disorder (coach, athletic trainer, team doctor, psychologist and pediatrician) A patient with traumatic brain injury should have shortened class sessions, a reduction of environmental noise, and extended testing time		X
			Identify signs and symptoms of disordered eating Understand the causes of disordered eating Examine different behavioral conditions that may be encountered in the health care setting and practice communication techniques for each		

STANDARD 10.0- DEMONSTRATE HEALTHCARE ORGANIZATION AND ADMINISTRATION ACTIVITIES

Measurement Criteria		**Concepts**	**Implementation**	**Terminology**	**Testing Item**
10.1	Report the results of observations and treatments [e.g., EMR (electronic medical record); SOAP (subjective, objective, assessment, and plan); and daily treatment records]		Identify what SOAP is and the parts of SOAP An EMR includes medical history, medication taken, and race/ethncity	ATC SOAP	**X**
			Provide a report on the findings of an injury evaluation	Subjective Objective	

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			Accurately record data to evaluate injury Use listening, questioning and examination techniques to gather and accurately record data to evaluate injury on an organizational tool.	Assessment Plan of action Diagnosis PPE	
10.2	Describe the basics of health insurance (e.g., co-pay, third-party payment, reimbursement)		Calculate bills based on a patients insurance coverage (ex. 80/20)	Deductible Medicare Medicaid	**X**
			Explain third party reimbursement Discuss the advantages and disadvantages of third party reimbursement Select the billing appropriate to the environment	Third Party Payer HMO PPO CPT	
10.3	Understand the process of procurement, maintenance, and inventory of supplies and equipment		Maintaining supply inventory prevents shortages Keeping inventory updated and a list of items needed is important in maintaining a budget	Consumable products Capital Prophylactic tape Capital purchases	**X**
			Understand the use of budgeting terminology to identify inventory items found in sports health care	Non-capital purchases Bid Expendable Non-expendable Supplies Equipment	
10.4	Identify and use common resources to stay current with advances in healthcare		Continuing education is important in the health field to keep up on changes in the field		**X**

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			The NATA, AMA and other professional organizations provide opportunities for continued education such as: • Symposiums • Research journals • Opportunities for research grants Peer reviewed journals offer the best place to locate current evidenced based research.	CEU Clinician Ergonomics Physical Therapist Physiology	
10.5	Assess the benefits of active involvement in local, state, and national associations and organizations		HOSA NSCA	HOSA National Strength and Conditioning Association (NSCA)	**X**
			Explain the national certification requirements for athletic trainers Explain the requirements for state licensure as an Athletic Trainer in Arizona Discuss the advantages and disadvantages of belonging to a professional organization	National Athletic Trainers' Association (NATA) Arizona Athletic Trainers' Association (AzATA) Board of Certification (BOC) Continuing Education Units (CEUs) Licensure	
10.6	Evaluate methods to protect patients' rights through legal, moral, and ethical measures (e.g., HIPPA, legal liability, and malpractice)		Describe the purpose of a DNR Explain the purpose of medical alert bracelets HIPPA keeps medical record confidential	Do not Resuscitate (DNR) Medial Alert Bracelets HIPPA Negligence	**X**

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			Failure to report an injury like a concussion could result in court action for negligence		
			Differentiate between Good Samaritan Laws and legal obligations Analyze the legal ramifications in providing care to an injured party including confidentiality Define ethics and morals Apply moral principles to specific situations Define cultural competence Identify methods of verbal communication Recognize other differences which exist between cultures Define legal terms associated with liability Explain the four components of a lawsuit Discuss the role of an athletic trainer in the supervision of athletic trainer student aids (ATSAs) Summarize the athletic trainer's role in managing medications	Good Samaritan laws Legal obligation Obtain consent Implied con**sent** Ethics Morals Cultural competence Negligence Gross negligence Assumption of risk Permission to treat Proximate cause Breach of duty Athletic training student aides (ATSAs) PPE Confidentiality Malpractice Scope of practice	

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			Medical records: • Reasons to keep them • Different types • Legal requirements		

