

MT-1280: SOMATIC STUDIES III

Cuyahoga Community College

Viewing: MT-1280 : Somatic Studies III

Board of Trustees:

May 2024

Academic Term:

Fall 2024

Subject Code

MT - Massage Therapy

Course Number:

1280

Title:

Somatic Studies III

Catalog Description:

Study of human anatomy and physiology for students of massage therapy. Specific emphasis on fundamental concepts of circulatory system, lymphatic system, respiratory system, digestive system, metabolism, urinary system, acid-base balance and reproductive system.

Credit Hour(s):

2

Lecture Hour(s):

1

Lab Hour(s):

2

Requisites

Prerequisite and Corequisite

MT-1272 Fundamentals of Somatic Studies II, or departmental approval.

Outcomes

Course Outcome(s):

Apply knowledge of anatomy and physiology as it relates to the circulatory, lymphatic, respiratory, digestive, metabolism, urinary and reproductive systems.

Objective(s):

1. Describe the anatomy and physiology of blood vessels.
2. Define the organs, tissue, and functions of the lymphatic system.
3. Describe the anatomy and physiology of the respiratory system.
4. Explain the structure, process and function of the digestive system.
5. Explain the different metabolism of the human body and their pathways.
6. Describe the structure and function of urinary system.
7. Explain the general principle of fluid, electrolyte balance and acid-base balance.
8. Describe the structure of male and female reproductive system.

Methods of Evaluation:

1. Lecture examinations
2. Laboratory examinations
3. Quizzes
4. Participation

- 5. Case studies
- 6. Homework

Course Content Outline:

- 1. Blood vessels
 - a. Blood vessels
 - b. Hemodynamics
 - c. Starling's Law
 - d. Control of blood pressure
- 2. Lymphatic system
 - 1. Functions
 - 2. Lymphatic vessels and circulation
 - 3. Lymphatic organs and tissues
 - 4. Resistance
 - a. specific
 - i. T-cell immunity
 - ii. B-cell immunity
 - b. non-specific
 - i. first line
 - ii. second line
- 3. Respiratory system
 - 1. Anatomy
 - 2. Pulmonary ventilation
 - 3. Lung volumes and capacities
 - 4. Gas laws
 - a. Dalton's law
 - b. Henry's law
 - c. Boyle's law
 - 5. External respiration
 - 6. Internal respiration
 - 7. Regulation of respiration
- 4. Digestive system
 - 1. Processes
 - 2. Organs
 - a. GI tract
 - b. accessory
 - 3. Functions
 - 4. Layers of GI
 - 5. Peritoneum
 - 6. Sphincters
 - 7. Mouth
 - a. anatomy
 - b. digestion
 - i. mechanical
 - ii. chemical
 - 8. Esophagus
 - a. anatomy
 - b. physiology
 - 9. Stomach
 - a. anatomy
 - b. physiology
 - 10. Pancreas
 - a. anatomy
 - b. physiology
 - 11. Liver
 - a. anatomy
 - b. physiology
 - 12. Small intestine

- a. anatomy
- b. physiology
- 13. Large intestine
 - a. anatomy
 - b. physiology
- 14. Digestive hormones
- 5. Metabolism
 - 1. Carbohydrate metabolism
 - a. glucose catabolism
 - i. glycolysis
 - ii. Kreb's cycle
 - iii. electron transport system
 - b. glucose anabolism
 - i. glycogenesis
 - ii. glycogenolysis
 - iii. gluconeogenesis
 - 2. Lipid metabolism
 - a. lipid catabolism
 - b. lipid anabolism
 - 3. Protein metabolism
 - a. protein catabolism
 - b. protein anabolism
 - 4. Absorptive state
 - 5. Postabsorptive state
- 6. Urinary system
 - 1. Functions
 - 2. Kidneys
 - a. gross anatomy
 - b. nephron
 - c. blood and nerve supply
 - 3. Renal physiology
 - a. glomerular filtration
 - b. tubular reabsorption
 - c. tubular secretion
 - d. formation of dilute urine
 - e. formation of concentrated urine
 - f. renal clearance
 - 4. Ureters
 - a. anatomy
 - b. physiology
 - 5. Urinary bladder
 - a. anatomy
 - b. physiology
 - c. micturition
 - 6. Urethra
- 7. Fluid, electrolyte, acid-base homeostasis
 - 1. Water gain
 - a. avenues
 - b. regulation
 - 2. Water loss
 - a. avenues
 - b. regulation
 - 3. Movement between fluid compartments
 - 4. Electrolytes
 - 5. Acid-base balance
 - a. buffers
 - i. definition
 - ii. actions

- i. protein buffer
 - ii. carbonic acid-bicarbonate
 - iii. phosphate buffer
 - b. respiratory control
 - c. urinary control
 - d. imbalances and compensation
 - i. respiratory acidosis
 - ii. respiratory alkalosis
 - iii. metabolic acidosis
 - iv. metabolic alkalosis
8. Reproductive System
- 1. Male reproductive system
 - a. Scrotum and testis
 - b. Reproductive system ducts in males
 - c. Accessory sex glands
 - d. Semen
 - 2. Female reproductive system
 - a. Ovaries
 - b. Uterine tubes and uterus
 - c. Vagina, vulva and perineum
 - d. Mammary glands

Resources

Allen, Colleen & Harper, Valerie. *A Laboratory Manual for Anatomy & Physiology*. 7th ed. Wiley & Sons, 2021.

Tortora, Gerald J. and Derrickson, Bryan H. *Principles of Anatomy and Physiology*. 16th ed. Wiley Publishers, 2020.

Goldberg, Stephen. *Clinical Physiology Made Ridiculously Simple*. 2nd ed. MedMaster Inc., 2019.

Goldberg, Stephen & Ouellette, Hugue. *Clinical Anatomy Made Ridiculously Simple*. 4th ed. MedMaster Inc. , 2016.

Resources Other

- 1. Wiley Plus Website

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