HLSC 405/705 Interprofessional Global Health Study Abroad Group Teaching Project Due February 17, 2019

PLEASE TURN IN THIS EVALUATION FORM WITH YOUR TEACHING PROJECT

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Target Group: Adults ages 50 and above		Number of participants:	
Grade:		Date:	
Guide	lines:		
I. Co	ver Sheet		
	1. Subject	3 point	
	2. Audience/Grade Level/Target	3 point	
	3. Topic	3point	
	4. Instructional Objectives Listed	6 points	
	• Cognitive	·	
	• Affective		
	• Psychomotor		
	5. Materials/Equipment/References	3 point	
	6. Time/ Length of Presentation	3 point	
	7. Personnel	3 point	
II. Le	eaning Activity Instruction		
	1. Introduce Topic per age group	3 points	
	2. Establish Mood	3 points	
	3. Gain Attention/Motivate	3 points	
	4. Establish Rationale	3 points	
	5. Establish Knowledge Base	3 points	
	6. Instructional Objectives Restated	3 points	
	7. Media Utilized	3 points	
III. C	losure/Summary		
	1. Summarized Major Points which		
	relates back to Objectives	4 points	
	2. Provides a Sense of Accomplishme	ent 3 points	

Total _____/100

Topic: Cardiovascular System / Foot Screening / Vascular Screening Teaching Project

Audience:

- Focus on Older Adults
- Adapt for:
 - Children (6-12 years old)
 - Adolescents (13-17 years old)
 - Adults (18 years old and up)

Instruction: Lecture/demonstration/practice/activities

Objectives:

- 1. Understand what the cardiovascular system is and its importance to overall health.
- 2. Recognize signs and symptoms for peripheral artery disease and identify common vascular diseases.
- 3. Understand how to prevent vascular diseases with healthy lifestyle habits including exercise and diet.
- 4. Learn what blood pressure readings mean, how to perform a vascular screening test, and the purpose of vascular screening tests.

Cognitive: The attendees will be able to identify the cardiovascular system, peripheral artery disease, how to prevent vascular diseases, and the importance of blood pressure testing and vascular screening.

Psychomotor: The attendees will participate in activities that allow for active moving and hands on stimulation.

Affective: The attendees will understand how adverse habits affect their heart health as well as their loved one's heart health.

Materials/Equipment: For heart model activity: 3 x Pop bottles (710 mL) with caps, labels removed. 4 x bendy straws, 3 cups of water, food coloring, tape, modeling clay or play-dough. drill (or other sharp object for making holes in the caps); Pulse Activity: play-dough and toothpicks for pulse activity for children, blood pressure cuffs, stethoscopes

Personnel: N/A

Time: 30 minutes to 1 hour

References:

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Time	Layout	Notes/Media
10-15	Introduction: What is the Cardiovascular System?	Heart model

minutes	The heart and circulatory system make up your	activity
	cardiovascular system. Your heart works as a pump that pushes blood to the organs, tissues, and cells of your body. Blood delivers oxygen and nutrients to every cell and removes the carbon dioxide and waste products made by those cells. Blood is carried from your heart to the rest of your body through a complex network of arteries, arterioles, and capillaries. Blood is returned to your heart through venules and veins. If all the vessels of this network were laid end to end, they would extend for more than 96,500 kilometers, which is far enough to circle the planet Earth more than twice! The one-way system carries blood to all parts of your body. This process of blood flow within your body is called circulation. Arteries carry oxygen-rich blood away from your heart, and veins carry oxygen-poor blood back to your heart. In pulmonary circulation, though, the roles are switched. It is the pulmonary artery that brings oxygen-poor blood into your lungs and the pulmonary vein that brings oxygen-rich blood back to your heart.	*Depending on the group the activity can be set up for them or helpers can be obtained.
	Heart Activity The attendees will be presented with a bottle demonstration that serves as representation for how blood pumps through the heart. This will show how the heart. blood, and blood vessels make up the circulatory system. The human body actually has two circulation pathways; they are pulmonary circulation and systemic circulation. Pulmonary circulation is the short pathway from the heart to the lungs and back to the heart again. Pulmonary circulation is handled by the right side of the heart. Systemic circulation sends blood from the heart to all parts of the body and then back to the heart again; a much longer pathway. The left side of the heart pumps blood out into the systemic circulation.	
	DIRECTIONS FOR HEART MODEL	
	third one will be kept as a back-up.	

