



## Cardiovascular System

### Heart at Work

As our bodies age, our heart loses strength and the ability to deliver oxygenated blood to the rest of the body (1). This requires the heart to work harder, especially with more demanding physical tasks. Heart attacks are more common, complex, and deadly among older adults, which occur when there is reduced or no blood flow to the heart (1). Combining these factors with physical exertion, the heart will experience an overload. In this simulation, you will try to do specific exercises with weights and extra equipment around the rib cage to mimic the reduced blood flow (or efficiency of oxygenated blood) from the heart. These will produce physical feelings associated with the symptoms of a heart attack, which include chest pain, arm pain, shortness of breath, and dizziness (5).

### Materials

- A safe open area to do exercise
- A chest restraint: Use what you have available! For example, you can use an abdominal band, scarf, belt, or another piece of clothing strapped around your chest
- An armband: use what you have (a scarf, headband, exercise bands, belt, and similar)
- Weights: This can be two dumbbells, a backpack full of books, etc.

### Procedure

**Disclaimer:** Please be careful when doing these activities to avoid physical injury.

1. Complete the precursor simulations if you have not already done so.
2. Do jumping jacks for 15 seconds, noticing how easy or difficult it is for you.
3. To simulate chest tightness, take your chest restraint and tie it around the bottom portion of your sternum (“the flat bone that lies in the midline of the chest and has a 'T' shape”). Make sure it is not too tight and that you can still breathe.
4. To simulate arm pain, take your armband and tie it around your arm snugly.
5. To simulate increased effort and fatigue with activity, hold or put on your desired weights.
6. To simulate dizziness, spin clockwise around in a circle 4-5 times.
7. To simulate shortness of breath, purse your lips as if you were drinking something and keep breathing through your pursed lips. Do jumping jacks for 15 seconds.

### Reflection Questions

1. What specific feelings did you have after experiencing the symptoms of a heart attack?
2. Older adults may not display all or any of the typical symptoms of a heart attack; how do you think this would affect their physical and mental health?
3. Reflect on your views on older adults. Have any of these beliefs changed after the simulation?