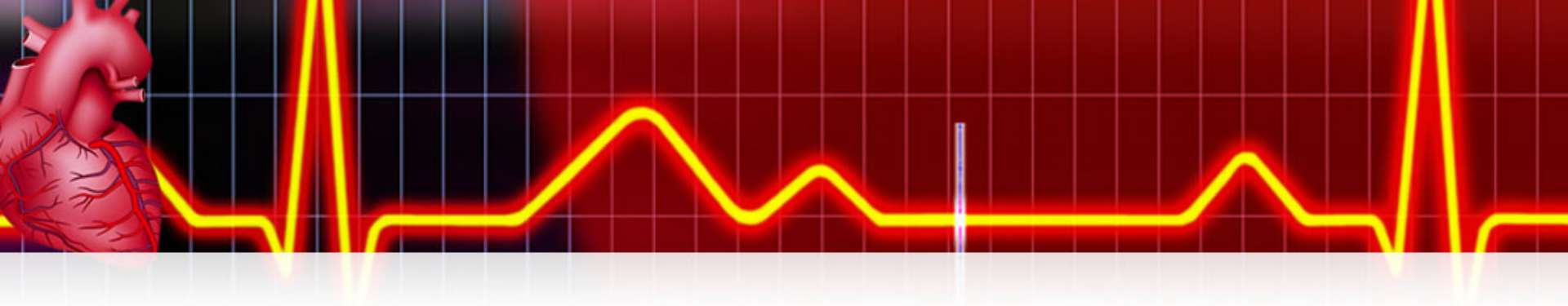


Heart and Circulation

Sherri A. Wheeler, DNP, MG

General Conference: Health and Science Skill Level 1, 2006





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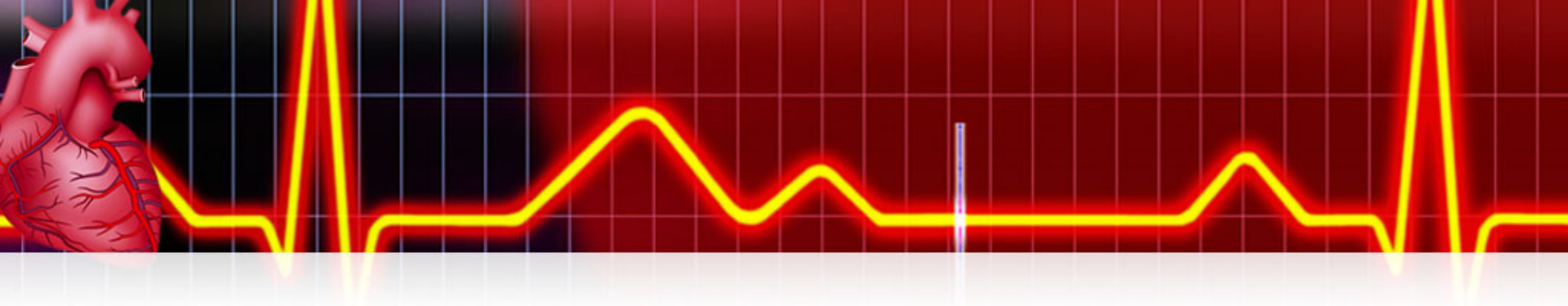
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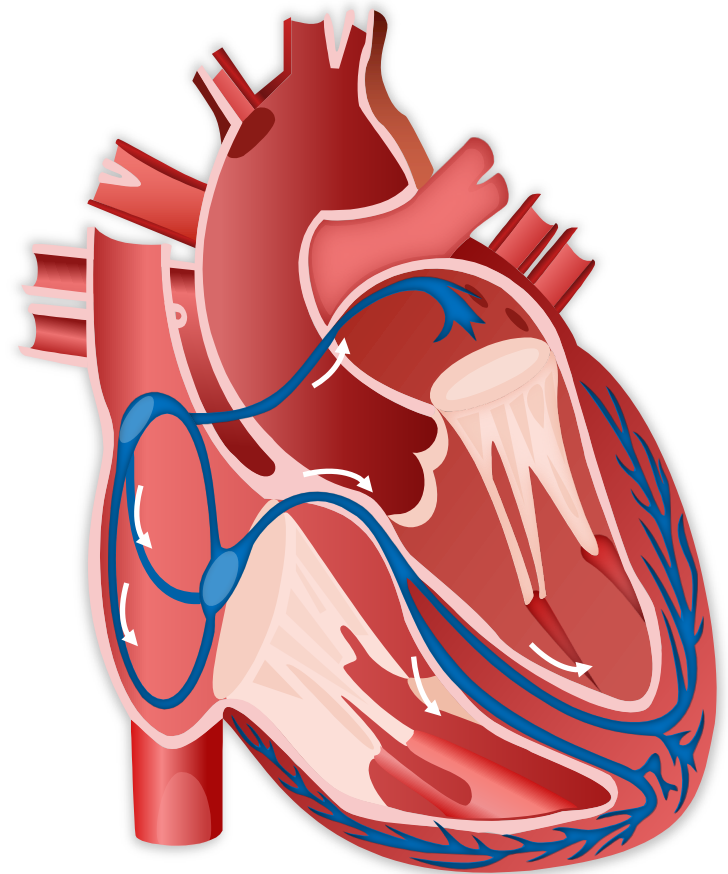
Scripture: Psalms 119:10-11

