

Detailed Assessment Report 2012-13 NC BIOL 2402 - Anatomy & Physiology 2 As of: 11/15/2013 04:15 PM CST

Goals

G 1: Vocabulary

Goal 1. Develop a professional medical vocabulary.

G 2: Form and function

Recognize form and function of anatomical structures and physiological functions

G 3: Homeostatic control

Goal To understand homeostatic control of the human body

G 4: Physiological function

To be able to predict physiological function

G 5: Interaction

To understand the interaction between form and function

G 6: Graphical data

To understand the graphical presentation of data

G 7: Teamwork

Use of teamwork to develop a professional medical vocabulary, learn dissection techniques, and learn anatomy

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Human body structures

Develop a vocabulary of appropriate terminology to effectively recognize information related to anatomy and physiology.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

1 Critical Thinking (CT)

2 Communication (COM)

3 Empirical & Quantitative Skills (EQS)

Related Measures

M 1: Knowledge of vocabulary of appropriate terminology will be assessed with the following questions embedded in an exam

- The vessels that directly feed into the capillary beds are called:
 - muscular arteries.
 - arterioles. #
 - elastic arteries.
 - venules.
- The respiratory process that is the exchange of gas between the lungs and the blood is called:
 - Pulmonary ventilation
 - External respiration #
 - Internal respiration
 - Cellular metabolism
- The principle muscles of respiration are the
 - Intercostals and abdominals
 - diaphragm and abdominals
 - pectoralis major and minor
 - diaphragm and intercostals #
- The tonsils located on the roof of the mouth are the:
 - lingual tonsils.
 - palatine tonsils #.
 - pharyngeal tonsils.
 - tubal tonsils.
- Each gas in a mixture of gases exerts its own pressure as if all other gases are not present is a statement of
 - Boyle's law
 - Dalton's law #

- C. Darwin's law
- D. Henry's law

6. Which blood type is called the universal recipient?
- A. AB #
 - B. B
 - C. O
 - D. A
7. Chemical substances, secreted by cells into the extracellular fluids, that regulate the metabolic function of other cells in the body are called:
- A. proteins.
 - B. hormones. #
 - C. antibodies.
 - D. enzymes.
8. What is the middle layer of the heart called?
- A. Epicardium
 - B. Myocardium #
 - C. Endocardium
 - D. Tunica media
9. Which of the following hormones is produced by the testes?
- A. glucagon
 - B. melatonin
 - C. testosterone #
 - D. calcitonin
10. The innermost layer of the adrenal gland is called the:
- A. medulla. #
 - B. ventricle.
 - C. cortex
 - D. myocardium.

Source of Evidence: Standardized test of subject matter knowledge

Target:

Target: Students will average 65% or better on the combined average of the questions pertaining to outcome 1.

SLO 2: Human organs and systems

Recognize the anatomical structures and interpret the physiological functions of the body systems.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

1 Critical Thinking (CT)

3 Empirical & Quantitative Skills (EQS)

Related Measures

M 2: Understanding anatomy and interpretation the physiological functions will be assessed with questions embedded in an exam

11. Down-regulation occurs when:
- A. an endocrine gland increases the production of a hormone in short supply.
 - B. when there is too much of a hormone and the cell reduces the number of hormone receptors. #
 - C. a cell becomes too insensitive to a hormone.
 - D. an endocrine gland produces more hormone secreting cells.
12. Which of the following is the correct conduction pathway for an action potential through the heart?
- A. sinoatrial node, atrioventricular node, atrioventricular bundle, Purkinje fibers #
 - B. Purkinje fibers, atrioventricular bundle, atrioventricular node, sinoatrial node
 - C. sinoatrial node, atrioventricular bundle, atrioventricular node, Purkinje fibers
 - D. atrioventricular node, atrioventricular bundle, sinoatrial node, Purkinje fibers
13. Which layer of an artery is most responsible for maintaining blood pressure and continuous blood circulation?
- A. tunica media #
 - B. tunica adventitia
 - C. tunica externa
 - D. tunica intima
14. Oxygen is transported by blood by binding to the:
- A. iron in the heme group #
 - B. cell membrane
 - C. beta polypeptide chain in hemoglobin
 - D. polypeptide in the heme group
15. Blood entering the pulmonary arteries comes from the:
- A. right atrium.
 - B. left atrium.
 - C. left ventricle.

