Utah CTE

Exercise Science/Sports Medicine: Grades 11-12 (2022)

Students will explore the fundamental aspects of Exercise Science/Sports Medicine. 1

1 **Identify members of the Sports Medicine team.** 1.1

- a Recognize the primary members of the sports medicine team to include: Coach, Athlete, Parents, Team Physician, Certified Athletic Trainer, and Allied Health professionals. 1.1.A
- b Understand that other careers provide support to the sports medicine team. 1.1.B
- c Compare and contrast the roles of each member of the sports medicine team. 1.1.C

2 **Explore a variety of therapeutic careers and describe the job duties and skills, education required, job settings, and potential salary for each of the following:** 1.2

- a Athletic Trainer (AT) 1.2.A
- b Physical Therapist (PT) 1.2.B
- c Physical Therapy Assistant (PTA) 1.2.C
- d Occupational Therapist (OT) 1.2.D
- e Occupational Therapy Assistant (OTA) 1.2.E
- f Exercise Physiologist 1.2.F
- g Orthopedic Surgeon 1.2.G
- h Physician 1.2.H
  - 1 DO 1.2.H.1
  - 2 MD 1.2.H.2
- i Physician Assistant (PA) 1.2.I
- j Nurse Practitioner (NP) 1.2.J
- k Biomechanist 1.2.K
- l Prosthetist 1.2.L
- m Orthotist 1.2.M
- n Podiatrist 1.2.N
- o Chiropractor (DC) 1.2.O
- p Sports Psychologist 1.2.P

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- q Emergency Medicine 1.2.Q
  - 1 EMT 1.2.Q.1
  - 2 Paramedic 1.2.Q.2
- r Certified Strength & Conditional Specialist/Personal Trainer (CSCS) 1.2.R
- s Registered Dietician (RD) 1.2.S
- t Massage Therapist (LMT) 1.2.T

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3 **Explain legal issues and legal terminology.** 1.3

- a Discuss risk management in an athletic setting. 1.3.A
  - 1 Collision 1.3.A.1
  - 2 Contact 1.3.A.2
  - 3 Non-contact 1.3.A.3
  - 4 Surfaces 1.3.A.4
- b Define legal terminology and discuss issues, including: 1.3.B
  - 1 Assumption of Risk 1.3.B.1
  - 2 Battery 1.3.B.2
  - 3 Commission 1.3.B.3
  - 4 Omission 1.3.B.4
  - 5 Failure to Warn 1.3.B.5
  - 6 HIPAA 1.3.B.6
  - 7 Informed Consent 1.3.B.7
  - 8 Liability 1.3.B.8
  - 9 Malpractice 1.3.B.9
  - 10 Negligence 1.3.B.10
    - 1 Duty of care 1.3.B.10.1
    - 2 Breach of duty 1.3.B.10.2
    - 3 Damage/injury occurred 1.3.B.10.3
    - 4 Proximal cause 1.3.B.10.4
  - 11 Standard of Care 1.3.B.11
  - 12 Statute of limitations 1.3.B.12
  - 13 Good Samaritan law 1.3.B.13

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c Discuss parameters of ethical conduct and associated issues, including: 1.3.C

1 Americans with Disabilities Act 1.3.C.1

2 Cheating 1.3.C.2

3 Drug testing 1.3.C.3

4 Fair play and sportsmanship 1.3.C.4

5 Performance enhancing drugs 1.3.C.5

6 Scope of practice 1.3.C.6

7 Title IX (Gender equity in sports) 1.3.C.7

8 Winning at all costs 1.3.C.8

d Review preventative measures to reduce potential risks of litigation. 1.3.D

1 Medical History & Pre-participation Physical Examination (PPE) 1.3.D.1

2 Carry liability insurance 1.3.D.2

3 Continuing education 1.3.D.3

4 Appropriate documentation 1.3.D.4

5 Follow physician orders and recommendations 1.3.D.5

6 Have an emergency action plan (EAP) 1.3.D.6

7 Maintain adequate supervision 1.3.D.7

8 Maintain good rapport with the Sports Medicine Team 1.3.D.8

Students will describe principles of sports psychology. 2

1 Identify the psychological implications of an injury to an athlete. 2.1

a Describe the five psychological phases an athlete experiences following an injury. 2.1.A