Terminology

1 RM- repetition maximum	Maximum amount of weight that can be lifted in one movement
AAROM	Active assisted range of motion; clinician assists patient when patient has trouble performing movement
Abduction	Sagittal movement away from midline of the body
Abrasion	Scraping away of skin due to friction
Acute	Fresh; brand new or rapid onset
Acute onset muscle soreness	Muscle soreness usually due to acid buildups within the tissues; quickly resolves
Adduction	Sagittal movement toward the midline of the body
Adipose tissue	Fat tissue
Aerobic	Uses oxygen
Agility/coordination	Harmonious functioning of muscles, joints, bones, and soft tissues during the performance of motor skills
Agonist	Muscle that is moving
Agonist	Primary muscle causing movement

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Amenorrhea	Absence or suppression of normal menstrual cycle
Amphiarthrosis	Slightly movable joints
Anaerobic	Does not use oxygen
Analgesic	Pain reliever
Anaphylaxis	Severe allergic reaction
Anemia	Decreased ability to transport oxygen and more prone to fatigue and illness
Anesthetic	A substance that causes lack of feeling or awareness
Anorexia	Refusing to eat
Antagonist	Muscle that potentially opposes movement
Antagonist	Muscle opposing the primary muscle causing movement
Anterior	Front side
Antipyretic	Fever reducer
Appendages	Arms and legs
AROM	Active range of motion; patient performs motion by his/herself
Arthritis	Chronic inflammation of joints and joint surfaces
Arthrology	Study of joints
Articulation	Bone ends that come together and form a joint
Athroscopy	Less invasive surgery involving the use of a scope, or camera, to see what is problem inside joints
ATP	Adenosine Triphosphate; body energy unit
Atrophy	Wasting away of tissue due to lack of use: Muscles that are immobilized for long periods of time lose muscle size
Avascular necrosis	Tissue death due to lack of blood: Condition when a fracture receives little or no blood supply
AVPU	Level of consciousness check: alert, verbal, pain, unconscious
Avulsion	Open wound with a flap of skin

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Avulsion	Forceful tearing of a tissue/bone
Axial skeleton	Head, neck and trunk
Axillary/axilla	Armpit region
Ballistic	Bouncing
Bilateral	Both sides
Binder/swathe	Use of a cravat to secure/immobilize a body part
BMI	Body mass index
BMR	Basal metabolic rate
Bone density	Amount of bone tissue in a certain volume of bone
Bradycardia	Abnormally slow heartbeat
Bulimia	Binge and purge eating
Bursitis	Inflammation of a bursa
Cauliflower ear	an ear that has become thickened or deformed as a result of repeated blows, typically in boxing or wrestling
Caloric deficit	Decreased caloric intake
Calories	Unit of fuel for body; kcal
Capital supply	More expensive piece of equipment that can be used over a period of time
Carbohydrates	Primary fuel source 4 cal/g
Cardiorespiratory training effect	Cardiovascular or cardiorespiratory system becomes stronger and functions more efficiently with aerobic training
Caudal	Towards bottom
Cellulitis	Infection of tissues just below the skin
Cephalic	Towards the top
CEU	Continuing education unit
Chondromalacia	Degeneration of knee cartilage
Chronic	Develops over time
Clinician	Person providing the care/treatment

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Closed/simple fracture	Fracture that does not break through the skin
Closed-chain activity	When the extremity remains in constant contact with an immovable surface
Comminuted fracture	Fracture with multiple pieces
Compartment syndrome	Increased pressure within a compartment compromising other structures in that same compartment usually resulting in bleeding and swelling after an injury
Compound/open fracture	Fracture which breaks through the skin
Compression	Pressed into less space
Concentric contraction	Shortening of a muscle
Confidentiality	Keeping information about patient private
Congenital	Condition that occurs from birth
Constriction	Shrinking or shortening
Consumable supplies	One- or two-time use supply; usually inexpensive
Contracture	Shortening of the length of a muscle due to decreased ROM
Contraindication	Something dangerous or ill-advised for patient
Contralateral	Opposite side
Contusion	Crushing of tissue
Crepitus	Squeaky, grinding, grating sensation: The grating, crackling or popping sounds and sensations experienced under the skin and joints
Cryotherapy	Cold therapy
Cyanosis (cyanotic)	Lack of blood/oxygen causes pale, ashy skin color
Debridement	To clean out
Deep	Inside body near bone
Dehydration	Lack of body water
Deltoid muscle	The deltoid muscle is the muscle forming the rounded contour of the shoulder
Depression	Relaxing or pushing shoulders down
Diagnosis	Determining and identifying the problem
Diaphysis	Shaft of bone