With my whole heart I have sought You;
Oh, let me not wander from Your
commandments! Your word I have
hidden in my heart, that I might not sin
against You.



Heart Function

The heart is a muscular organ responsible for pumping blood through the blood vessels.





Function of Blood vessels

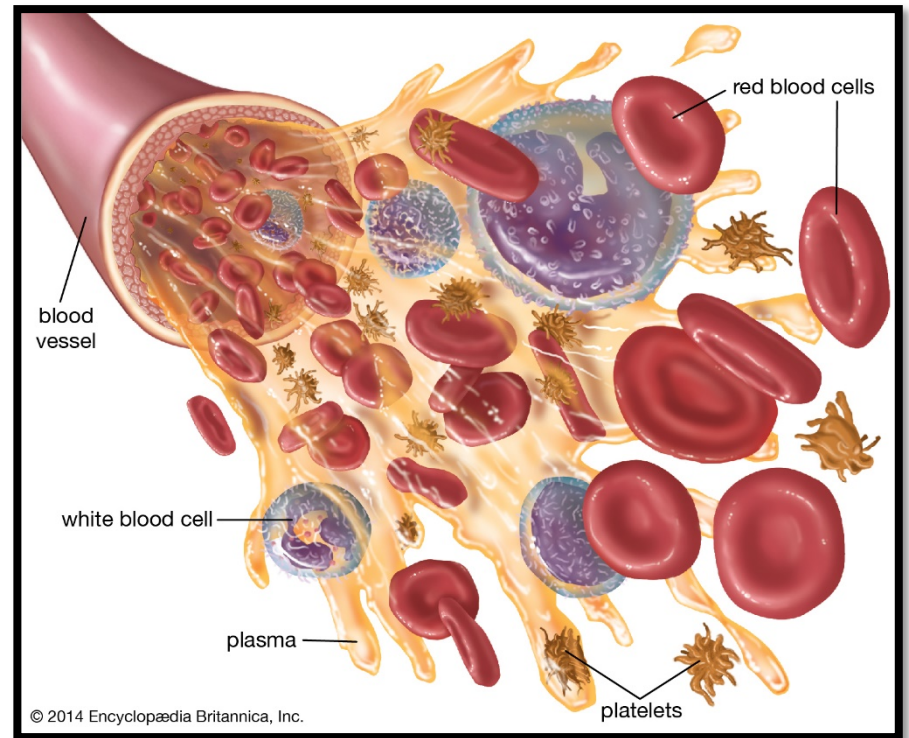
The blood vessels are like tubes inside the body through which blood flows. They function to transport blood throughout the body.