1 Denial 2.1.A.1

2 Anger 2.1.A.2

3 Bargaining 2.1.A.3

4 Depression 2.1.A.4

5 Acceptance 2.1.A.5

b Compare and contrast how some athletes may view pain. 2.1.B

1 Deny pain and loss of function. 2.1.B.1

2 Injury as a source of relief. 2.1.B.2

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2 Identify effective psychological intervention skills. 2.2

a Describe the importance of goal setting. 2.2.A

1 Performance goals 2.2.A.1

2 Outcome goals 2.2.A.2

3 SMART goals 2.2.A.3

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b Examine different relaxation techniques and how they can help performance. 2.2.B

1 Focused breathing 2.2.B.1

2 Progressive muscle relaxation 2.2.B.2

3 Visual Imagery 2.2.B.3

3 Identify potential problems associated with overtraining. 2.3

a Compare and contrast staleness and burnout. 2.3.A

b Identify interventions to prevent or treat staleness or burnout. 2.3.B

1 Remove from activity 2.3.B.1

2 Time off 2.3.B.2

3 Allow athlete to have more control 2.3.B.3

4 Decreasing emotional and stressful demands 2.3.B.4

5 Avoid repetition 2.3.B.5

6 Sufficient attention to complaints and small injuries 2.3.B.6

7 Supportive and caring environment 2.3.B.7

4 Discuss different sources of anxiety that athletes may deal with. 2.4

a Trauma Induced 2.4.A

b Stress related 2.4.B

c Phobias 2.4.C

5 Discuss depression in athletes. 2.5

a Causes 2.5.A

b Resources (sources for professional help) 2.5.B

c Coping strategies 2.5.C

Students will describe the injury and healing process, including basic injury assessment. 3

1 Discuss the inflammatory response and the healing process. 3.1

a Compare and contrast Acute and Chronic injuries 3.1.A

b Discuss the purpose of inflammation. 3.1.B

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c Categorize the stages of acute injury healing and explain the processes involved in each: 3.1.C

1 Acute (Inflammation) Phase: 3.1.C.1

1 Signs and symptoms of inflammation 3.1.C.1.1

1 Heat 3.1.C.1.1.1

2 Redness 3.1.C.1.1.2

3 Swelling 3.1.C.1.1.3

4 Pain 3.1.C.1.1.4

5 Loss of function 3.1.C.1.1.5

2 Time frame 3.1.C.1.2

3 Define vasodilatation and explain why it occurs 3.1.C.1.3

4 Define hypoxia and explain its role in secondary cell death. 3.1.C.1.4

5 Describe the R.I.C.E. method to treat acute injuries. 3.1.C.1.5

2 Subacute (Repair and Regeneration) Phase 3.1.C.2

1 Time frame 3.1.C.2.1

2 Explain the role of fibroblasts and collagen in scar tissue formation. 3.1.C.2.2

3 Remodeling (Maturation) Phase 3.1.C.3

1 Time frame 3.1.C.3.1

2 Define adhesions 3.1.C.3.2

3 Explain Wolff's Law 3.1.C.3.3

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2 Explain an injury assessment (HIPS). 3.2

a Identify the components included in obtaining an accurate history. 3.2.A

b Identify the components of an inspection. 3.2.B

c Describe the process of palpation. 3.2.C

d Describe the purposes of special tests. 3.2.D

1 Range of Motion 3.2.D.1

1 Passive 3.2.D.1.1

2 Active 3.2.D.1.2

3 Resistive 3.2.D.1.3

2 Stress Tests (structural integrity) 3.2.D.2

3 Neurological 3.2.D.3

4 Functional 3.2.D.4

Discuss the decisions that can be made from a HIPS evaluation. 3.2.E

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Performance Skills

a Write a SOAP note

b Explain a HIPS assessment.

3 Compare and contrast injury classifications. 3.3

a Describe first degree injuries 3.3.A

b Describe second degree injuries 3.3.B

c Describe third degree injuries 3.3.C

4 Compare and contrast common fractures. 3.4

a Compression 3.4.A

b Depressed 3.4.B

c Greenstick 3.4.C

d Comminuted 3.4.D

e Longitudinal 3.4.E

f Spiral 3.4.F

g Transverse 3.4.G

5 Vocabulary 3.5

a Anatomical Planes 3.5.A

1 Sagittal Plane/Midsagittal 3.5.A.1

2 Frontal/Coronal 3.5.A.2

3 Transverse/Horizontal 3.5.A.3

b Signs & Symptoms 3.5.B

1 Acute 3.5.B.1

2 Chronic 3.5.B.2

3 Constriction 3.5.B.3

4 Dilation 3.5.B.4

5 Ecchymosis 3.5.B.5

6 Edema 3.5.B.6

7 Effusion 3.5.B.7

8 Inflammation 3.5.B.8

9 Joint laxity 3.5.B.9

Students will explore specific sports injuries of the head and neck and ap pr principles. 4

