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Differentiating BetweenPulmonary and Bronchial CirculationAmanda FrenchFlorida Southwestern StateCollege    Differentiating betweenPulmonary and Bronchial Circulation            Pulmonarycirculation, which includes the right side of the heart, pulmonary artery, pulmonary capillaries, and the pulmonary veins, supports the function of gasexchange of the lungs (Grossman& Porth, 2014).  The right side ofthe heart gives the pulmonary artery deoxygenated blood (Grossman & Porth, 2014).

The pulmonary artery then splitsinto the left and right pulmonary arteries and then splits again into pulmonarycapillaries (Grossman & Porth, 2014). Pulmonary circulation brings the blood into close contact with thethin-walled alveoli by way of capillary beds, therefore gas exchange can occur (Osiro et al., 2012).  This exchange transpires at the air-bloodbarrier where the removal of CO2, the waste product of metabolism, and theaddition of oxygen take place (Osiroet al., 2012).

Pulmonary veinsreturn the newly oxygenated blood to the left atrium, where the process repeats(Grossman & Porth, 2014).              Functionally, bronchial circulation differs from pulmonary circulation.  Bronchial circulation delivers blood to theconducting airways and to the terminal bronchioles, without excluding “ nerves, lymph nodes, visceral pleura, and the walls of larger pulmonary vessels” (Wagner, 2006, para. 1).  The components of the conducting airwaysinclude “ nasal passages, mouth and pharynx, larynx, trachea, bronchi, andbronchioles” (Grossman & Porth, 2014, p.

900).  The other function ofbronchial circulation moistens the new air traveling through the conductingairways (Grossman & Porth, 2014).  Bronchial circulation provides nutrients andoxygen to the cells that make up the lungs (Osiro et al., 2012).  The thoracic aorta and bronchial arteriesmake it possible for oxygenated blood to enter the major bronchi and lungs (Grossman& Porth, 2014).

These continue tosplit off and carry the blood to the bronchial capillaries which in turn draininto the bronchial veins (Grossman & Porth, 2014).  This deoxygenated blood in the bronchialveins empty into either the vena cava or pulmonary veins, resulting in the dilutionof oxygenated blood.  According toGrossman & Porth (2014), “ the bronchial blood vessels are the only onesthat can undergo angiogenesis and develop collateral circulation” occurringwhen pulmonary circulation is either impaired or completely absent, such as anobstruction in blood flow.

The bronchialarteries have the capability to not only regenerate but also dilate to supplyboth lungs with blood (Osiro et al., 2012).  This phenomenon persists untilpulmonary circulation is reestablished (Grossman & Porth, 2014).            Bothpulmonary and bronchial circulation are very important to respiratorystatus.  Pulmonary circulation allows gasexchange to occur while bronchial circulation delivers nutrients and oxygen to thecells that form the lungs, along with transporting waste products away from them(Grossman & Porth, 2014).  If pulmonarycirculation became obstructed, bronchial circulation takes over while pulmonarycirculation recovers – both are vital to support health and well-being.

ReferencesGrossman, S. C., & Porth, C. M. (2014). Porth’s pathophysiology: Concepts of altered health states (9th ed.). Philadelphia, PA: WoltersKluwer Health/Lippincott Williams & Wilkins.

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