

Course Competency

SON 2171C Vascular Sonography

Course Description

This course is designed to cover aspects of Clinical Vascular Technology. Topics include the pathophysiological levels of disease, clinical presentation and data, hemodynamic of blood flow, anatomy and physiology of the vascular system and anatomical appearance. Prerequisite: SON 2161C.

Course Competency	Learning Outcomes
<p>Competency 1: The student will demonstrate knowledge and comprehension of real time imaging and vascular theory by:</p> <ul style="list-style-type: none"> a. Defining the pulse repetition frequency. b. Analyzing when to change the pulse repetition frequency. c. Describe the functions of each Doppler control and how it changes the sound pulses being sent and reflected. 	<ul style="list-style-type: none"> 1. Communication 2. Critical thinking 3. Computer / Technology Usage
<ul style="list-style-type: none"> e. Defining the Doppler shift. • Describing the spectral trace Doppler and normal velocities and waveforms. 	
<p>Competency 2: The student will demonstrate knowledge and comprehension of the structure of the ultrasound machine by:</p> <ul style="list-style-type: none"> a. Demonstrating Doppler knobs. b. Describe spectral tracing. c. Differentiating Pulse wave Doppler and 	<ul style="list-style-type: none"> 1. Communication 2. Computer / Technology Usage
<ul style="list-style-type: none"> continuous wave Doppler. 	
<p>Competency 3: The student will demonstrate knowledge, comprehension and understanding of how to optimize ultrasound images and how the units operate by:</p> <ul style="list-style-type: none"> a. Describe what it means to optimize an ultrasound image. b. Describe how to optimize Doppler flow. 	<ul style="list-style-type: none"> 1. Communication 2. Computer / Technology Usage
<ul style="list-style-type: none"> c. Describe the effects of PRF (scale), Doppler Gain, and Filter. 	

<p>Competency 4:The student will demonstrate knowledge of anatomy and anatomic variants of the cardiovascular system by:</p> <ol style="list-style-type: none"> Identifying vessel structure of arteries and veins. Describing aorta and aortic vessels. Discussing Cerebrovascular flow. Describing Hepatoportal venous flow. Describing the mesenteric arterial system. Describing and identifying the peripheral arterial and venous systems. 	<ol style="list-style-type: none"> Communication
<p>Competency 5:The student will demonstrate knowledge of normal and abnormal peripheral vascular physiology and hemodynamics by:</p> <ol style="list-style-type: none"> Describing principles of pressure, flow, and resistance. Identifying Pulsatile flow. Identifying Laminar and non-laminar flow patterns. Defining Poiseuille’s law. Defining laminar flow and turbulent flow. Explain viscosity. Correlating flow resistance with Poiseuille’s law and formula. Discussing the relationship of pressure and flow resistance. Defining Bernoulli’s principle and formula. Discussing Reynold’s number. Discussing Cardiac influence on flow. Discussing occlusive diseases and collateral circulation. Discussing Exercise and hyperemia. Discussing Systemic diseases and other conditions. Discussing Venous physiology, valve function, calf pump. 	<ol style="list-style-type: none"> Communication Numbers / Data Computer / Technology Usage

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