



Emergency Medical Training Services

Emergency Medical Technician – Paramedic Program Outlines

Outline Topic: Cardiac

Revised: 11/2013

1. List risk factors associated with cardiovascular disease.
2. Review the general physical anatomy of the heart and circulation of blood through the heart.
3. Describe the location of the heart within the chest cavity. Be able to demonstrate this location on a live model.
4. Describe function and location of the main coronary arteries and their unique properties. Note what area of the heart each coronary artery feeds.
5. Describe the main venous system draining blood from the cardiac muscle.
6. Describe the role of the atria during the cardiac cycle.
7. Describe the differences between the right and left ventricles.
8. Describe the events that occur during ventricular systole and diastole.
9. Define stroke volume and the three factors that affect it.
10. Define Starling's Law.
11. Define End-diastolic volume.
12. Define cardiac output.
13. Define preload
14. Define afterload
15. Define systemic vascular resistance (SVR) or peripheral vascular resistance (PVR)
16. Define blood pressure.

17. Describe the unique properties of cardiac muscle
18. Describe the role of the sympathetic and parasympathetic nervous systems in regulating heart rate.
What areas of the heart do the two systems affect?
19. Define inotropic and chronotropic effects.
20. Define epinephrine's effects on the heart.
21. Describe the major electrolytes which effect cardiac conduction and their relative permeability across the cardiac muscle cell membrane..
22. Describe membrane channels and how that effects membrane permeability.
23. Describe resting potential, action potential, depolarization, and repolarization.
24. Describe the sodium-potassium pump and its role in returning the cardiac muscle to a resting potential.
25. Define fast sodium and slow calcium channels.
26. Define the “all-or-none” principle of action potential propagation.
27. Describe what occurs in each of the five phases of the cardiac action potential.
28. Define and differentiate between the absolute and relative refractory periods.
29. List the three primary pacemakers in the heart and their intrinsic rates.
30. List the steps in the normal depolarization pathway of the myocardium.
31. Describe the two functions of the AV node.
32. Define ectopy.

33. Define reentry.

34. Be able to relate the waves on an ECG to the components of the cardiac conduction cycle.