

2013 TECH-Blood Pressure (H.S.)

Summary

Blood pressure and pulse rate are some of the basic vital signs used to help diagnose and care for patients in the health care field. When health care workers first meet a patient a blood pressure and pulse rate are among the first medical information that is obtained.

Materials

Blood Pressure and Stethoscope Kits

(Many kits can be found at www.amazon.com for a variety of different prices. For example a Lumiscope kit is \$22.00.)

Alcohol Wipes

Balloons-enough for each student to have their own

Student Worksheet

Background for Teachers

As the teacher, become familiar with what a blood pressure is and how to take a blood pressure.

Visit: <http://www.csuchico.edu/atep/bp/bp.html> This link will tell you what a blood pressure is, and will show you how to take a blood pressure. Either become familiar enough with it, that you can just teach the students, or you could go through the website directly with the students.

Instructional Procedures

Step 1

Pass out a copy of the basic heart diagram to each student. Explain to the students what a blood pressure is, and why blood pressures are taken. Demonstrate to the students how to take a blood pressure, and explain to them the sounds they will hear when taking a blood pressure. A good source is: <http://vimeo.com/26580985> When using this video -- start at about 17:20 and it will give you scenarios with a blood pressure dial and the sounds they will hear.

Step 2

If your classroom has blood pressure and stethoscope kits, break your students into groups and have the students take turns taking each other's blood pressures. Make sure you have alcohol wipes for the students to clean off the ear pieces of the stethoscopes as they take turns. Use the attached worksheet to have the students record the other members' of their groups blood pressures.

Step 3

Ask the groups for some examples of blood pressure readings they received. If you do not have blood pressure kits and skipped step 2, just put a random blood pressure on the board (for instance 110/70). Review from the movie that the numbers measure the pressure when the heart is beating or contracting (pumping blood), which is called systolic and is the higher number. The lower number measures the pressure when the heart is at rest or between beats (filling with blood) and is called diastolic. Write systolic and diastolic next to the blood pressure you wrote on the board.

Step 4

Give each student a balloon. Have them blow the balloon so that it is moderately firm and have them feel the balloon. Then, have the students blow in extra air to show additional pressure and have them feel it again. Explain that the balloon is like their arteries and veins when the heart is beating and when it is at rest. Now, have the students try to blow up the balloon with only a small opening to their mouth. Discuss with the students how it is harder for them to blow up the balloon with a narrow opening. Ask them if they felt they had to blow harder to try and blow up the balloon? Compare this to when a vein or artery becomes blocked or narrowed. What would happen if the heart was pumping

blood through clogged vessels? Would the heart have to beat harder and faster to get the blood through the vessel? Could this cause high blood pressure?

Step 5

Show the students where they can feel their own pulse; the wrist is probably the easiest to find. It's on the thumb side of the wrist, usually a finger or two from the wrist joint. It can be felt by placing the tip of two fingers in that area and applying pressure -- this is called a radial pulse. Explain that the flutter they feel in their wrist is the blood that pushes through their veins and arteries each time their heart goes through a pumping cycle. When they feel their pulse, they're actually "feeling" blood pressure. Another area for students to feel a pulse, includes applying pressure to the side of the neck, just under the jaw.

Step 6

Explain to the students that a pulse rate is determined by how many times your heart beats in a minute. A pulse rate can be determined by finding a radial pulse, and counting how many times your pulse beats in a 15 second time frame. You then take that number and times it by 4 to get a reading of how many times it would beat in 1 minute (or you can time it for 30 seconds and times it by 2). Have the students partner up and take turns taking each other's pulse and determining their pulse rate, have them record their findings on the worksheet.

Step 7

Explain that many health care workers use blood pressures and pulse rates to help determine the well-being of their patient. Show the career specific video highlighting medical assistants and certified nursing assistants found at www.careerinfo.net.

Step 8

Have the students turn in their worksheets.

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