 In the first cap drill two holes that are the same size. You want the holes to be just big enough for the straws to slide through. In the second hole should be smaller. If the hole is too big the clay can be used to make it smaller. In a pitcher mix water and food coloring will be mixed to create red blood. Two straws will be stretched and bent to create a 90 degree angle. One straw will slide into the other straw (it will be pinched to make it smaller so it slides in), then they will be taped up to secure the connection. This process will be repeated with the second set of straws. The three bottles will be placed on the table. The first two will be filled with water to about 80% full. The third will be left empty. The cap with two straw hole and one small hole will be placed on the first bottle. On the middle bottle the cap with two straw holes will be placed. The third bottle will not have a cap. The straws will be carefully slid through the bottle caps. Clay or play-dough will be placed around the straw bases on the middle bottle to make an airtight seal with the bottle cap. Then the model will be pready. To make heart model work, the student will squeeze the middle bottle to. The bottle. Then by squeezing the middle bottle, the "blood" will squiri into the body. Next, the middle bottle can remain "squeezed". The the fingers can and pinch the straw between the atrium into the ventricle. This process can be repeated to demonstrate blood flow. 	
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	Objectives from Introductory lesson:	
	In this heart model we are exploring how blood flows in one direction through the heart chambers. There are four chambers in the heart, the right and left atrium, and right and left ventricle. Blood will flow in only one direction – into the heart, to the lungs to be oxygenated, back into the heart, then back out into the body. The four valves of our heart are important for ensuring this one way blood flow. The attendees will watch carefully as the demonstrator does the work of the valves.	
	We have 4 heart valves. The Tricuspid and Mitral are located between the atrium and ventricle. The Aortic and Pulmonary valves control blood flow out of the ventricles into the arteries. When you pinch the straw between the first two bottles, you are mimicking the Tricupsid or Mitral valves. When you pinch the second straw you are mimicking the Aortic or Pulmonary valves. https://www.steampoweredfamily.com/activities/heart-m odel-heart-stem/?jwsource=cl	
3-5 minutes	Types of common vascular diseases and signs and symptoms of peripheral artery disease	
	Vascular disease is any disease that affects the blood vessels, or the arteries and veins. These diseases can affect anyone, regardless of age and gender.	
	Arteries, the vessels that bring blood from the heart to the rest of your body, have substances on their inside walls, including cholesterol and fats. When these substances, or plaque, build up, this can block blood flow.	
	Veins have flaps called valves that direct blood flow from	

the rest of the body back to the heart. When muscles contract, the valves open, and when muscles relax, the valves close so that blood flows in the right direction. When these valves become damaged, blood can start flowing in different directions.
When the blood flow in the vessels is interrupted, this can cause many symptoms and conditions.
Some common vascular diseases include:

Stroke: This is caused by blockages in arteries that supply blood to the brain.
Atherosclerosis and Carotid artery disease (CAD):

- Atherosclerosis and Carotid artery disease (CAD): These conditions are caused by plaque build-up in the arteries. Atherosclerosis can lead to coronary artery disease.
- Pulmonary embolism: This describes a free-floating blood clot that has traveled to the lungs.
- Deep vein thrombosis (DVT): This condition is caused by a blood clot in a vein, usually in the lower body.
- Varicose veins (Spider veins) and peripheral venous disease: These conditions are due to poor venous circulation.
- Peripheral artery disease (PAD): This condition affects 8.5 million people, and is most commonly caused by atherosclerosis. This narrows arteries in the lower extremities. Lack of blood flow to the legs limits mobility and can cause pain.
 - Signs and symptoms of peripheral artery disease include: cramping in the hips and legs when walking or climbing stairs, leg numbness and weakness, discoloration or sores on the legs, weak pulse in the legs and feet, hair loss and slower growth of hair on legs and toenails, and erectile dysfunction in men.
 - Risk factors for PAD include: smoking, diabetes, obesity, hypertension, high cholesterol, increasing age (50 years or older), and a family history of heart disease, stroke, and PAD.
 - If PAD progresses enough, there can be discomfort and pain even at rest.

	 PAD can lead to critical limb ischemia, which starts as unhealing sores, and can lead to infection and amputation. PAD can also lead to strokes and heart attacks. If you are experiencing any symptoms, it is recommended that you talk to your doctor. 	
5-15 minutes	Exercises to promote good heart health and prevent vascular diseases	Play dough pulse activity kids
	Exercise is a great way to improve heart health. It will lower blood pressure and resting heart rate, lower risk of diabetes and obesity, reduce inflammation throughout the body, improves oxygen exchange in the blood, reduces stress, and increases good cholesterol.	Heart healthy workout activity (modified for each age population)
	The best kind of exercise for the heart includes aerobic exercise and resistance training. Aerobic exercise is exercise like walking, jogging, swimming, and biking, that you can do for a longer amount of time with less intensity. Resistance training is a type of exercise that improves muscular strength and endurance, like lifting weights with dumbbells.	
	A general guideline to follow for exercise includes 30 minutes of aerobic exercise at least 5 days per week, and moderate resistance training 2 days per week. To keep yourself on track, schedule this into your day, workout with a friend, or track your progress!	
	If you or someone you know has a vascular disease like PAD, aerobic exercise such as walking is one of the most important aspects of exercise, especially since the disease affects the legs.	
	Heart healthy workout activity: We will learn and practice some simple at home exercises that include both resistance training and cardio (these activities will be modified to better suit each age group).	
	Aerobic exercises: Walking in place, jogging in place, jumping jacks, high knees, skips, etc.	

