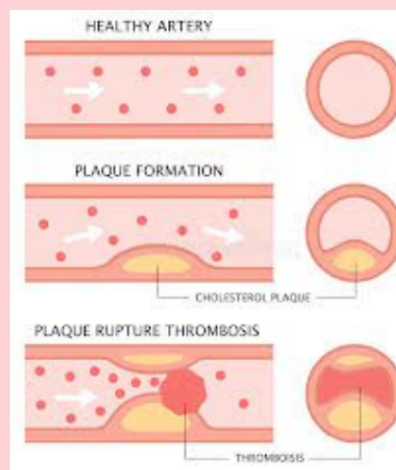# Getting older? Feeling stressed? Have a family history of heart disease?
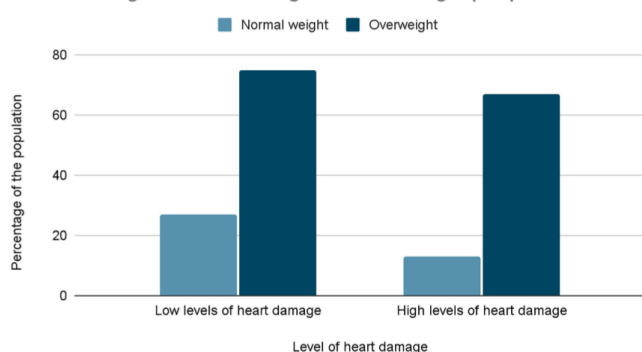
Heart health is important!!

Coronary artery disease develops when important blood vessels that fuel the heart become damaged. Factors such as increasing age, genetics, smoking, lack of exercise, and foods high in saturated fat, trans fat, salt, or sugar contribute to the buildup of cholesterol deposits in your arteries. These deposits, known as plaque, accumulate inside your arteries, reducing oxygen-rich blood flow to the heart. Once the inside of the artery becomes damaged, it makes it easier for more and more plaque to collect at the site. Tension builds up in the artery causing the plaque to rupture. Once this occurs, platelets arrive at the scene in an attempt to repair the artery. A clump of plaque, platelets, and cellular waste forms and hardens over time. This is known as **atherosclerosis**; sclerosis meaning hardened, and athero meaning arteries. Over time, one begins to experience chest pain and shortness of breath when doing simple activities. A fully clogged artery prevents the heart from being supplied with oxygen and can lead to heart attack, stroke, and even death!
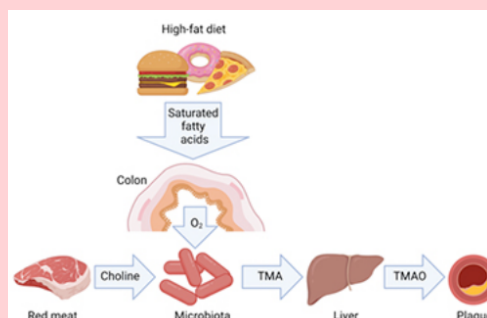

This figure illustrates arterial plaque buildup. Blood flow through a healthy artery can be compared to the impeded blood flow in the other arteries. The figure shows cholesterol plaque accumulating in the artery wall. After rupture, a clot forms and blocks blood flow, as shown in the cross-section depicted.

In this study conducted by the National Heart, Lung, and Blood institute, it was found that people who are overweight are more likely to experience heart damage. The study yielded a statistically significant p-value < 0.001 and a 95% confidence interval.

But wait... How does cholesterol get in the bloodstream?

The foods you eat get processed in the small intestine and the liver to form nutrietns for the body. Foods high in saturated fat and meat release chemicals when broken down that go in the blood and contribute to arterial plaque buildup.

Cholesterol is a type of fat cell that circulates in the bloodstream. It is used to produce important hormones and build cell membranes in the body. Cholesterol and other types of fat cells cannot be dissolved in water; keep in mind, the makeup of blood consists of 55% water. This is why lipoprotein molecules are needed to carry them in the blood. **Low-density lipoproteins (LDLs)** carry cholesterol to the tissues and may enter artery walls along the way. When we eat foods that are high in saturated fats, and trans fats, it increases the amount of LDL cholesterol in the blood. This includes meat, processed foods like chips, cookies, and pastries, and other animal products like butter, cheese, and milk. When these foods are digested in the body, they are broken down into their molecular make-up, including lipids like cholesterol, and are absorbed by the small intestine. It is carried to the liver which metabolizes it to form lipoproteins which circulate in the bloodstream. However, having too much lipoproteins in our bloodstream due to an unhealthy lifestyle, will lead to a buildup of fatty deposit in the arteries.