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Diarthrosis	Highly movable joint
Diastasis	Dislocation or separation of 2 normally attaches bones between which there is no true joint
Diastolic pressure	When ventricles are relaxed; low number
Dilation	Enlarging
Dislocation	Nonunion of a joint; separation of bones: A joint injury whereby a bone has been forced out of it normal anatomical position
Distal	Further away from trunk of the body
DOMS- delayed onset muscle soreness	Soreness due to microtraumas within tissue usually caused by too much or different activity
Dorsal	Back side
Dorsiflexion	Bring toes towards trunk
Duration	Length of time
Dynamic stretching	Stretching method using full range of motion
Dyspena	Shortness of breath
Eccentric contraction	Controlled lengthening of a muscle
Ecchymosis	Discoloration, bruising
Edema	Swelling/inflammation
Effusion	Swelling/inflammation
Electrotherapy	Use of electronic modalities
Elevation	Raising the shoulders
Endurance	The ability to repeat motions over time
Epinephrine	Hormone that stimulates sympathetic nervous system
Epiphysis	Ends of bone that form part of a joint
Epistaxis	Nosebleed
Ergonomic	Intended to provide optimum comfort and to avoid stress or injury
Ergonomics	Study of human factors that affect the design and operation of tools and work

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	environment
Erythrocytes	Red blood cells; carry oxygen in bloodstream
Essential body fat	Minimal body fat required for basic body function; hormone production, reproductive function and proper nerve conduction
Etiology	Cause of condition
Eversion	Rotate foot laterally
Extension	Joint moves or straightens back towards anatomical position
External rotation	Rotating away from midline of body
Extrication	Removal of equipment or removal from place
Fascia	Sheet or band of fibrous connective tissue that covers, supports, separates muscle
Fats	Second fuel source needing oxygen 9 cal/g
Female athlete triad	Amenorrhea, osteoporosis, and stress fractures
Fibrillation	Unorganized, random heart contractions
Fibroplasia	Second phase of tissue healing in which collagen fiber meshwork is formed; scar formation
First responder	First person to arrive at the scene to provide care
Flexion	Joint moves or bends from anatomical position: The motion of bending a joint resulting in decreased joint angle
Fowler's position	Sitting up at 45 degree angle
Frequency	How often
Frontal/coronal plane	Dividing body into anterior and posterior parts
Genu valgum	Knock-kneed
Genu varum	Bow-legged
Greenstick fracture	Incomplete fracture found mainly in young populations: A bone fracture that is incomplete and partially bent
Hema or hemo	Root word meaning blood
Hematoma	Collection of blood in an area

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Hemopoiesis	Red blood cell manufacturing
Hemorrhage	Bleeding
Hemothorax	Collapsing lung caused by bleeding in the pleural cavity
Hernia	Protrusion or tissue through a connective tissue
HIPPA	Health Insurance Portability and Accountability Act; makes sharing of patient information with unapproved individuals a crime
HMO	Health Maintenance Organization
Homeostasis	Maintaining a constant internal environment
HOPS	History, Observation, Palpation, Stress Tests; method of injury/illness assessment documentation
HOSA	Health Occupations Students of America
Hyper-	prefix meaning more/higher
Hyperthermia	Heat illness
Hypertrophy	Muscle growth
Hypo-	Prefix meaning less/lower
Hypothermia	Cold illness
Hypoxia	Lack of oxygen
Idiopathic	Unknown cause
Incision	Cut with clean edges
Indication	Appropriate for patient use
Infection signs	Swelling, heat, redness, pus, loss of function
Inferior	Body part being located below another structure
Inflammation signs	Swelling, heat, ache, redness, pain
Integumentary system	Skin, hair and nails
Intensity	The degree of effort required to complete a physical activity
Internal rotation	Rotating towards midline of body
Intra-	Prefix meaning inside

