Instructor's Response(s) - Discussion Question(s) - Module 8

What are the dis<u>advantages</u> of turbulent flow in the circulatory system? Explain briefly. Answer individually; **post your response to the Discussion Board by 9:00 PM of Day 4 of the module.**

In turbulent flow energy is expended in moving fluid in directions other than in the intended direction of flow (video 2, slide 4). This is a disadvantage in that additional energy is required to pump blood through the region of turbulence; efficiency is reduced. As well, turbulent flow can exhibit regions of low[1] flow velocity and (other) regions of high[1] flow velocity. Both are disadvantageous; low flow velocity can lead to regions of stagnation and the formation of blood clots, which can subsequently embolize and result in regions of ischemia downstream of the clot; high flow velocity can result in high shear stress leading to damage to formed elements (e.g., if RBCs → hemolysis; if platelets → clot formation).

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[1] Relative to regions of non-turbulent flow.

Rev 0, 10/23/16 - copied from Spring 2016.
Rev 1, 3/20/17 - correct typos; add minor clarifications.
Rev 2, 4/3/18 - minor clarification to last sentence.
Rev 3, 7/15/18 - update to 601; no content changes
Rev 4, 10/13/19 - change time due to 9:00 PM