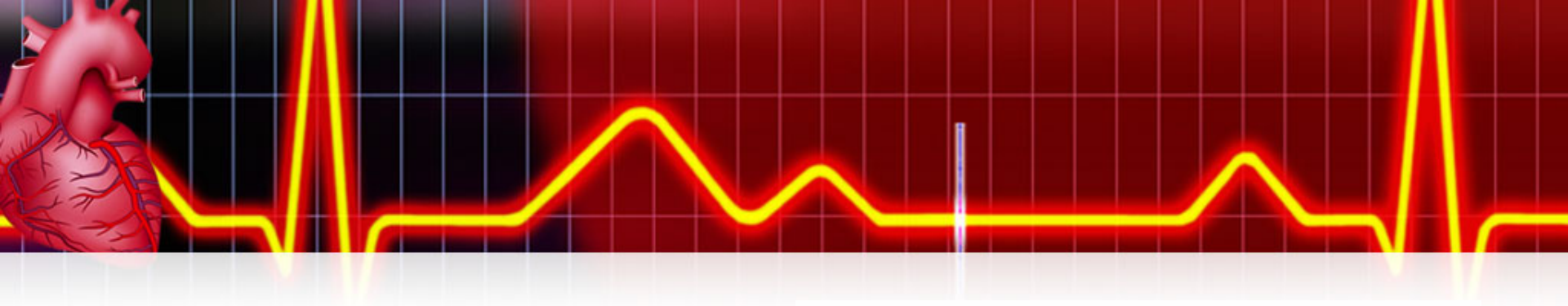




Blood Function

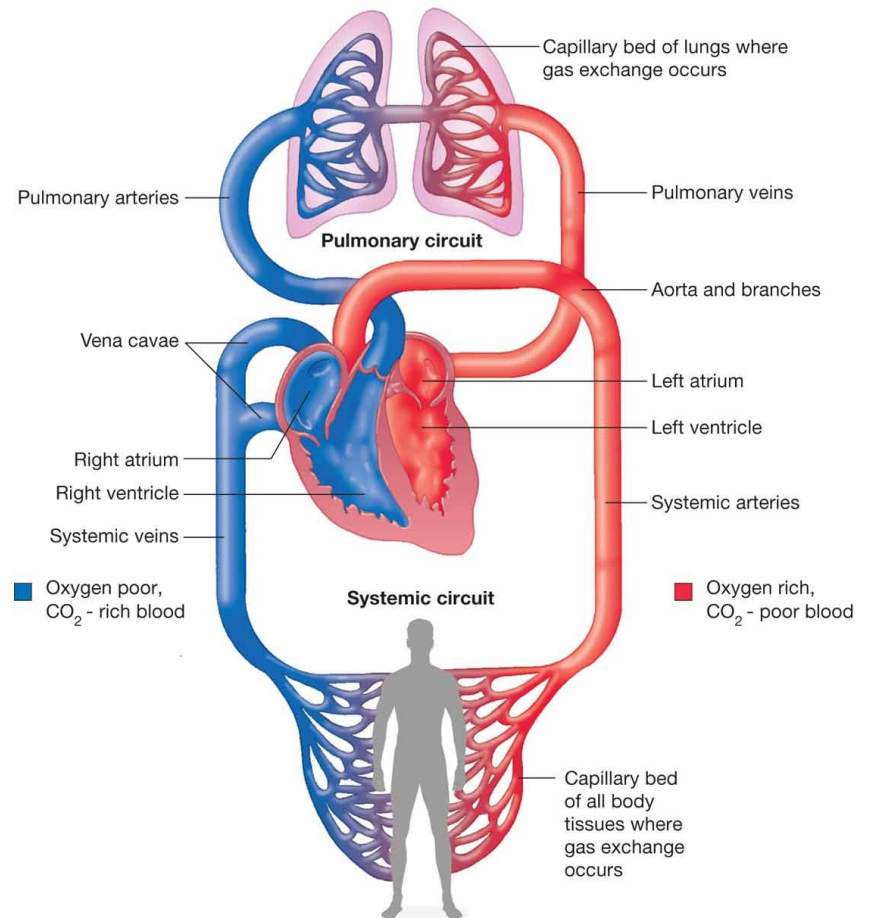
Blood is a specialized fluid consisting of red blood cells (oxygen carrying cells), white blood cells (infection resisting cells), and platelets (clotting cells) suspended in a complex fluid medium known as blood plasma.





Lungs

The principal function of the lungs is to transport oxygen from the atmosphere into the bloodstream, and to get rid of carbon dioxide from the bloodstream into the atmosphere.