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Inversion	Rotate foot medially
Ipsilateral	Same side
Ischemia	Insufficient blood supply to an organ
Isokinetic	Contraction of muscle through ROM with varied resistance and fixed velocity
Isometric	Contraction of muscle without ROM
Isotonic	Contraction of muscle through a ROM with fixed resistance
-it is	Suffix meaning inflammation of
Jaundice	Yellow discoloration of skin and/or eyes; usually related to liver/gallbladder dysfunction
Kinesiology	Study of human movement
Kyphosis	Curvature of thoracic spine
Laceration	Cut with jagged edges
Lateral	Located further from the midline of the body
Lateral recumbent	side-lying
Laxity	Looseness; abnormal movement
Leukocytes	White blood cells: fight injury/infection
Ligament laxity	Chronic body pain characterized by loose ligaments
Licensure	A type of legal regulation
Lordosis	Curvature of lumbar spine
Malpractice	Failure of a professional to render proper services through ignorance or criminal intent especially when injury or loss occurs
Manual resistance	Using a partner to provide resistance through a motion
Maximum Heart Rate	Highest beats per minute a person's heart can achieve
Medial	Located closer to the midline of the body
Medicaid	Government program of medical insurance for persons of all ages within certain income limits
Medicare	Government program of health insurance for qualifying citizens aged 65 or older
Meniscus	Crescent shaped cartilage between 2 bones

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Mitochondria	Organelle inside a cell that is responsible for energy production and cellular respiration; powerhouse
Mobilization	To put into movement
Mononucleosis	Increase in white blood cells; Epstein Barr virus that also causes spleen to enlarge
Motor unit	Notor nerve and all the muscle fibers it stimulates
MRSA	Methicillin Resistant Staphylococeus Aureus infection that is resistant to most antibiotics
Necrosis	Tissue death
Negligence	Not providing appropriate care/direction or not doing anything at all to prevent injury/illness
Neural	Affecting nerve
NSAIDs	Non-steroidal anti-inflammatory drugs
Objective	Concrete, observable and accurate
Occupational therapist	Health professional whose goal is to help people achieve independence, meaning and satisfaction in all aspects of their live
Open-chain activity	Exercises where the extremities are free to move
OSHA	Occupational safety and health administration
Osteoblasts	Bone-forming cells
Osteoclasts	Bone-eating cells
Osteology	Study of bones
Osteoporosis	Weakening of bones due to decreased calcium storage
Otorrhea	Ear discharge
Overload principle	Increased demands on body cause changes and adaptations
Palpation	Using touch to examine
Paraffin	Thermotherapy method of wax mixture of heating fingers/toes
Paraplegia	Paralysis of two extremities
Pathology	Physical condition or problem that occurs
PEARRL	Pupisl are equal, round, and responsive to light

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Perioditization	Breaking up strength and conditioning routine into cycles with different goals during each
Pes cavus	High arched foot
Pes planus	Flat foot
Phagocytosis	Cells that eat damaged, infected material to clean up: When white blood cells surround foreign substances and destroy them
Pharmacology	Study of drugs
Photophobia	Light sensitivity
Physical Therapist	rehabilitative health that uses specially designed exercises and equipment to help patients regain or improve their physical abilities
Physiology	Study of how living organisms function
Placebo	Substance containing no active ingredient
Plantarflexion	Pointing toes
Plyometrics	Form of conditioning for power and explosiveness
Pneumothorax	Collapsing lung
PNF- proprioceptive neuromuscular facilitation	Combination of relaxing and contraction of the muscles
Post Cuncussion Syndrome	Persistence of concussion symptoms over an extended time
Posterior	Back side
PPE	Pre-participation exam; physical
PPO	Preferred-provider organization
PRICE	Protection, rest, ice, compression, elevation
PRICE	Protection, rest, ice, compression, elevation
Profuse	A large amount
Profuse bleeding	Excessive bleeding
PROM	Passive range of motion; clinician performs motion for the patient
Pronation	Palms and forearms facing down
Prone	Laying on belly: flat facedown