1 Review the anatomy of the head and neck. 4.1

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a Bones 4.1.A

1 Frontal 4.1.A.1

2 Occipital 4.1.A.2

3 Parietal 4.1.A.3

4 Temporal 4.1.A.4

5 Mandible 4.1.A.5

6. Maxillae 4.1.A.6

7 Zygomatic 4.1.A.7

8 Nasal 4.1.A.8

9 Vertebrae 4.1.A.9

b Muscles 4.1.B

1 Sternocleidomastoid 4.1.B.1

2 Trapezius 4.1.B.2

c Structures 4.1.C

1 Brain 4.1.C.1

2 Intervertebral discs 4.1.C.2

d Nerves 4.1.D

1 Cervical Plexus 4.1.D.1

2 Brachial Plexus 4.1.D.2

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2 Head and neck injuries 4.2

a Recognize common injuries to the head and neck to include. 4.2.A

1 Concussion 4.2.A.1

2 Subdural hematoma 4.2.A.2

3 Epidural hematoma 4.2.A.3

4 Cervical spine fracture 4.2.A.4

5 Brachial plexus injuries 4.2.A.5

6 Nose bleeds 4.2.A.6

b Identify the mechanism of each injury. 4.2.B

c Identify the signs and symptoms of each injury. 4.2.C

d Indicate appropriate treatment for each injury. 4.2.D

e Describe injury prevention strategies. 4.2.E

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3 Describe the basic principles and specialized equipment used in the prevention of thletic injuries. 4.3

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a Recognize types and functions of protective equipment. 4.3.A

1 Helmet, facemask, ear guards 4.3.A.1

2 Mouth guards 4.3.A.2

3 Neck collars 4.3.A.3

4 Padding 4.3.A.4

5 Sports bras 4.3.A.5

6 Compression shorts/cup 4.3.A.6

b Discuss the legal ramifications of manufacturing, buying, and issuing equipment. 4.3.B

1 NOCSAE warning 4.3.B.1

2 Modification of equipment 4.3.B.2

3 Proper fit and selection 4.3.B.3

4 Use of defective or worn out equipment 4.3.B.4

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4 Vocabulary 4.4

a Amnesia 4.4.A

b Articulation 4.4.B

c Innervate 4.4.C

d Mechanism of Injury (MOI 4.4.D

e Point tenderness 4.4.E

f Range of Motion (ROM)-Active, Passive, Resistive 4.4.F

g Referred Pain 4.4.G

Students will explore various aspects of sports nutrition. 5

1 Describe the basic components (kcal/gram, functions, energy vs. nutrients, healthy diet guidelines) of nutrition and the sources of the following nutrients. 5.1

a Carbohydrates 5.1.A

b Proteins 5.1.B

c Fats 5.1.C

d Vitamins 5.1.D

e Minerals 5.1.E

f Water 5.1.F

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2 Examine the importance of fluid replacement and hydration. 5.2

a Examine the importance of water and its role in the body. 5.2.A

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b Explain the correct process of hydration during athletic activity. 5.2.B

1 Identify the dangers of inappropriate hydration techniques. 5.2.B.1

1 Hyponatremia 5.2.B.1.1

2 Timing/Frequency 5.2.B.1.2

2 Identify the dangers of dehydration. 5.2.B.2

c Compare and contrast advantages and disadvantages of sports drinks. 5.2.C

1 Identify the role of sports drinks in hydration. 5.2.C.1

2 Discuss the importance of the correct chemical make-up of sports drinks. 5.2.C.2

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3 Identify the components of a pre and post event meal and explain the value of each. 5.3

a Describe the recommended nutrient percentages of pre and post event meals. 5.3.A

b Identify foods that are easily digested. 5.3.B

c Identify foods that should be avoided. 5.3.C

d Identify when pre and post event meals should be eaten. 5.3.D

e Discuss the concept of carbohydrate loading and discuss the benefits. 5.3.E

Students will explore the fundamentals of body composition and diseases and disorders related to body issues. 6

1 Describe basic body composition. 6.1

a Define body composition. 6.1.A

b Compare and contrast the most common methods for analyzing body composition. 6.1.B