Arteries vs. Veins

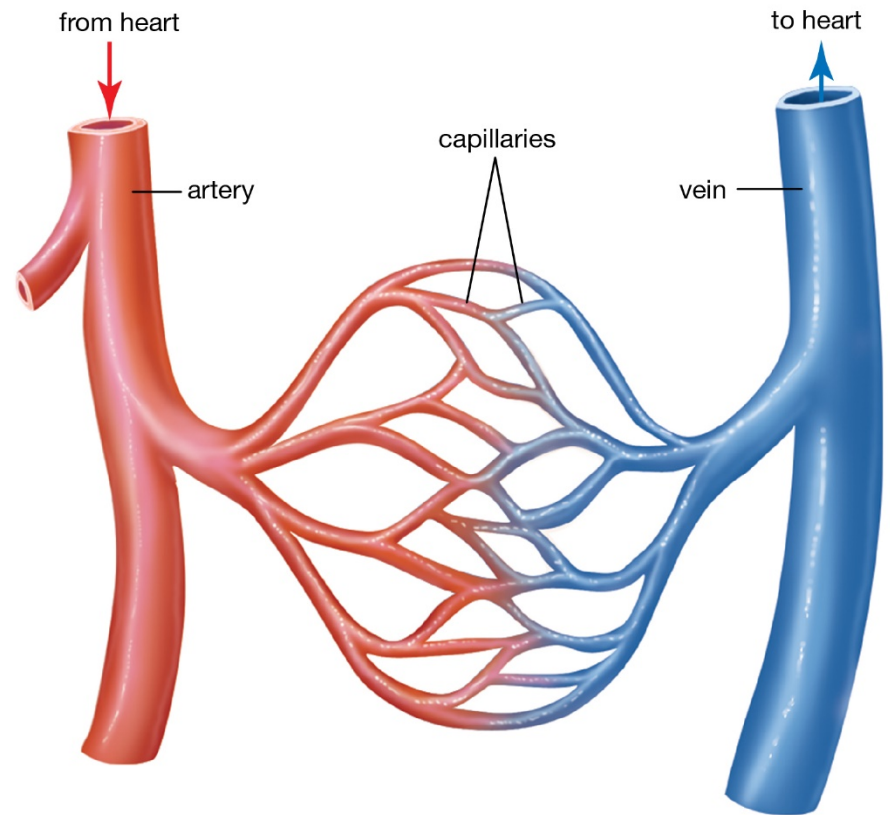
Arteries are muscular blood vessels that carry blood away from the heart. All arteries, with the exception of the pulmonary and umbilical arteries, carry oxygenated blood.

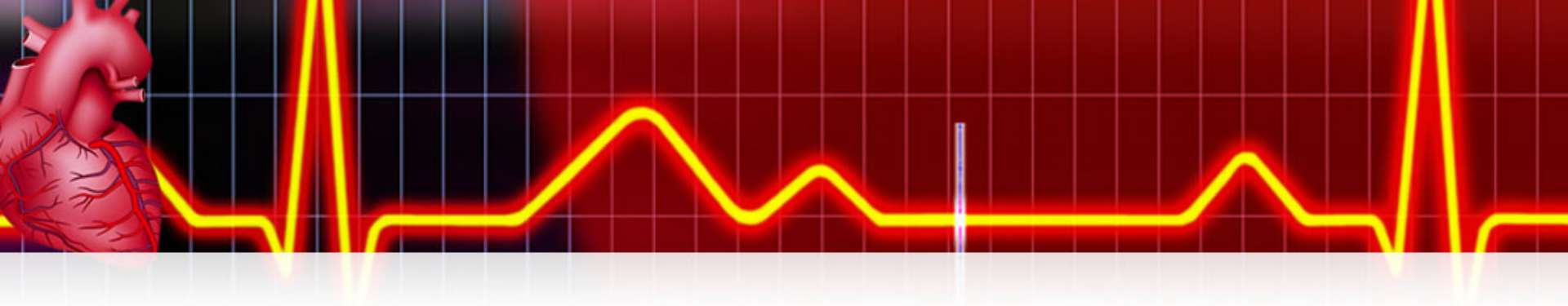
Veins are blood vessels that carry blood toward the heart. The majority of veins in the body carry low-oxygen blood from the tissues back to the heart; the exceptions being the pulmonary and umbilical veins which both carry oxygenated blood.



Capillaries

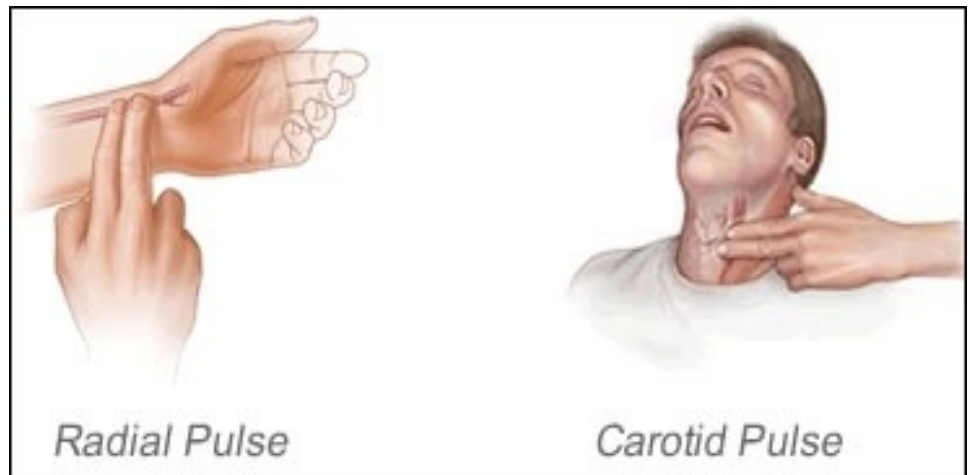
Capillaries are the smallest of a body's blood vessels. They are important for the interchange of oxygen, carbon dioxide, and other substances between blood and tissue cells.





