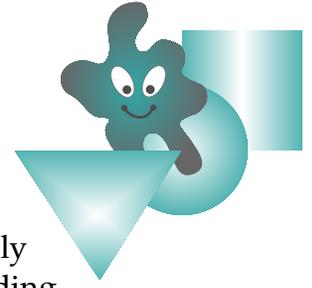


# Inflamm-O-Wars Game: Atherosclerosis Prevention

Student Information Page 5B



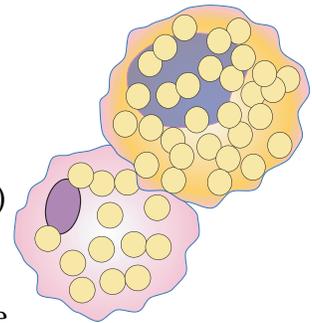
## Activity Introduction:

When you think about people who have heart attacks or strokes, you probably think of older people. Unfortunately, research has shown that conditions leading to heart attacks and strokes begin in childhood. *People your age have been found to have atherosclerosis*, a condition in which arteries become inflamed as a result of hereditary factors, infections, diseases such as diabetes, and, most importantly, poor lifestyle choices. These life-style choices are related primarily to diet and exercise. The good news is that if caught early, atherosclerosis can be reversed with little or no permanent damage to arteries. The bad news is that if poor health habits continue over time, atherosclerosis can progress and lead to heart attack and stroke, often with dire consequences. As you play *Inflamm-O-Wars*, you will learn how to make healthy changes to avoid becoming another victim of atherosclerosis.

## Activity Background:

Atherosclerosis (**ath-er-o-skle-RO-sis**) is a term derived from Greek words **athero** (meaning paste) and **scler** (hardness). Atherosclerosis causes thickening and hardening of the arterial walls. A slow, progressive, inflammatory disease, atherosclerosis begins in *childhood*. It is caused by the slow buildup of plaque (plak) on the inside of arterial walls. *Arteries* are blood vessels that carry oxygen-rich blood away from the heart to other parts of the body. The *coronary arteries* are small blood vessels that supply blood to the heart muscle itself, providing needed food and oxygen. (Note: the pulmonary arteries carry oxygen-poor blood away from the heart to the lungs).

Some hardening and thickening of arteries occur as we age, but in atherosclerosis, plaque builds in the inner lining of our arteries. *Plaque* is a sludge made up of fat, cholesterol, calcium, and other substances found in blood. The presence of oxidized LDL (low-density lipoprotein) activates scavenger white blood cells, called *macrophages*. The *macrophages* ingest as much oxidized LDL as possible and change into *foam cells* as a result. The newly formed *foam cells* release signals that initiate an immune response in the body. The buildup of plaque inside the walls of an artery narrows the inside diameter of that artery and, in time, may restrict blood flow. Plaque can be hard and stable or soft and unstable.



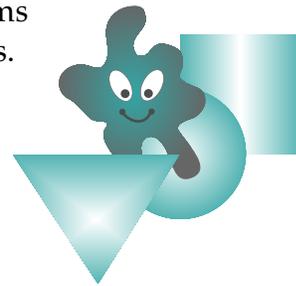
*Hard plaque* causes artery walls to thicken and harden. *Soft plaque* is more likely to break apart from the walls and enter the bloodstream. This can cause a blood clot that partially or totally blocks blood flow in the artery. When this happens, the organ supplied by the blocked artery starves for blood and oxygen. The organ's cells may die or suffer severe damage. Therefore, the location of the blockage determines its ultimate effect(s).



LESSON 5  
ACTIVITY 5B

INFLAMM-O-WARS

Atherosclerosis can affect the arteries of the brain, heart, kidneys, and the arms and legs. As plaque builds up, it can cause serious diseases and complications. These include:



- **Coronary artery disease**
  - Angina pectoris
  - Heart attack
  - Sudden death
- **Cerebrovascular disease**
  - Transient ischemic attack (TIA) or “mini strokes”
  - Stroke
- **Peripheral arterial disease**

Anyone can develop atherosclerosis, but certain factors significantly increase a person’s risk. These factors include family history, obesity, lack of exercise, smoking, high blood pressure (hypertension), high cholesterol, and high blood sugar. All of these factors damage arteries during youth, therefore, long-term prevention must begin early in life.

Effective public health strategies to prevent atherosclerosis in youth will take decades to establish. In the mean time, education, personal awareness, and physician-directed case management are low-cost intervention strategies. Because atherosclerosis begins in youth, but the symptoms do not manifest themselves for decades, motivation to make lifestyle changes is typically low. It used to be thought that once atherosclerosis began, it would progress to a serious level of disease, with only symptom management possible. Research has shown that atherosclerosis, especially in the early stages, can also regress with lifestyle changes and/or medical intervention. This is a powerful reason to pursue aggressive education and intervention plans, especially for young people.

## Activity Materials: Per group of 3 – 4 players

- 10 Game pieces
- 10 Character Profile Cards
- 4 Plastic game piece holders or pieces of clay to hold the playing pieces upright
- 1 set (24) Zone 1 choice cards
- 1 set (18) Zone 2 choice cards
- 1 set (12) Zone 3 choice cards
- 4 Game instruction cards
- 2 Dice
- Ziploc® baggies for game pieces and cards
- *Student Data Page* for each student