

Helpful Cardiovascular problems

1. What are the differences and similarities between skeletal, cardiac, and smooth muscle.
2. What are the different nervous system innervations to the cardiovascular system. What are some of the different NT's which affect our myocytes (differentiate between autorhythmic and contractile cells)
3. **How would a Heart Attack affect stroke volume? Draw a pressure-volume loop to show what is happening compared to normal.**
4. **What is Stroke Volume and how would the change in stroke volume affect cardiac output? Use a formula to relate the two variables.**
5. **How would this change in cardiac output affect MAP? What is MAP? Why might a person with a heart attack feel light-headed and dizzy? Why might the person faint?**
6. **Discuss ALL factors that can influence MAP. Also discuss how your body would try and recover MAP back to normal**
7. **What is systolic pressure/diastolic pressure? How does this contribute back to the pressure-volume loop**
8. **Draw out an ECG and label every portion (e.g. p-wave, QRS,...). On your drawing, label when atrial depolarization, atrial repolarization, atrial contraction, ventricle depolarization, and so on occur on the ECG.**
9. **Transfer your understanding of your ECG into the cardiac cycle. Reference the cardiac cycle from your notes or textbook if needed.**
10. **How does Heart rate affect the filling of the heart in the ventricles. Does faster heart rate mean more filling in the ventricle?**
11. Draw out the mechanism for excitation/contraction coupling in cardiac muscle. Label and explain the differences in the mechanism between cardiac and skeletal muscle.
12. Why can't you use motor unit recruitment to strengthen force of contraction in cardiac muscle? Explain how you are able to strengthen force.
13. Your patient's lab results come back to your office, and you see that their muscular tissue contains an agonistic toxin with activity similar to a DHP protein. What parts of your patient's body is affected by this, and what types of symptoms might they display next time you see them?
14. Draw a sketch of the heart, as anatomical as you can manage. Include and label all chambers, valves, arteries, and veins entering and exiting, and label where they lead to. Label the areas where blood is oxygenated and deoxygenated. Also include and label the electrical components of the heart. Discuss why the components of the heart are set up in this way.
15. What connects cardiac contractile cells to one another? Why might this be important to function?
16. **Why do we need the cardiovascular system to deliver O₂? Why can't we use simple diffusion?**
17. **Why do we need to deliver O₂ to organs and tissues? What is it used for?**