Measuring a pulse

- Carotid pulse
 - Carotid artery
- Radial
 - Radial artery
- Popliteal pulse
- Brachial pulse
- Posterior tibial pulse





Pulse Rate – Heart Rate

- Construct a table that has 6-columns and 8-rows. Place the following in the columns Date of the week; Resting Pulse; Exercise; Time (10-min); Pulse after 10-min; Pulse after 5-min)
- Observe pulse over seven (7) days/1-week
- Record resting pulse rate each day
- Exercise strenuously (run, jog, swim laps, climb stairs, weight lift, jump rope, etc.) each day, record type of exercise
- Time of exercise each day = 10-minutes
- Retake pulse immediately after exercise each day, record
- Retake pulse 5-minutes after exercise each day, record



Data Table - Pulse

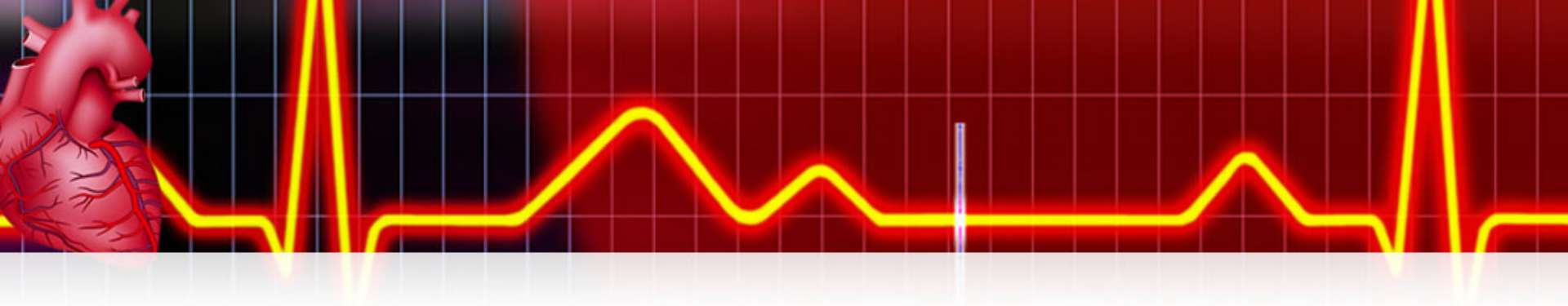
DAY	RESTING PULSE	EXERCISE	TIME	PULSE 10 MIN	PULSE 5 MIN
Sunday	84	RUN	10	114	88
Monday	82	WEIGHTS	10	98	84
Tuesday	78	RUN	10	110	80
Wednesday	76	STAIRS	10	120	78
Thursday	74	WEIGHTS	10	96	78
Friday	74	RUN	10	118	74
Sabbath	72	WALK	10	82	72



How to make a Stethoscope

- A simple stethoscope can be made by connecting the small end of a funnel to a length of tubing.
- Instead of a funnel, you can use the top of a plastic soda or water bottle. If you cut the top off a bottle for use as a funnel, it would be a good idea to line the cut edge with a bit of tape folded over so that there are no sharp edges.
- Place the funnel over the "patient's" heart and put the other end of the tubing up to the ear (*but not in the ear!*).
- You should be able to hear the heartbeat.