1 Bod Pod 6.1.B.1

2 Skin-fold calipers 6.1.B.2

3 Bio-Impedance Analysis (BIA) 6.1.B.3

4 Hydrostatic weighing 6.1.B.4

5 Emerging technologies (ultrasound, etc.) 6.1.B.5

c Describe the parameters of safe weight loss and weight gain. 6.1.C

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2 Recognize common conditions and disorders associated with nutrition. 6.2

a Explore the effects of generalized disordered eating. 6.2.A

b Identify signs, symptoms, and effects of Anorexia Nervosa. 6.2.B

c Identify signs, symptoms, and effects of Bulimia Nervosa. 6.2.C

d Identify signs, symptoms, and effects of Muscle Dysmorphia. 6.2.D

e Identify signs, symptoms, and effects of the Female Athlete Triad (three components). 6.2.E

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Students will explore specific sports injuries of the lower extremities and apply athletic injury prevention principles. 7

1 **Review the anatomy of the lower extremities.** 7.1

- a Bones 7.1.A
  - 1 Femur 7.1.A.1
  - 2 Tibia 7.1.A.2
  - 3 Fibula 7.1.A.3
  - 4 Patella 7.1.A.4
  - 5 Talus 7.1.A.5
  - 6 Calcaneus 7.1.A.6
  - 7 Metatarsals 7.1.A.7
  - 8 Phalanges 7.1.A.8
- b Joints 7.1.B
  - 1 Tibiofemoral 7.1.B.1
  - 2 Patellofemoral 7.1.B.2
  - 3 Talocrural 7.1.B.3
  - 4 Subtalar 7.1.B.4
  - 5 Midfoot 7.1.B.5
  - 6 MP 7.1.B.6
  - 7 PIP/DIP 7.1.B.7
- c Soft Tissues 7.1.C
  - 1 Patellar Tendon 7.1.C.1
  - 2 Anterior Cruciate Ligament (ACL) 7.1.C.2
  - 3 Posterior Cruciate Ligament (PCL) 7.1.C.3
  - 4 Medial Collateral Ligament (MCL) 7.1.C.4
  - 5 Lateral Collateral Ligament (LCL) 7.1.C.5
  - 6 Lateral and Medial Meniscus 7.1.C.6
  - 7 Achilles Tendon 7.1.C.7
  - 8 Anterior Talofibular ligament (ATF) 7.1.C.8
  - 9 Deltoid ligament 7.1.C.9

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- d Muscles 7.1.D
  - 1 Quadriceps 7.1.D.1
  - 2 Hamstrings 7.1.D.2
  - 3 Peroneal 7.1.D.3
  - 4 Tibialis Anterior 7.1.D.4
  - 5 Tibialis Posterior 7.1.D.5
  - 6 Gastrocnemius 7.1.D.6
  - 7 Soleus 7.1.D.7

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2 Lower extremity injuries 7.2

- a Recognize common injuries to the lower extremity to include. 7.2.A
  - 1 Cruciate/Collateral Ligament sprains 7.2.A.1
  - 2 Meniscal injury 7.2.A.2
  - 3 Patella-femoral injuries 7.2.A.3
  - 4 Ankle sprains 7.2.A.4
  - 5 Plantar Fasciitis 7.2.A.5
  - 6 Turf toe 7.2.A.6
  - 7 Thigh contusions 7.2.A.7
  - 8 Quadriceps/Hamstring strains 7.2.A.8
  - 9 Medial Tibial Stress Syndrome (MTSS) 7.2.A.9
- b Identify the mechanism of each injury. 7.2.B
- c Identify the signs and symptoms of each injury. 7.2.C
- d Indicate appropriate treatment for each injury. 7.2.D
- e Describe injury prevention strategies. 7.2.E
  - 1 Shin Guards 7.2.E.1
  - 2 Shoes 7.2.E.2
  - 3 Other sport specific protection devices 7.2.E.3

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3 Demonstrate theory and principles of prophylactic taping. 7.3

- a Analyze the basic principles of prophylactic taping. 7.3.A
- b Identify the necessary supplies and their purpose for prophylactic taping. 7.3.B
  - 1 Athletic tape (various sizes) 7.3.B.1
  - 2 Prewrap 7.3.B.2
  - 3 Heel and lace pad 7.3.B.3
  - 4 Adhesive spray 7.3.B.4
  - 5 Shark/Scissors 7.3.B.5

