Heart and Circulation

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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.

https://www.youtube.com/watch?v=ebzbKa32kuk
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 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
- Radial pulse
- Popliteal pulse
- Brachial pulse
- Posterior tibial pulse

- Carotid pulse
  - Carotid artery
- Radial
  - Radial artery
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

<table>
<thead>
<tr>
<th>DAY</th>
<th>RESTING PULSE</th>
<th>EXERCISE</th>
<th>TIME</th>
<th>PULSE 10 MIN</th>
<th>PULSE 5 MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday</td>
<td>84</td>
<td>RUN</td>
<td>10</td>
<td>114</td>
<td>88</td>
</tr>
<tr>
<td>Monday</td>
<td>82</td>
<td>WEIGHTS</td>
<td>10</td>
<td>98</td>
<td>84</td>
</tr>
<tr>
<td>Tuesday</td>
<td>78</td>
<td>RUN</td>
<td>10</td>
<td>110</td>
<td>80</td>
</tr>
<tr>
<td>Wednesday</td>
<td>76</td>
<td>STAIRS</td>
<td>10</td>
<td>120</td>
<td>78</td>
</tr>
<tr>
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<td>74</td>
<td>WEIGHTS</td>
<td>10</td>
<td>96</td>
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</tr>
<tr>
<td>Friday</td>
<td>74</td>
<td>RUN</td>
<td>10</td>
<td>118</td>
<td>74</td>
</tr>
<tr>
<td>Sabbath</td>
<td>72</td>
<td>WALK</td>
<td>10</td>
<td>82</td>
<td>72</td>
</tr>
</tbody>
</table>
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](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”

Psalm 51:10

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

Sherri A. Wheeler, DNP, MG
We would like to thank Instructor Dr. Sherri A. Wheeler for an excellent honor presentation! It would be impossible for us to continue our operation without volunteers like you. May God bless you!

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