D. right ventricle. #

16. The function of baroreceptors in the circulatory system is to monitor changes in:

- A. heart rate.
- B. peripheral resistance.
- C. blood pressure. #
- D. blood viscosity.

17. Which lymphatic organ removes & stores iron from hemoglobin for recycling?

- A. Thymus
- B. Spleen #
- C. Tonsils
- D. Lymph nodes

18. Which statement best describes arteries?

- A. All contain valves to prevent the backflow of blood.
- B. Only large arteries are lined with endothelium.
- C. All carry oxygenated blood to the heart.
- D. All carry blood away from the heart. #

19. The principle muscles of respiration are the

- A. Intercostals and abdominals
- B. diaphragm and abdominals
- C. pectoralis major and minor
- D. diaphragm and intercostals #

20. When a steroid hormone binds to its target cell receptor, it:

- A. causes the formation of cyclic AMP.
- B. is converted into cholesterol, which acts as a second messenger.
- C. causes the formation of secondary releasing hormones.
- D. directly turns specific genes of the nuclear DNA on or off because it diffuses through the membrane. #

Source of Evidence: Standardized test of subject matter knowledge

Target:

Target: Students will average 65% or better on the average of all questions pertaining to outcome 2.

SLO 3: Homeostasis of systems

Recognize and apply the principle of homeostasis and the use of feedback loops to control physiological systems in the human body.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

1 Critical Thinking (CT)

3 Empirical & Quantitative Skills (EQS)

Related Measures

M 3: Understanding positive and negative homeostatic control of the human body will be assessed with questions embedded in an exam

21. Oxytocin:

- A. controls milk production.
- B. exerts its most important effects during menstruation.
- C. release is an example of a positive feedback on smooth muscles. #
- D. is a gonad secretion.

22. The left ventricular wall of the heart is thicker than the right wall in order to:

- A. accommodate a greater volume of blood.
- B. expand the thoracic cage during diastole.
- C. pump blood with a greater pressure. #
- D. pump blood through a smaller valve.

23. An increase in the action potentials from the vasomotor center to the tunica media of the arterioles causes:

- A. vasodilatation and increased blood pressure
- B. vasoconstriction and decreased blood pressure
- C. vasodilatation and decreased blood pressure
- D. vasoconstriction and increased blood pressure #

24. Which of the following factors has the greatest affect on the long term resistance in the entire circulatory system?

- A. cardiac output
- B. length of the vessels in the circulatory system #
- C. blood volume
- D. vessel diameter

25. What kinds of arteries function to maintain blood pressure during ventricular diastole?

- A. muscular arteries.
- B. arterioles.
- C. elastic arteries. #
- D. venules.

26. The partial pressure of oxygen decreases in the sequence

- A. Alveolar air, arterioles, venous blood #
- B. Arterial blood, alveolar air, body tissue
- C. Venous blood , alveolar air, arterial blood
- D. Body tissue, arterial blood, alveolar air

Source of Evidence: Standardized test of subject matter knowledge

Target:

Target: Students will average 65% or better on the average of all questions pertaining to outcome 3.

SLO 4: Prediction of form and function

Use anatomical knowledge to predict physiological consequences, and use knowledge of function to predict the features of anatomical structures.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

1 Critical Thinking (CT)

3 Empirical & Quantitative Skills (EQS)

Related Measures

M 4: Knowledge of function to predict anatomy and physiological consequences will be assessed with questions embedded in an exam

27. Using the normal arterial CO₂ curve, what percentage of the oxygen that is bound to hemoglobin will be released at an oxygen partial pressure of 40 mm Hg ?

- A. ~ 10%
- B. ~80%
- C. ~35% #
- D. ~65%

28. What is the percent saturation of hemoglobin when the partial pressure of oxygen is 30 mm Hg when the blood has a low partial pressure of carbon dioxide?

- A. 65% #
- B. 90%
- C. 40%
- D. 10%

29. The amount of oxygen released by oxyhemoglobin increases when:

- A. Carbon dioxide concentration of the blood decreases
- B. Body temperature decreases
- C. Blood becomes more alkaline
- D. Carbon dioxide concentration of the blood increases #

30. One of the major functions of the large intestine is to:

- A. secrete digestive enzymes.
- B. reabsorb 95% of ingested water.
- C. remove waste materials. #
- D. regulate the release of bile.