<https://www.youtube.com/watch?v=jDYzHe85dl0>



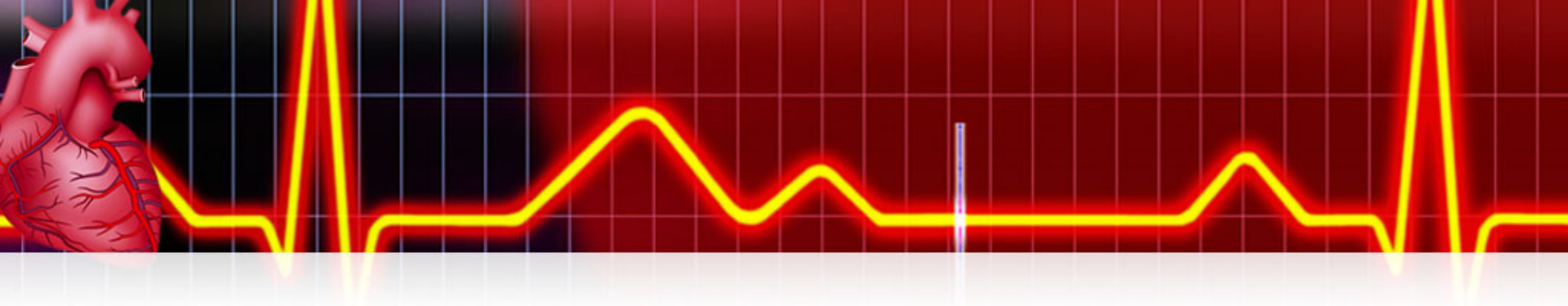
Heart Healthy - Practice

- Get regular exercise
- Eat a healthy well-balanced diet, avoiding trans-fats, hydrogenated oils, and cholesterol.
- Do not smoke (and avoid second-hand smoke as well)
- Don't abuse drugs or alcohol
- Reduce stress and anxiety



Cholesterol & Arteriosclerosis

- **Cholesterol** is a substance found in the cell membranes of all tissues, and it is transported in the blood plasma of all animals. If the diet contains too much cholesterol, it will cause a condition known as arteriosclerosis.
- **Arteriosclerosis** is a general term describing any hardening (and loss of elasticity) of medium or large arteries.
- <https://www.youtube.com/watch?v=wnK1Kv3XkZI>



Myocardial Infarction - CPR

A heart attack is a medical condition that occurs when the blood supply to a part of the heart is interrupted, most commonly due to rupture of a plaque deposit.

When the heart tissue cannot get oxygen, it dies. If enough of the heart tissue dies, the heart will stop beating, and unless something is done, the person will die.

https://www.youtube.com/watch?v=jYHN7wi5_FA



Myocardial Infarction - CPR

CPR can be done to keep a person from dying if the heart stops beating.

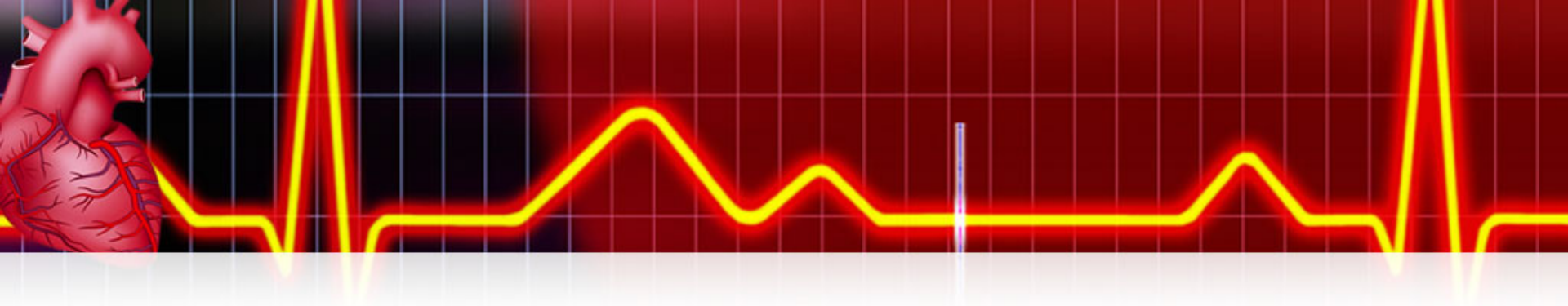
The first component of CPR involves repeatedly compressing the chest. This causes the heart to compress as well, squeezing the blood out of it and into the arteries. The compression is then released and the heart draws more blood from the veins. It is, in effect, a way of making a person's heart pump blood.

The second component of CPR is for the rescuer to blow air into the victim's mouth or nose to add oxygen to the lungs (and hence, into the blood).