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c Analyze the basic principles of proper tape removal. 7.3.C

d Explain the terminology associated with prophylactic taping procedures. 7.3.D

1 Anchor 7.3.D.1

2 Stirrup 7.3.D.2

3 Horseshoe 7.3.D.3

4 Spica 7.3.D.4

5 Heel-lock 7.3.D.5

6 Checkrein/Fan 7.3.D.6

Performance Skill

a Competently tape an ankle using the standard prophylactic taping method.

b Competently tape an arch using the standard prophylactic taping method. (Optional additional skill)

4 Identify principles of protective bracing. 7.4

a Discuss the differences between functional and prophylactic bracing. 7.4.A

b Identify the function of sleeves (compression). 7.4.B

5 Vocabulary 7.5

a General Terms 7.5.A

1 Atrophy 7.5.A.1

2 Bursa 7.5.A.2

3 Cartilage 7.5.A.3

4 Crepitus 7.5.A.4

5 Ligament 7.5.A.5

6 Tendon 7.5.A.6

7 Valgus/Varus 7.5.A.7

b Anatomical Positions and Directions 7.5.B

1 Superior/Inferior 7.5.B.1

2 Anterior/Posterior 7.5.B.2

3 Medial/Lateral 7.5.B.3

4 Proximal/Distal 7.5.B.4

5 Superficial/Deep 7.5.B.5

6 Ventral/Dorsal 7.5.B.6

7 Prone/Supine 7.5.B.7

8 Unilateral/Bilateral/Contralateral 7.5.B.8

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- c Movements of the Foot and Ankle 7.5.C
  - 1 Inversion/Eversion 7.5.C.1
  - 2 Dorsiflexion/Plantarflexion 7.5.C.2

Students will examine performance enhancement philosophies. 8

1. **Define terms associated with performance enhancements.** 8.1
   - a Cardiovascular endurance 8.1.A
   - b Muscular endurance 8.1.B
   - c Power 8.1.C
   - d Speed 8.1.D
   - e Strength 8.1.E
2. **Discuss general conditioning principles.** 8.2
   - a Adaptation 8.2.A
   - b Overload 8.2.B
   - c Specificity 8.2.C
   - d Reversibility 8.2.D
   - e Periodization 8.2.E
3. **Examine the roll the cardiovascular / respiratory systems have on fitness/athletic performance.** 8.3
   - a Identify and describe the structures and functions of the cardiovascular/respiratory systems and their interrelationship. 8.3.A
   - b Heart 8.3.B
     - 1 4 chambers 8.3.B.1
     - 2 4 valves 8.3.B.2
     - 3 4 blood vessels 8.3.B.3
     - 4 Lungs- oxygen exchange from alveoli to capillaries 8.3.B.4
   - c Identify vital signs related to the cardiovascular / respiratory system. 8.3.C
     - 1 Describe and accurately measure blood pressure (systolic / diastolic) 8.3.C.1
     - 2 Describe and accurately measure respiratory rate 8.3.C.2
     - 3 Describe and accurately measure pulse rate 8.3.C.3
     - 4 Describe lung volume 8.3.C.4
       - 1 Tidal volume 8.3.C.4.1
       - 2 Vital capacity 8.3.C.4.2
     - 5 Describe the importance of cardiac output, stroke volume, and heart rate during exercise 8.3.C.5

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d Examine different types of tests used to quantify cardiovascular fitness. 8.3.D

1 VO2max 8.3.D.1

2 Harvard step test 8.3.D.2

3 12 minute run test 8.3.D.3

e Describe the effects exercise has on the cardiovascular / respiratory systems. 8.3.E

1 Immediate effects of exercise 8.3.E.1

1 Heart rate 8.3.E.1.1

2 Ventilation 8.3.E.1.2

2 Long term effects of exercise 8.3.E.2

1 Heart rate 8.3.E.2.1

2 Stroke volume 8.3.E.2.2

3 Cardiac output 8.3.E.2.3

f Compare and contrast aerobic / anaerobic training. 8.3.F

g Examine the importance of a warm up / cool down in a training program. 8.3.G

h Examine different cardiovascular training methods. 8.3.H

1 Interval 8.3.H.1

2 Fartlek 8.3.H.2

3 Circuit 8.3.H.3

4 Continuous 8.3.H.4

i Apply general conditioning principles to improve cardiovascular fitness. 8.3.I

1 Rate of perceived exertion (BORG scale) 8.3.I.1

2 Target heart rate 8.3.I.2

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4 Examine the effects of the environment on training and performance. 8.4

a Discuss the effect of high and low altitude. 8.4.A

b Describe the effects of acclimatization. 8.4.B

c Recognize the effects of travel on the body. 8.4.C

Students will examine strength training principles, flexibility, and ergogenic aids. 9