	Resistance exercises: Bicep curl, chair dips, squats, lunges, plank, superman, pushups, bicycle crunches, sit-ups, etc. For kids: Compare pulse before exercising and after exercising. This can be shown by placing a toothpick in playdough and placing on the wrist where the pulse can be measured. Count the vibrations the toothpick makes over a minute at rest, then after a few minutes of exercise. Does it get faster?	
3-5 minutes	 Lifestyle habits and diet to prevent these diseases Be more active. The American Heart Association makes a recommendation to be active at least 30 minutes each day. Bad habit could be smoking, which is the result of many health problems. Find a healthy way to quit. Stress can be debilitating to one's health. Exercise and medication can alleviate some of this. While exercise is important, maintaining a healthy weight is even more important. You do not want to be too underweight or too overweight. In addition to a healthy weight, eating a balanced diet can make a huge difference in your increased/decreased risk for certain diseases such as cardiovascular diseases. Keep an eye on your blood pressure and cholesterol as it can be very telling of whether you are at an increased risk for heart disease or not If applicable: monitor diabetes. It is a lifelong disease once diagnosed that can cause a chain reaction of other diseases so it is important to have your health as your number one priority. 	Line up activity of drinks (coca cola, gatorade, water, etc.) and guess which has least to greatest amount of sugar. Then with baggies, show exact amount of sugar in each to get people to rethink what they drink, or how much of it at a time.

10-25	Blood Pressure Readings and Vascular Testing	Demonstration/
minutes	- What is blood pressure?	practice with blood
	- Blood pressure is a measurement of the	pressure cuffs and
	force of blood against the walls of the	stetnoscopes
	Blood pressure measures systellic and	
	diastolic pressures: the pressure when the	
	heart is beating, and the pressure between	
	beats (the relaxation phase). This is why	
	there are two numbers when you read your	
	blood pressure. A normal blood pressure	
	reads less than 120/80 mmHg. 120 is the	
	systolic, or contraction pressure, and 80	
	and the diastolic, or relaxation pressure.	
	Systolic between 120-129 is considered	
	elevated pressure . High blood pressure or	
	systelic pressure above 130 or diastelic	
	above 80	
	- How to take blood pressure	
	- We will demonstrate how to take blood	
	pressure so that you can monitor this	
	reading on your own. All you need is a	
	blood pressure cuff and stethoscope.	
	1. Find your pulse: The brachial artery is	
	located at the bend in your elbow. Press	
	your finger here to feel for the beating. A	
	find the pulse	
	2 Secure the cuff with the stethoscope over	
	the brachial artery. There should be about	
	1 inch between the bend in the elbow and	
	the bottom of the cuff. Place stethoscope	
	in ears to begin listening.	
	3. Inflate and deflate the cuff. Record the	
	systolic pressure when you begin to hear	
	when the pulse is no longer heard	
	- What is Vascular Screening?	
	- The Ankle-brachial index test is an easy	
	way to check for peripheral artery disease	
	by using blood pressure measurements.	
	The blood pressure in the leg is compared	
	to the blood pressure in the arm. A low	

 reading can indicate when there is a blockage of blood flow to the lower extremities. Blood pressure is taken in each arm and each leg. The highest reading of each are recorded. The highest ankle pressure signal between the left and right ankle is divided by the highest brachial pressure between the left and right arm. This gives us a ratio. A ratio between 1.0 to 1.4 means that there is no arterial blockage. A ratio between 0.91 to 0.99 means there may be borderline PAD. A ratio less than 0.90 indicates a PAD diagnosis. Your doctor may recommend further testing 	
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Closure:

What have we learned?

- 1. The cardiovascular system is a distribution service for blood via a pump and tubes. The pump is known as the heart while the tubes are veins and arteries.
- 2. Vascular diseases clog up the arteries and veins in the peripheral regions of the body such as the legs.
- 3. Exercise and diet are important in preventing vascular disease. A good diet will keep your veins and arteries from clogging and exercise will keep your heart pumping efficiently.
- 4. Blood pressure and vascular screening tests are valuable tools for your health knowledge.