31. Oxytocin:

- A. controls milk production.
- B. exerts its most important effects during menstruation.
- C. release is an example of a positive feedback on smooth muscles. #
- D. is a gonad secretion.

32. The left ventricular wall of the heart is thicker than the right wall in order to:

- A. accommodate a greater volume of blood.
- B. expand the thoracic cage during diastole.
- C. pump blood with a greater pressure. #
- D. pump blood through a smaller valve.

33. An individual who is blood type AB negative:

- A. can donate to all blood types in moderate amounts.
- B. can receive types A, B, and AB, but not type O.
- C. can receive any blood type in moderate amounts except that with the Rh antigen. #
- D. can donate to types A, B, and AB, but not to type O.

Source of Evidence: Standardized test of subject matter knowledge

Target:

Target: Students will average 65% or better on the average of all questions pertaining to outcome 4.

SLO 5: Recognize the interrelationships between anatomical and physiological systems

Recognize and compare the interrelationships within and between anatomical and physiological systems of the human body.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

1 Critical Thinking (CT)

3 Empirical & Quantitative Skills (EQS)

Related Measures

M 5: Laboratory practical exams

This outcome will be addressed during laboratory practical exams. During these exams students will be asked to identify anatomical structures on specimens, models or under a microscope and relate their physiological function.

Source of Evidence: Standardized test of subject matter knowledge

Target:

Target: Students will average 65% or better on the average of all questions pertaining to outcome 5.

SLO 6: Graph interpretation

Collect data and construct and interpret graphs of anatomical and physiological data.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

1 Critical Thinking (CT)

2 Communication (COM)

3 Empirical & Quantitative Skills (EQS)

Related Measures

M 6: Collection and visual presentation of data

Students will perform a laboratory exercise on lung volumes and respiratory capacity. They will use a spirometer to collect data on their own lung volumes. Students will use these lung volumes to calculate various measures of respiratory capacity which they will plot on a spirogram. Students will then be asked to orally interpret the spirogram.

Levels of proficiency

Level #1: Poor Major deficiencies

Level # 2: Marginal Moderate deficiencies

Level # 3: Good Minor deficiencies

Level # 4: Excellent No deficiencies

Spirogram rubric

Question	Level 1	Level 2	Level 3	Level 4
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Were all needed data collected?

Were the calculations done correctly?

Were the appropriate values entered in the Spirogram?

Is the spirogram neat?

Can the student interpret the spirogram?

Students will be asked, as a laboratory assignment, to construct a pedigree for a human trait that exhibits Mendelian inheritance. They will be provided with the phenotypes of a family consisting of grandparents, parents, brothers, and sisters. They will record these phenotypes in a pedigree figure. They will use the pedigree to determine the possible genotypes of each family member.

Question	Level 1	Level 2	Level 3	Level 4
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Was the pedigree accurately constructed?

Did the pedigree contain sufficient information to determine genotype?

Was the student able to determine the unknown genotypes?

Source of Evidence: Written assignment(s), usually scored by a rubric

Target:

Target: Students will average a score of 3 better on the average of all questions pertaining to outcome 6.

SLO 7: Teamwork and learning anatomy, vocabulary, and dissection

Develop a vocabulary of appropriate terminology to effectively recognize information related to anatomy and physiology.

Work in cooperation with other students to dissect and learn the anatomy of a fetal pig.

Relevant Associations:

Standard Associations

New Core Component Areas

2 Life & Physical Science (L & PS)

New Core Objectives

2 Communication (COM)

3 Empirical & Quantitative Skills (EQS)

4 Teamwork (TW)

Related Measures

M 7: Dissection and teamwork

Students will be asked, as a laboratory assignment, to complete a fetal pig dissection as a group. They will be asked to work together cooperatively to both complete the dissection and help all group members fully learn the material. The dissections will be examined at the end of class to determine the quality of the completed dissection.

Question	Level 1	Level 2	Level 3	Level 4
Were students able to cooperate to complete the dissection?				
Were students able to learn cooperatively in a group?				
What was the quality of the completed dissection?				
Were students able to stay on task?				

Source of Evidence: Performance (recital, exhibit, science project)

Target:

Target: Students will average a score of 3 better on the average of all questions pertaining to outcome 7.