

ANATOMY AND PHYSIOLOGY Basic Core Curriculum (01/20/06)

An Introduction to the Human Body

Performance objectives -Graduates will be able to:

- a. Define anatomy and physiology
- b. Define the structural organization of the body
- c. Define life processes
- d. List the most important functions of each body system
- e. Define homeostasis, describe its generalized process and relationship to health and disease
- f. Demonstrate anatomical terms on themselves and/or classmates
- g. Define directional terms, anatomical planes, and body cavities
- h. Describe selected medical imaging techniques

The Chemical Level

Performance objectives -Graduates will be able to:

- a. Define atoms, molecules, and elements
- b. Recognize different types of chemical bonds
- c. Explain basic chemical reactions and the concept of pH
- d. List organic and inorganic compounds
- e. Explain the action of enzymes
- f. Explain the structure of DNA and RNA

The Cellular Level

Performance objectives -Graduates will be able to:

- a. List the components of a generalized cell
- b. Describe the function of each component
- c. Describe the movement of substances into and out of cells
- d. Explain protein synthesis
- e. Describe the phases of cell division
- f. Describe common homeostatic imbalances
- g. Recognize common medical terminology

The Tissue Level

Performance objectives -Graduates will be able to:

- a. Define the four tissue types
- b. List and describe the general features of the two types of epithelial tissue and their locations
- c. List and describe the general features of connective tissue and their locations
- d. List and describe the types of membranes
- e. Recognize terminology related to muscular and nervous systems
- f. Describe tissue repair
- g. Describe common homeostatic imbalances
- h. Recognize common medical terminology

The Integumentary System

Performance objectives -Graduates will be able to:

- a. List and describe the layers of the skin and components
- b. Describe the accessory structures of the skin
- c. List and describe the functions of the skin
- d. Explain how epidermal and deep wounds heal
- e. Describe the effects of aging on the integumentary system
- f. Describe common homeostatic imbalances
- g. Recognize common medical terminology

Bone Tissue

Performance objectives -Graduates will be able to:

- a. Discuss the functions of bone
- b. Identify parts of a long bone
- c. Describe the histology of compact and spongy bone
- d. Describe both types of bone formation
- e. Describe types of fractures
- f. Explain the process of fracture repair
- g. Explain the process of bone growth
- h. Describe the effects of exercise and aging on bone (mass) tissue
- i. Describe common homeostatic imbalances
- j. Recognize common medical terminology

The Axial Skeleton

Performance objectives -Graduates will be able to:

- a. Classify most bones into one of six categories
- b. Define bone surface markings
- c. Differentiate bones of the axial skeleton from the appendicular skeleton
- d. Identify, describe, locate, and palpate the bones of the skull (differentiate cranial from facial bones)
- e. Identify, describe, and locate the sutures, paranasal sinuses, bones of the orbit and nasal septum
- f. Identify, locate, and palpate the bones of the vertebral column and discuss normal and abnormal curvatures of the spine
- g. Identify, locate, and palpate the bones of the thorax
- h. List, identify, locate, and palpate bony landmarks of the axial skeleton
- i. Describe common homeostatic imbalances
- j. Recognize common medical terminology

The Appendicular Skeleton

Performance objectives -Graduates will be able to:

- a. Identify, describe, and palpate the bones of the appendicular skeleton
- b. List, identify, locate, and palpate the bony landmarks of the appendicular skeleton
- c. List the bones that make up the pectoral and pelvic girdles
- d. Differentiate bones of the appendicular skeleton from the axial skeleton
- e. Define bone surface markings
- f. Describe common homeostatic imbalances
- g. Recognize common medical terminology

Articulations

Performance objectives -Graduates will be able to:

- a. Classify joints into structural and functional categories
- b. List and describe the structure of a typical diarthrotic joint and the six types
- c. List and define movements of diarthrotic joints
- d. Describe rotator cuff, and knee injuries
- e. List and describe the structures of the shoulder, hip, elbow, and knee
(wrist and ankle – to be tested December 2007)
- f. List and explain the factors affecting ROM
- g. Differentiate between a sprain and a strain
- h. Describe common homeostatic imbalances
- i. Recognize common medical terminology

