



BAKER COLLEGE
STUDENT LEARNING OUTCOMES

CAS1010A Noninvasive Cardiology
5 Semester Hours

Student Learning Outcomes & Enabling Objectives

1. Identify cardiac anatomy, on diagrams, the heart model and specimens, by identifying external and internal structures and basic wall identification.
2. Identify the coronary arteries (CA) on diagrams and the heart model.
 - a. Identify the right system.
 - b. Identify the left system.
 - c. Identify the cardiac walls fed by each coronary.
3. Identify the Cardiac Conduction System and phases of cardiac timing.
 - a. Describe the electrical path through the heart.
 - b. Describe the terms automaticity, electrical and mechanical activity, refractory periods, and general electrophysiology terms.
 - c. Describe the difference between systole and diastole and the various phases of cardiac timing including isovolumic periods.
 - d. Describe preload, afterload and the Frank Starling Law.
4. Compare the various phases of cardiac embryonic growth in the heart.
 - a. Explain formation of the tube and cardiac looping.
 - b. Explain septal formation.
 - c. Explain great vessel and valve formation.
 - d. Explain chamber, inflow, and outflow tract formation.
5. Compare cardiac hemodynamics, intracardiac pressures, and O₂ saturations.
 - a. Explain adult physiology versus fetal and post-natal physiology.
 - b. Explain systemic versus pulmonary circulation.
 - c. Explain describe the terms perfusion, SV, EF, CO, and FS.
 - d. Explain cath traces.
 - e. Explain pressure versus volume overloads.
6. Demonstrate echocardiographic testing.
 - a. Demonstrate M mode echocardiography.
 - b. Demonstrate 2 Dimensional echocardiography.
 - c. Demonstrate Doppler echocardiography.
 - d. Identify proper use of basic echo machine and controls.
7. Interpret the various EKG wave forms.
 - a. Identify QRS complex wave identification and the relationship to the cardiac cycle.

- b. Identify QRS complex measurement in time and voltage axis.
 - c. Identify rate including normal inherent and irritable heart rates.
 - d. Identify recognize EKG artifacts.
 8. Analyze the proper 12 Lead EKG hook-up procedure.
 - a. Explain lead theory.
 - b. Explain frontal and horizontal plane definitions and lead placement.
 - c. Explain bipolar vs. unipolar leads.
 - d. Explain Einthoven's triangle and trouble shooting.
 - e. Explain basic vectors, axis, and axis deviation.
 9. Identify the proper use of the EKG machine and controls.
 - a. Patient input data.
 - b. Standardization.
 - c. Paper speeds and formats.
 10. Interpret EKG rhythms.
 - a. Identify sinus rhythm, atrial rhythm, junctional rhythm, and ventricular rhythm.
 - b. Identify heart blocks.
 11. Describe 12 lead EKG.
 - a. Describe the importance of 12 lead EKG.
 - b. Describe the limitations of 12 lead EKG.
 12. Interpret 12 lead EKGs.
 - a. Describe ischemia, injury, and infarction.
 - b. Describe hypertrophy.
 - c. Describe BBBs.
 13. Perform blood pressure (BP) measurements.
 - a. Demonstrate proper cuff application.
 - b. Perform accurate BP with in 5mmHg of actual.
 14. Differentiate between different stress tests and protocols.
 - a. Imaging versus pharmacological.
 - b. Describe Bruce, Naughton protocols.
 - c. Describe patient lead hook up and basic procedures for different types of stress testing.
 - d. Describe stress test indicators for a positive test.
 15. Explain pacemaker technology.
 - a. Describe pacemaker types, indications, terminology, modes, and rhythms.
 - b. Describe pacemaker clinics and their purpose.
 16. Compare the terms sensitivity and specificity in regards to diagnostic testing.
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Required Elements

RE 1. Perform 12 lead EKGs

RE 2. Perform echocardiographic testing

These SLOs are not approved for experiential credit.

Effective: Summer 2019