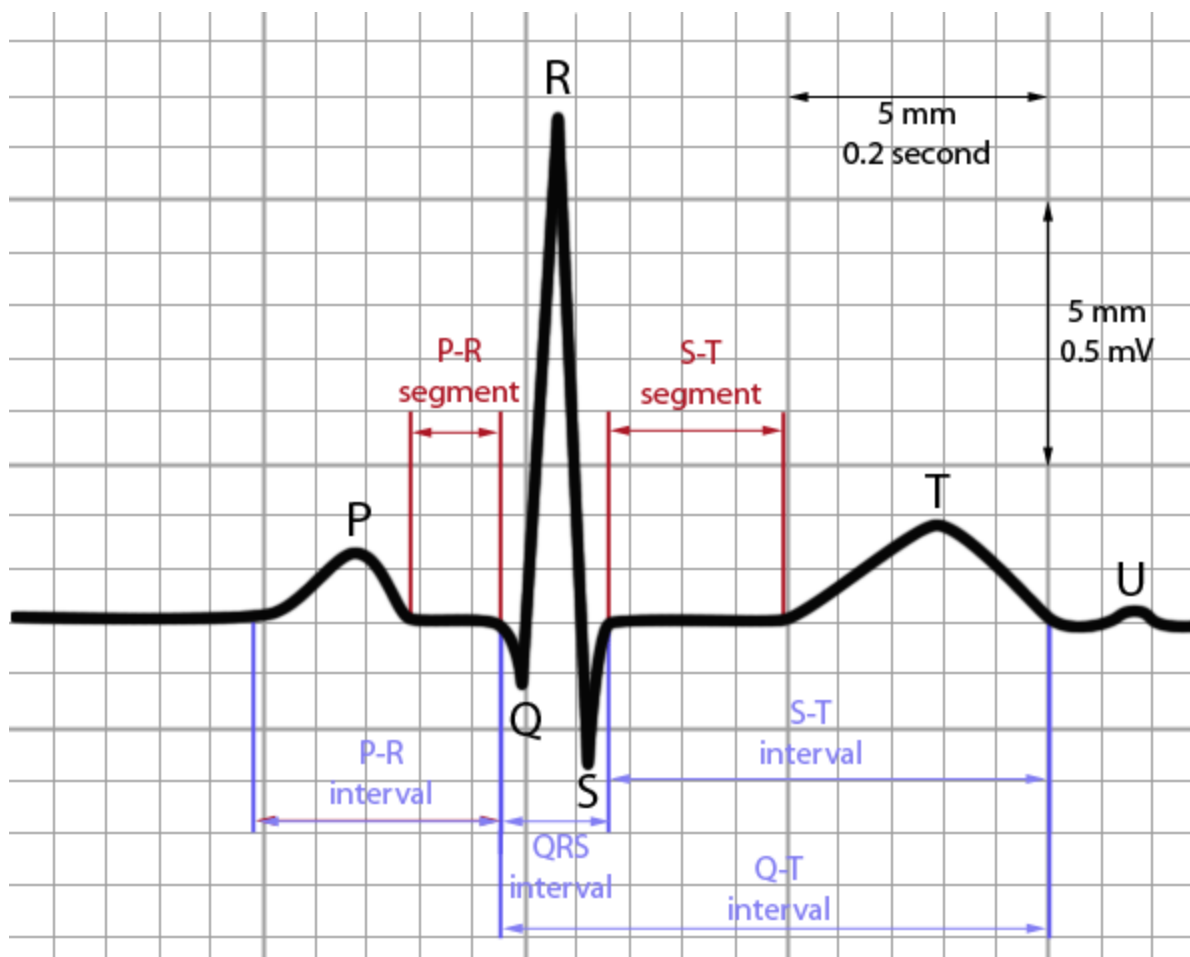
Electrocardiogram (ECG)

An electrocardiogram (**ECG** or EKG) records the electrical signal from your heart to check for different heart conditions. Electrodes are placed on your chest to record your heart's electrical signals, which cause your heart to beat. The signals are shown as waves on an attached computer monitor or printer.