Muscle Tissue

Performance objectives -Graduates will be able to:

- a. List the types and functions of muscle tissue and fascia
- b. List and explain the structure of a neuromuscular junction and a motor unit
- c. Describe principal events of the sliding filament theory
- d. Identify the five arrangements of muscle fascicles
- e. Describe the sequence of muscle metabolism associated with prolonged muscular activity
- f. Explain the types of skeletal muscle fibers
- g. Recognize the differences between skeletal, cardiac, and smooth muscle
- h. Describe the anatomy of skeletal muscle fibers
- i. List and describe the different types of muscle contractions
- j. Describe common homeostatic imbalances
- k. Recognize common medical terminology

The Muscular System

Performance objectives -Graduates will be able to:

- a. Describe and palpate the origin and insertion, the actions, innervations, and common muscular injuries associated with the following muscles:
 1. muscles of mastication
 2. muscles that move the neck
 3. muscles of the vertebral column
 4. muscles of the abdominal wall and breathing
 5. muscles of the pectoral girdle
 6. muscles that move the humerus
 7. muscles that move the forearm, wrist, hand, and fingers
 8. muscles that move the femur
 9. muscles that move the leg, ankle, foot, and toes
- b. Identify the general location of the following muscles
 1. muscles of facial expression
 2. extrinsic eye muscles
 3. digastric muscle / anterior neck
 4. muscles of the tongue
- c. Define, compare, and locate the three types of levers
- d. Describe skeletal muscle, as a functional unit or organ, containing all the following components: skeletal muscle, connective tissue, nervous and vascular tissue
- e. Describe common homeostatic imbalances
- f. Recognize common medical terminology

Nervous Tissue

Performance objectives -Graduates will be able to:

- a. Describe the types neuroglia
- b. Describe the structure of a typical neuron
- c. Differentiate gray matter from white matter
- d. Describe the phase of action potential and signal transmission at synapses
- e. Describe damage and repair of peripheral neurons
- f. Describe the classes and function of neurotransmitters
- g. Describe common homeostatic imbalances
- h. Recognize common medical terminology

The Spinal Cord and Spinal Nerves

Performance objectives -Graduates will be able to:

- a. Describe the spinal cord and its protective coverings
- b. Identify sensory and motor tracts in the cord
- c. Describe a reflex arc
- d. Describe four different types of somatic reflexes
- e. Describe the components, connective tissue covering, and branches of spinal nerve
- f. Describe the major branches of the cervical, brachial, lumbar, and sacral plexuses
- g. State the significance of dermatomes
- h. Describe the outcome of common peripheral nerve dysfunctions
- i. Describe common homeostatic imbalances
- j. Recognize common medical terminology

The Brain and Cranial Nerves

Performance objectives -Graduates will be able to:

- a. Describe and identify the principle parts of the brain and protective coverings
- b. Identify and describe the structure and functions of the brain stem, cerebellum, diencephalon, and cerebrum
- c. List the 12 cranial nerves and describe their functions
- d. Describe common homeostatic imbalances
- e. Recognize common medical terminology

The Sensory, Motor, and Integrative Systems

Performance objectives -Graduates will be able to:

- a. List and classify the sensory modalities
- b. Classify sensory receptors according to location and type of stimulus
- c. Identify and describe somatic sensations
- d. Discuss the general components of somatic sensory and motor pathways
- e. Describe the organization of the sensory and motor cortex
- f. Discuss learning and memory
- g. Discuss wakefulness and sleep
- h. Describe common homeostatic imbalances
- i. Recognize common medical terminology

The Special Senses

Performance objectives -Graduates will be able to:

- a. Briefly describe the sense of smell
- b. Briefly describe the sense of taste
- c. Describe the anatomy of the eye and its accessory structures
- d. Briefly describe the physiology of vision
- e. Describe the anatomy of the ear
- f. Briefly describe the physiology of hearing
- g. Briefly describe the physiology of equilibrium
- h. Describe common homeostatic imbalances
- i. Recognize common medical terminology

The Autonomic Nervous System

Performance objectives -Graduates will be able to:

- a. Describe the anatomy of autonomic motor pathways
- b. Compare and contrast the Somatic Nervous System and Autonomic Nervous System
- c. Describe the anatomical components of the sympathetic and parasympathetic divisions
- d. Identify the neurotransmitters and receptors of the ANS
- e. Describe, compare and contrast the responses of most organs of the body to sympathetic and parasympathetic activity
- f. Describe common homeostatic imbalances
- g. Recognize common medical terminology

The Endocrine System

Performance objectives -Graduates will be able to:

- a. Classify major groups of hormones according to chemistry
- b. Briefly describe the mechanisms of hormonal actions
- c. Describe the location, histology, and major functions of each endocrine gland, their hormones and target tissues
- d. Describe how the body responds to stress
- e. Describe common homeostatic imbalances
- f. Recognize common medical terminology

The Blood

Performance objectives -Graduates will be able to:

- a. Describe the relationship of blood to interstitial fluid and lymph
- b. Briefly describe the general functions of blood
- c. List the physical characteristics of blood
- d. Describe the components of blood
- e. Describe the formation of blood cells
- f. Describe the morphology and function of erythrocytes, leukocytes, and thrombocytes
- g. Describe the three mechanisms that contribute to hemostasis
- h. Explain the ABO and Rh blood groups
- i. Describe common homeostatic imbalances
- j. Recognize common medical terminology

The Heart

Performance objectives -Graduates will be able to:

- a. Describe the flow of blood through the heart and systemic and pulmonary circulatory
- b. Describe the structure of the heart and pericardium
- c. Describe the coronary circulation
- d. Describe the cardiac conduction system
- e. Briefly describe the cardiac cycle and electrocardiogram
- f. Describe normal heart sounds during a cardiac cycle
- g. Briefly describe cardiac output and the regulation of the heart rate
- h. Explain the benefits of regular exercise on the heart
- i. Describe the structural function of the foramen ovale and ductus arteriosus in the heart
- j. Describe common homeostatic imbalances
- k. Recognize common medical terminology

Blood Vessels and Hemodynamics

Performance objectives -Graduates will be able to:

- a. Describe the structure and function arteries, veins, and capillaries
- b. Briefly describe concepts of blood distribution and capillary exchange
- c. Briefly describe the factors that regulate velocity and volume of blood flow
- d. Explain how blood pressure is regulated
- e. Define shock and describe the four types of shock
- f. Demonstrate the pulse and blood pressure of a classmate
- g. Describe pulmonary and systemic circulation
- h. Describe the location and direction of flow of all major blood vessels
- i. Discuss fetal circulatory and associated structures
- j. Describe the hepatic portal circulation
- k. Describe common homeostatic imbalances
- l. Recognize common medical terminology

The Lymphatic System

Performance objectives -Graduates will be able to:

- a. Describe the formation of lymph
- b. Identify and describe lymphatic vessels
- c. Name the major lymphatic vessels and describe the direction of lymph flow
- d. Describe the structure and function of bone marrow, thymus gland, lymph nodes, spleen, and lymphatic nodules
- e. Describe the mechanisms of nonspecific resistance to disease
- f. Describe the mechanisms of specific resistance
- g. Describe common homeostatic imbalances
- h. Recognize common medical terminology

The Respiratory System

Performance objectives -Graduates will be able to:

- a. Describe the functions and structures of the respiratory system
- b. Describe pulmonary ventilation
- c. Describe external and internal respiration
- d. Briefly describe how respiratory rates are controlled
- e. Describe common homeostatic imbalances
- f. Recognize common medical terminology

The Digestive System

Performance objectives -Graduates will be able to:

- a. List the structures of the digestive system
- b. List the accessory structures of the digestive system
- c. Briefly describe the six basic processes of the digestive system
- d. Describe the tissue layers of the GI tract
- e. Describe the peritoneum and its associated structures
- f. Describe the structure and functions of the stomach, small intestine, and large intestine
- g. Describe the structure and function of the accessory glands
- h. Describe common homeostatic imbalances
- i. Recognize common medical terminology

The Urinary System

Performance objectives -Graduates will be able to:

- a. List, identify, and describe the functions of the urinary system
- b. List, identify, and describe the structures of the urinary system
- c. Describe common homeostatic imbalances
- d. Recognize common medical terminology

The Reproductive Systems

Performance objectives -Graduates will be able to:

- a. Describe the gross anatomy of the structures of the male reproductive system and their functions
- b. Describe the gross anatomy of the structures of the female reproductive system and their functions
- c. Briefly know the signs and symptoms sexually transmitted diseases

LIMITED BRANCH OF MASSAGE THERAPY Basic core curriculum (02/03/06)

PROFESSIONALISM AND LEGAL ISSUES

Performance Objectives: Graduates will be able to:

1. Scope of Practice OAC 4731-1-05
 - a. Define and discuss the Scope of Practice for massage therapists according to Ohio Law.
 - b. Demonstrate a working knowledge of the application of Ohio Law as it relates to the practice of Massage therapy
2. AMTA Professional Ethics 4731-1-02C
 - a. Explain and define professional ethics for massage therapy.
 - b. Recognize professional / clinical conditions which might present ethical dilemmas.
 - c. Recognize professional behaviour that would be considered unethical by a majority of "reasonable" professionals.
 - d. Discuss professional behaviour in relationship to the ethical considerations and potential therapeutic outcome.
 - e. Recognize and explain how a massage therapist behaviours might enhance and/or compromise the physical, mental and/or emotional health of a client.
 - f. Identify, explain and understand the emotional / legal implications for establishing a personal - intimate / sexual relationship with a client.
3. Standards of Practice 4731-1-02C
 - a. Recognize and explain legal practices, standards of practices and ethical practices.
 - b. Discuss legal and ethical dilemmas.
4. Documentation
 - a. Discuss and understand proper documentations of Client History, including: prescriptions, medical reports, and referrals from other professionals
 - b. Conduct and document Client Interviews, including: taking a physical assessment, posture and gait analysis, muscle testing, tissue assessment, and range of movement
 - c. Demonstrate and create Client Charts, consisting of: SOAP charting and medical records
 - d. Discuss making referrals to other professionals: for complimentary care, knowing when, to whom and how to refer, and obtaining release and authorization forms
5. Business Practices
 - a. Discuss insurance: liability and reimbursement
 - b. Discuss in class how to implement Marketing Strategies and creating a Business Plan
 - c. Discuss in class pertinent Business Laws, including: local, state, federal, and discrimination
 - d. Demonstrate a working understanding of basic Accounting principles, including: bookkeeping, taxes, and financial planning
 - e. Discuss an understanding of Technology: massage equipment (i.e. tables), how to use and choose computers and other office equipment needs
 - f. Demonstrate accepted Business Communications: oral, written, and non-verbal
 - g. Identify and demonstrate appropriate professional referrals.
6. Client Education
 - a. Discuss therapeutic education (i.e.: self massage techniques)
 - b. Discuss ergonomics
 - c. Educate clients and others about Massage Therapy:
 - 1). results and benefits
 - 2). goals and expectations
 - 3). concepts of informed consent and right of refusal
 - 4). communicating level of comfort and feedback to massage therapist
 - d. Demonstrate an understanding of Complementary Care and Wellness Information
 - e. Discuss Business Policies: right to refuse service & strategies for dealing with difficult clients

MESSAGE PROCEDURES

Performance Objectives: Graduates will be able to:

- a. Name, describe, and perform each of the primary massage procedures and their respective subdivisions:
 1. **TOUCH**
(passive, pressure, and nerve compression)
 2. **FRICTION**
(centripetal, circular, spiral, rotary, and centrifugal)
 3. **KNEADING**
(Superficial Kneading / fulling)
(Deep Kneading: digital, palmar, rolling, wringing, chucking, fist, and petrissage)
 4. **JOINT MOVEMENTS**
(passive, assistive, resistive, and joint stretching)
 5. **PERCUSSION**
(tapping, hacking, spating, beating, and clapping)
Reflex Percussion(s) interscapular, epigastric, abdominal, cremasteric, gluteal, and plantar
Tendon reflex percussion and Point Percussion
 6. **VIBRATION**
(shaking, digital, deep, lateral, knuckle, and superficial)
 7. **STROKING**
(digital, palmar, and knuckle)
Reflex Stroking: interscapular, epigastric, abdominal, cremasteric, gluteal, plantar, and axillary
 8. **STRETCHING**
(passive and active stretching of muscle and connective tissue to achieve normal resting length)
 - b. Explain the physiological effects and therapeutic applications for each of the massage procedures and their respective subdivisions
 - c. Identify and demonstrate an appropriate assessment of anatomical structures utilizing specific massage procedures and/or palpatory skills
 - d. Identify and compare the following massage techniques to those above:
 1. Range Of Motion (R.O.M.) – joint movement
 2. Compression – pressure touch or palmar kneading
 3. Effleurage – friction or stroking
 4. Skin rolling – superficial kneading
 5. Pressure release technique (ischemic compression) – pressure touch
 6. Cross fiber friction – is applied in a transverse direction across the muscle, tendon, or ligament
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- ## **PHYSIOLOGICAL EFFECTS**
- Performance Objectives: Graduates will be able to:
- a. List, explain, and define 3 major categories of physiological effects: Mechanical, Metabolic, and Reflex
 - b. List and describe procedures that stimulate and sedate
 - c. Identify specific physiological effects upon the following: Integument, Skeletal, Muscular, Nervous, Cardiovascular, Lymphatic, Digestive, Respiratory, and Urinary
 - d. Define and explain localized effects (localized treatments)
 - e. Define and explain general and derivative effects
 - f. Identify indications and contraindications for the application of massage procedures

THERAPEUTIC APPLICATIONS

Performance Objectives: Graduates will be able to:

1. Applied structure and function
 - a. Identify and describe structures which would be found beneath identified surface locations
 - b. Identify structures most probably involved in non-radiating musculoskeletal pain in a particular location
 - c. Identify structures most probably involved when musculoskeletal pain followed a particular activity
 - d. Identify and define "endangerment area"
 - e. Identify and define vulnerable structures in each "endangerment area"
2. Indications and contraindications for massage therapy
 - a. Define and list indications and contraindications for the application of manual massage procedures and/or their respective subdivisions.
 - b. Identify anatomical, physiological and structural conditions in which the localized or general application of massage procedures would be indicated and/or contraindicated.
 - c. Identify signs and symptoms that determine indication and/or contraindication for a specific massage procedure.
 - d. Recognize physical and psychological conditions in which specific massage procedures are contraindicated or must be altered.
 - e. Recognize physical conditions that would require a referral and evaluation by another health care provider prior to the application of massage procedures.
 - f. Recognize physical altered changes that require Emergency measures.
 - A - airway
 - B - breathing
 - C - circulation
 - D - disability (any sudden onset including: pain, changes in mobility, or changes in sensory acuity)
3. Condition and/or disease, and sign & symptom identification (refer to Table below)
 - a. Identify and describe the signs and symptoms of these most common conditions/diseases
 - b. Identify and describe the signs and symptoms of these contagious disease
 - c. Identify the signs and symptoms of both local and systemic contraindicated conditions/diseases
 - d. Identify and describe the signs and symptoms of these conditions that need caution or a referral from a HCP
 - e. Recognize and define the following conditions/diseases

The following Table is a list of conditions and/or diseases, and signs & symptoms that a massage therapy student should be aware of. The graduate will be able to determine if the therapeutic application is indicated, contraindicated, or need a referral from a HCP.

First is listed the condition, disease, sign, or symptom: the next are five columns that have a black dot (●) that indicate one of the following:

- A. first column (common condition/disease/sign or symptom)
- B. second column (contagious disease or condition)
- C. third column (local or systemic contraindications)
- D. fourth column (need caution or referral from HCP)
- E. fifth column (know definition of condition/disease/sign or symptom)

Two pages of Table

HYGIENE AND SANITATION

1. UNIVERSAL PRECAUTIONS

Performance Objectives: Graduates will be able to:

- a. Define and explain the concept of universal precautions.
- b. Recognize current recommendations from the Center for Disease Control (CDC) and OAC Chapter 17
- c. Describe appropriate personal hygiene for a practicing massage therapist in their professional office setting or anytime applying a massage procedure
- d. Identify potential sources for transmission of pathogenic organisms.
- e. Identify and explain the means for preventing the transmission of pathogens in a therapeutic environment.