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Prophylaxis	Something the protects or prevents injury/illness
Proprioception	Sense of the relative position of one's body parts and how to move them: the body's awareness of itself to space
Proteins	Fuel that builds muscle/tissue; last fuel source 4 cal/g
Protraction	Rolling shoulders forward
Proximal	Closer towards the trunk of the body
Q-angle	Angle formed by lines representing the pull of the quadriceps muscles and the axis of the patellar tendon
Quadriplegia	Paralysis of all four extremities/limbs
Reduction	Medical procedure to correct improper alignment
Repetition	The act of doing or performing again
Resistance	A force that opposes motion
Resting Heart Rate	Basal heart rate (beats per minute) with no exertion
Retraction	Pulling shoulders backward
Retrograde amnesia	Loss of memory that occurred before a concussion
Rhinorrhea	Nasal discharge
ROM	Range of motion
RROM	Resistive range of motion; clinician or other device provides resistance to patient performing movement
Rubidor	Red skin
Sagittal/midsagittal/axial plane	Dividing body into left and right parts: Divides the body into the right and left halves
SAID principle	Specific Adaptations to Imposed Demands
Scoliosis	Lateral curvature of spine
Scope of practice	Job description or list of job duties
Second impact syndrome	A subsequent blow to a person still having concussive symptoms causing further trauma: occurs when the brain swells rapidly, and catastrophically, after a person suffers a second concussion before

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Shock/hypoperfusion	Inadequate blood volume
Sign	Observable condition of injury/illness
Slant board	Tool used for stretching of Achilles/calf muscles
SOAP	Subjective information, Objective Information, Assessment, Plan of action
Spasm	Involuntary muscle contraction; similar to a cramp
Sphygmomanometer	Blood pressure cuff
Splint	Stabilization
Spondylolistheses	Fracture and slippage of vertebrae
Spondylosis	Degeneration of the vertebrae
Sprain	Stretch or tear of ligament: Stretching and tearing of a ligament or joint capsule
Stability balls/balance balls	Air filled ball used for stability, proprioception, and strengthening
Static	Not moving; holding still
Static stretching	Hold stretch position for a period of time
Strain	Stretch or tear of muscle
Stress fracture	Fracture that develops over a period of time due to overuse, disordered eating, or osteoporosis
Subjective	Estimate; non-observable information
Sublingual	Under the tongue
Subluxation	Bones at joint separate then move back into place
Subungual	Under the nail
Superficial	Close to skin
Supination	Palms and forearms facing up
Supine	Laying on back
Symptom	Condition that is reported by the patient
Synarthorsis	Non-movable joints
Syncope	Fainting
Synovitis	Inflammation of a joint causing increased synovial fluid production

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Systolic pressure	When ventricles contract; high number
Tachycardia	Rapid heartbeat
Target Heart Rate	A heart rate that is 55%-85% of maximum heart rate used as a guide when exercising
Tendinitis	Inflammation of a tendon
TENS	Transcutaneous electrical muscle stimulation
Thermotherapy/thermal	Heat therapy
Thorax	Chest and upper trunk region
Thorax	Chest
Tinnitus	Ringing in ears
Topical	Applied to skin
Torsion	Twisting force
Transition	The process or a period of changing from one state or condition to another
Transverse/horizontal plane	Dividing body into upper and lower halves
Triage	Process of determining the order to treat patients
UBE	Upper body ergometer, upper body exerciser- bike motion for the arms
Ulcer	Sore or wound
Ultrasound	Using sound waves to penetrate tissues for healing
Unhappy or terrible triad	MCL, ACL and medial meniscus tear
Universal or standard precautions/BSI	Equipment and procedures used to decrease chance of disease transmission
Valgus stress	Force applied to lateral side
Varus stress	Force applied to medial side
Vascular	Blood flow related
Vasoconstriction	Blood flow closed down as vessels squeezed shut
Vasodilation	Increased blood flow by opening up
Ventral	Front side
Wellness	The state or condition of being in good physical and mental health
Wobble board	Tools used in strengthening and proprioception that provide an unstable surface

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