1 Examine the roll strength training has on fitness / athletic performance. 9.1

a Identify and describe the sliding filament model. 9.1.A

b Sarcomere 9.1.B

1 Actin 9.1.B.1

2 Myosin 9.1.B.2

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c Compare and contrast the difference between slow twitch and fast twitch muscles fibers. 9.1.C

1 Slow twitch athletic activities 9.1.C.1

2 Fast twitch athletic activities 9.1.C.2

d Compare and contrast different types of movements related to strength training. 9.1.D

1 Isometric / isotonic / isokinetic 9.1.D.1

2 Eccentric / concentric 9.1.D.2

3 Closed chain / open chain 9.1.D.3

4 Plyometrics 9.1.D.4

e Identify methods of resistance training. 9.1.E

f Apply general conditioning principles to improve strength. 9.1.F

1 Speed 9.1.F.1

2 Muscular endurance 9.1.F.2

3 Power 9.1.F.3

4 Periodization 9.1.F.4

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2 Examine the importance of flexibility in fitness / athletic performance. 9.2

a Explain the general guidelines of flexibility. 9.2.A

1 Define ROM and how it relates to fitness / athletic performance 9.2.A.1

2 Identify the benefits of flexibility. 9.2.A.2

1 Decrease risk of injury 9.2.A.2.1

2 Reduce muscle soreness 9.2.A.2.2

3 Improve muscular balance and postural awareness 9.2.A.2.3

3 Demonstrate proper timing of flexibility techniques. 9.2.A.3

1 Before activity 9.2.A.3.1

2 After activity 9.2.A.3.2

b Identify the different methods to increase flexibility and the safety / effectiveness of each. 9.2.B

1 Static stretching 9.2.B.1

2 Ballistic Stretching 9.2.B.2

3 Dynamic Stretching 9.2.B.3

4 Proprioceptive Neuromuscular Facilitation Stretching 9.2.B.4

1 Contract/Relax 9.2.B.4.1

2 Hold/Relax 9.2.B.4.

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erformance Skill

a Demonstrate the proper techniques of static stretching for ALL major muscle groups.

3 **Compare and contrast the physiological and psychological effects of ergogenic aids.** 9.3

a Define ergogenic aid. 9.3.A

b Recognize the effects and possible dangers of common ergogenic aides. 9.3.B

1 Stimulants (including caffeine) 9.3.B.1

2 Narcotics 9.3.B.2

3 Anabolic steroids 9.3.B.3

4 Beta blockers 9.3.B.4

5 Diuretics 9.3.B.5

6 Human growth hormone 9.3.B.6

7 Blood doping products 9.3.B.7

1 Blood transfusions 9.3.B.7.1

2 Erythropoietin (EPO) 9.3.B.7.2

8 Anesthetics 9.3.B.8

9 Corticosteroids 9.3.B.9

10 Creatine 9.3.B.10

c Discuss the dangers of energy drinks and their effects on the body. 9.3.C

Students will explore specific sports injuries of the upper extremities and apply athletic injury prevention principles. 10

1 **Review the anatomy of the upper extremity.** 10.1

a Bones 10.1.A

1 Scapula 10.1.A.1

2 Clavicle 10.1.A.2

3 Humerus 10.1.A.3

4 Radius 10.1.A.4

5 Ulna 10.1.A.5

6 Carpals 10.1.A.6

7 Metacarpals 10.1.A.7

8 Phalanges 10.1.A.8

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- b Joints 10.1.B
  - 1 Shoulder 10.1.B.1
    - 1 Sternoclavicular (SC) 10.1.B.1.1
    - 2 Acromioclavicular (AC) 10.1.B.1.2
    - 3 Glenohumeral 10.1.B.1.3
    - 4 Scapulothoracic 10.1.B.1.4
  - 2 Elbow 10.1.B.2
  - 3 Wrist 10.1.B.3
  - 4 Metaparpal-phalangeal 10.1.B.4
  - 5 Interphalangeal 10.1.B.5
- c Soft tissues 10.1.C
  - 1 Sub-acromial bursa 10.1.C.1
  - 2 AC ligament 10.1.C.2
  - 3 Glenoid labrum 10.1.C.3
- d Muscles 10.1.D
  - 1 Deltoid 10.1.D.1
  - 2 SITS (Subscapularis, Infraspinatus, Supraspinatus, Teres minor) 10.1.D.2
  - 3 Biceps brachii 10.1.D.3
  - 4 Triceps brachii 10.1.D.4