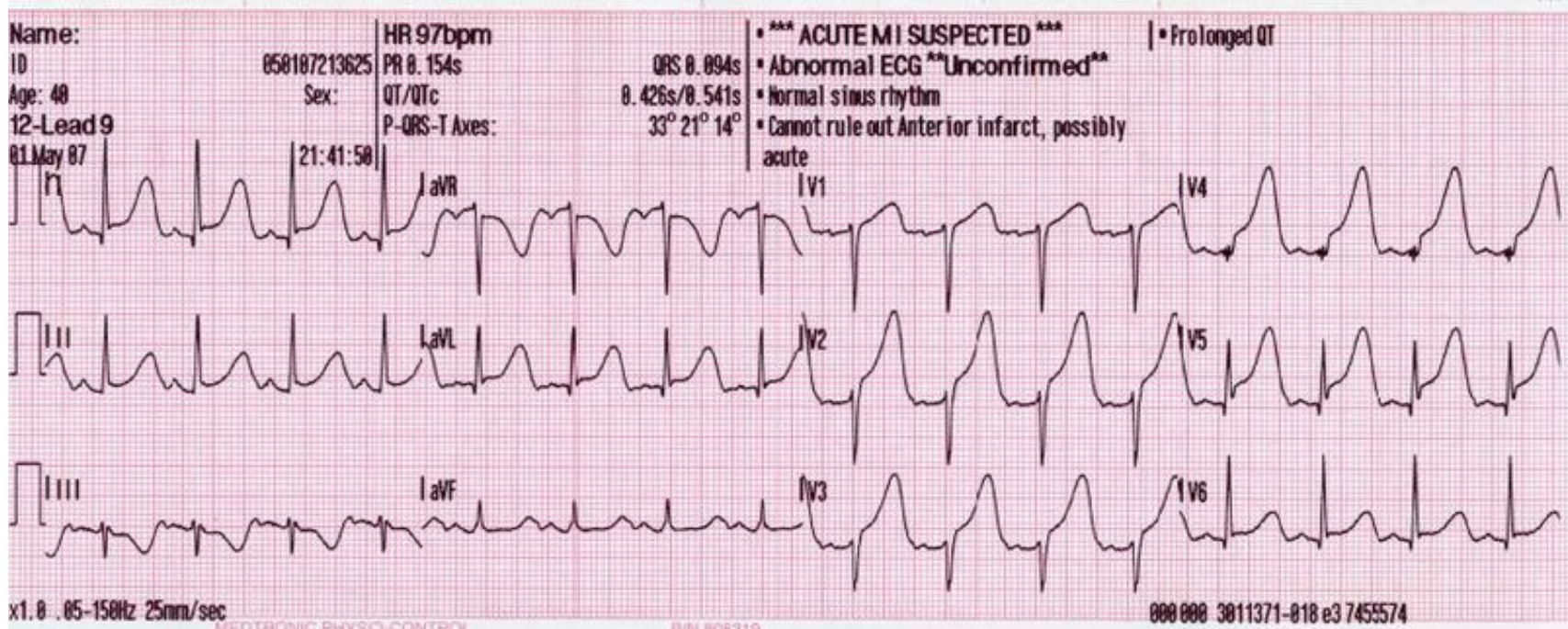
Electrocardiogram (ECG)

- It is the gold standard for the diagnosis of cardiac arrhythmias.
- It guides therapy and helps determine risk for patients who may have had a heart attack.
- It helps detect electrolyte disturbances.
- It allows for the detection of abnormalities.
- It is used as a screening tool for heart disease during a cardiac stress test
- It is occasionally helpful with non-cardiac diseases such as hypothermia.





ECG - MI

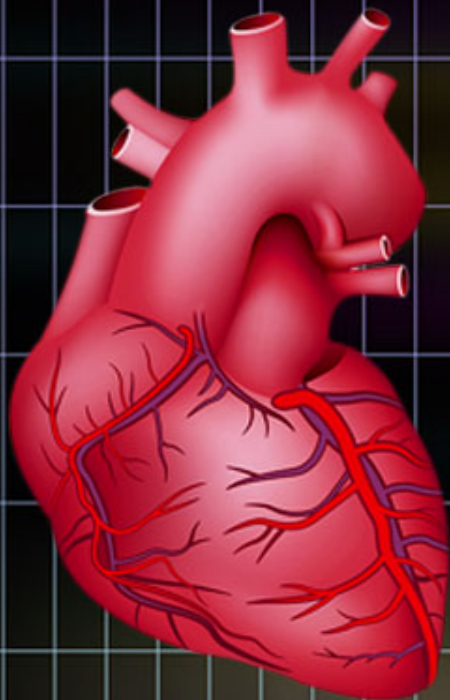




5 Scriptures – “Heart”

Psalms 51:10

**“Create in me a clean heart, O God, And
renew a steadfast spirit within me.”**



QUESTIONS?

Sherri A. Wheeler, DNP, MG



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We would like to thank
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