

3. Gramma Jessie had a stroke caused by partial occlusion of her left internal carotid artery. An evaluation of the carotid artery using MRI shows a 70% reduction in its radius. Assuming that blood flow through the left internal carotid artery was 390 ml/min prior to the occlusion, what was blood flow through the artery after the occlusion? **(4 marks)**
4. Steve has a cardiac output of 6.0 L/min. The diameter of his aorta is estimated to be 25 mm, with the total surface area of his systemic capillaries estimated to be 2700 cm². What is the velocity of blood flow in the aorta **relative** to that in the capillaries. **(4 marks)**

Respiratory Biophysics

5. Jimmy Smart is swimming in a deep pool and decides to lengthen his short snorkel with a 3 meter (10 foot) hose so he can dive deeper. Will this work? Describe why or why not in detail. What if he uses a large diameter hose? What about a small diameter hose? **(3 marks)**