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2 Recognize common injuries to the upper extremity. 10.2

- a Upper extremity injuries 10.2.A
  - 1 Clavicle fracture 10.2.A.1
  - 2 Impingement syndrome 10.2.A.2
  - 3 Rotator cuff injuries 10.2.A.3
  - 4 Glenohumeral dislocation 10.2.A.4
  - 5 AC joint separation 10.2.A.5
  - 6 Epicondylitis 10.2.A.6
    - 1 Lateral (Tennis elbow) 10.2.A.6.1
    - 2 Medial (Little leaguer's elbow) 10.2.A.6.2
  - 7 Interphalangeal dislocation 10.2.A.7
- b Identify the mechanism of each injury. 10.2.B
- c Identify the signs and symptoms of each injury. 10.2.C
- d Indicate the appropriate treatment for each injury. 10.2.D
- e Describe injury prevention strategies. 10.2.E

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Performance Skill: Competently tape a thumb using the standard prophylactic taping method.

a Competently tape a thumb using the standard prophylactic taping method.

b Competently tape a wrist using the standard prophylactic taping method. (Optional additional skill)

3 Vocabulary 10.3

a Movements 10.3.A

1 Flexion/Extension/Hyperextension 10.3.A.1

2 Abduction/Adduction 10.3.A.2

3 Pronation/Supination 10.3.A.3

4 Protraction/Retraction 10.3.A.4

5 Elevation/Depression 10.3.A.5

6 Rotation 10.3.A.6

1 Internal rotation 10.3.A.6.1

2 External rotation 10.3.A.6.2

7 Circumduction 10.3.A.7

8 Lateral flexion 10.3.A.8

b Movements of the Wrist & Thumb 10.3.B

1 Radial/Ulnar deviation 10.3.B.1

2 Opposition 10.3.B.2

Students will be able to recognize common injuries and administer injury management. 11

1 Identify proper personal protective equipment (PPE)/body substance isolation (BSI) precautions. 11.1

2 Identify soft tissue injuries and skin conditions. 11.2

a Differentiate signs, symptoms and treatment for: 11.2.A

1 Avulsions 11.2.A.1

2 Abrasions 11.2.A.2

3 Bites 11.2.A.3

4 Blisters 11.2.A.4

5 Contusions 11.2.A.5

6 Lacerations 11.2.A.6

7 Stings 11.2.A.7

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b Differentiate signs, symptoms and treatment for: 11.2.B

1 Ring worm 11.2.B.1

2 Jock itch 11.2.B.2

3 Athlete's foot 11.2.B.3

4 Impetigo 11.2.B.4

5 MRSA 11.2.B.5

6 Warts 11.2.B.6

7 Eczema 11.2.B.7

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3 Recognize abdominal injuries, bleeding, and shock. 11.3

a Discuss external bleeding. 11.3.A

b Demonstrate proper procedures to control bleeding. 11.3.B

1 Apply direct pressure with sterile gauze pad 11.3.B.1

2 Apply a pressure dressing 11.3.B.2

3 Check circulation 11.3.B.3

c Identify signs, symptoms, and treatment of internal bleeding. 11.3.C

d Identify signs and symptoms and treatment of abdominal injuries. 11.3.D

1 Ruptured spleen 11.3.D.1

2 Appendicitis 11.3.D.2

3 Hernia 11.3.D.3

e Identify signs, symptoms and treatment for shock. 11.3.E

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4 Discuss immobilization techniques. 11.4

a Identify fracture signs and symptoms. 11.4.A

b Explain the steps to immobilization. 11.4.B

1 Splint in the position found 11.4.B.1

2 Immobilize the joint above and the joint below 11.4.B.2

3 Check circulation distal to the injury 11.4.B.3

c Explain head / neck immobilization. 11.4.C

1 Maintain stabilization in the position found. 11.4.C.1

2 Monitor ABC's. 11.4.C.2

Performance Skill

a Demonstrate crutch fitting to any size individual.

b Stabilize head/neck in position found. (Optional additional skill)

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ecognize and provide treatment for environmental conditions. 11.5

a Compare and contrast the causes, signs, symptoms, and treatment of heat illnesses. 11.5.A

1 Heat cramps 11.5.A.1

2 Heat exhaustion 11.5.A.2

3 Heat stroke 11.5.A.3

b Compare and contrast the causes, signs, symptoms, and treatment of cold exposure. 11.5.B