2. THERAPEUTIC ENVIRONMENT

Performance Objectives: Graduates will be able to:

- a. Explain and demonstrate the use of appropriate draping procedures by massage therapists.
- b. Recognize and explain the impact of the therapeutic environment on a massage client in relationship to therapeutic outcome. (i.e. room temp., professional demeanour, clean office, etc.)
- c. List and describe safety practices and procedures for the work environment
- d. Describe guidelines for maintaining sanitary conditions

HYDROTHERAPY

Performance Objectives: Graduates will be able to:

- a. Recognize and explain the physiological effects of heat and cold application on the human body.
- b. Recognize and explain the physiological effects of hot and cold water application on the human body.
- c. Demonstrate the appropriate use of heat and cold for specific therapeutic applications.
- d. Define, identify, and explain contra indications for the application of hydrotherapy
- e. Define and demonstrate the application of cryotherapy (RICE)
- f. Define and demonstrate contrast heat and cold applications

PHARMACOLOGY

Performance Objectives: Graduates will be able to:

- a. Recognize and explain the following Classes of drugs and identify systemic, local, or procedural contraindications when a client is on or taking a particular class of drugs.
 1. Antipyretics
 2. Skeletal muscle relaxants
 3. Nonsteroidal Anti-inflammatory Drugs (NSAID)
 4. Antihypertensives
 5. Anticoagulants/ Antithrombolytics
 6. Analgesics

Nervous System	A	B	C	D	E	Respiratory System	A	B	C	D	E
concussion						• bronchitis	•				
CVA / TIA						• coryza (common cold)	•				
seizures						• influenza		•	•		
palsy					•	• pneumonia	•			•	
plegia					•	• asthma	•				
paralysis					•	• pleurisy					•
wrist and foot drop						• COPD	•				
median & ulnar nerve injury						• sinusitis	•				
winged scapula						•					
femoral & obturator nerve injury						• Gastrointestinal System	A	B	C	D	E
carpal tunnel syndrome	•					constipation					•
hyperesthesia						• diarrhea					•
parasthesia / paresthesia					•	• diverticulitis			•		•
sciatica						• dyspepsia					•
nerve entrapment	•					flatulence					•
nerve impingement					•	• GERD	•				
neuropathy					•	• hepatitis		•	•		•
piriformis syndrome						• hemorrhoids					•
Thoracic outlet syndrome	•					hernia	•			•	
neuritis / neuralgia	•					Irritable Bowel Syndrome (IBS)				•	•
dementia						• ulcerative colitis					•
Multiple sclerosis					•	•					
Parkinson disease					•	• Endocrine System	A	B	C	D	E
sleep apnea						• Diabetes mellitus Type I & II	•				
anxiety disorders						• hypoglycemia					•
eating disorders						•					
depressive disorders						• Urinary System	A	B	C	D	E
						chronic renal failure					•
						dialysis					•
Cardiovascular System	A	B	C	D	E	• polycystic kidney disease					•
bradycardia / tachycardia						• stress incontinence					•
heart palpitations						• urinary tract infection (UTI)	•			•	
endocarditis, myocarditis, pericarditis				•							
Congestive Heart Failure (CHF)	•			•							
Myocardial Infarction (MI)					•	• Reproductive System	A	B	C	D	E
orthostatic hypotension						• amenorrhea					•
hypertention	•					dysmenorrhea				•	•
headache	•			•		endometriosis				•	•
aortic aneurysm			•			menstruation	•			•	
Angina pectoris						• menopause					•
arteriosclerosis						• pregnancy	•			•	
Raynaud's syndrome						• pelvic inflammatory disease			•		•
varicose veins	•			•		Benign Prostatic Hypertrophy					•
anemia						• erectile dysfunction					•
embolus						• sexually transmitted diseases		•		•	•
hemophilia				•	•						
thrombophlebitis				•	•						
thrombocytopenia					•						