1 Hypothermia 11.5.B.1

2 Frostbite 11.5.B.2

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6 **Describe the treatment for medical conditions.** 11.6

a Seizures 11.6.A

b Fainting 11.6.B

c Diabetes 11.6.C

d Anaphylactic shock 11.6.D

e Asthma 11.6.E

f Exertional sickling 11.6.F

g Sudden cardiac arrest 11.6.G

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7 **Vocabulary** 11.7

- a General Vocabulary Terms 11.7.A
  - 1 Cyanosis 11.7.A.1
  - 2 Diagnosis 11.7.A.2
  - 3 Incision 11.7.A.3
  - 4 Palpation 11.7.A.4
  - 5 Prognosis 11.7.A.5
  - 6 Reduction 11.7.A.6
  - 7 Shock 11.7.A.7
- b Injuries 11.7.B
  - 1 Bursitis 11.7.B.1
  - 2 Dislocation 11.7.B.2
  - 3 Subluxation 11.7.B.3
  - 4 Fracture 11.7.B.4
  - 5 Hematoma 11.7.B.5
  - 6 Separation 11.7.B.6
  - 7 Sprain 11.7.B.7
  - 8 Strain 11.7.B.8

Students will explain therapeutic modalities and rehabilitation techniques. 12

1 **Explore therapeutic modalities.** 12.1

- a Identify the purpose of therapeutic modalities. 12.1.A
- b Explain how to properly select the use of therapeutic modalities. 12.1.B
- c Identify the Gate Control Theory as a principle of pain management and describe the physiological process of the theory. 12.1.C

2 **Describe the physiological effects, indications, contraindications, and application of the following:** 12.2

- a Cryotherapy 12.2.A
  - 1 Ice packs 12.2.A.1
  - 2 Ice massage 12.2.A.2
  - 3 Ice immersion 12.2.A.3
  - 4 Cold whirlpool 12.2.A.4
  - 5 Chemical coolant 12.2.A.5
  - 6 Review the R.I.C.E. method 12.2.A.6

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b Thermotherapy 12.2.B

1 Heat packs 12.2.B.1

2 Ultrasound 12.2.B.2

3 Hot whirlpool 12.2.B.3

c Electrotherapy 12.2.C

d Manual Therapy 12.2.D

1 Massage 12.2.D.1

2 Cupping 12.2.D.2

3 Scraping techniques 12.2.D.

Performance Skill

a Prepare an ice bag/pack

b Apply a compression wrap to an ankle

c Apply a compression wrap to a knee.

3 Discuss the components and goals of a rehabilitation program. 12.3

a Identify the general guidelines of a rehabilitation program. 12.3.A

1 Individualize each program 12.3.A.1

2 Be as aggressive as possible without causing harm 12.3.A.2

3 Use a variety of equipment 12.3.A.3

4 Common mistakes 12.3.A.4

1 Treat the cause not the symptoms 12.3.A.4.1

2 Not addressing the contra-lateral side 12.3.A.4.2

3 Postural defects, anatomical mal-alignment, and biomechanical imbalances 12.3.A.4.3

5 Appropriate goal setting 12.3.A.5

6 Components of a rehabilitation program 12.3.A.6

b Phase I 12.3.B

1 Body conditioning/maintain cardiovascular fitness throughout all phases 12.3.B.1

2 Control swelling 12.3.B.2

3 Control pain 12.3.B.3

4 Increase range of motion 12.3.B.4

c Phase II 12.3.C

1 Restore full range of motion 12.3.C.1

2 Strength, endurance, speed, power in all muscle groups 12.3.C.2

3 Begin skill patterns and proprioception 12.3.C.3

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- d Phase III 12.3.D
  - 1 Functional and sport specific skills 12.3.D.1
  - 2 Restore balance and proprioception 12.3.D.2
  - 3 Return to sport 12.3.D.3
- e Relate the different exercise principles to rehabilitation. 12.3.E
  - 1 Specificity(SAID) 12.3.E.1
  - 2 Overload 12.3.E.2

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4 Vocabulary 12.4

- a Analgesic 12.4.A
- b Contraindicate 12.4.B
- c Cryotherapy 12.4.C
- d Hydrotherapy 12.4.D
- e Indicate 12.4.E
- f Modality 12.4.F
- g Thermotherapy 12.4.G
- h Vasoconstrictor 12.4.H
- i Vasodilator 12.4.I

Workplace Skills

- a Communication
- b Problem Solving
- c Teamwork
- d Critical Thinking
- e Dependability
- f Accountability
- g Legal Requirements/expectations