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Today, we are going to be taking a look at the processes that occur during the respiratory cycle. So first of all, we are going to define what the respiratory cycle is. So it is the process of breathing in and out. So when you breathe in, we call that inhalation, when you inhale air. And during this part of the respiratory cycle, what is happening is that your lungs are expanding.

And the other part of the respiratory cycle then is exhalation, or breathing out. And during this part of the respiratory cycle, your lungs will deflate. So we are going to take a look at the processes that occur during these two parts of the respiratory cycle. So let's take a look at the diagrams that we have over here.

We're going to be taking a look at what is happening within your body when you inhale and when you exhale. So let's start by talking about exhaling first, the process of exhalation, which is when you expel air. So during this process, there are several things that are going on that aid in exhalation.

So one of the things that's happening is your diaphragm here, which is a muscle that separates your chest cavity from your abdominal cavity, is going to relax. And when that happens, it causes the diaphragm to move upwards slightly. And also at the same time, your rib muscles, your intercostal rib muscles, are going to be in a resting position.

So what this does between your diaphragm relaxing and your rib muscles being in a resting position is that it causes pressure in your chest cavity to increase. So as this is moving up and your rib muscles are at a resting position, it causes an increase in pressure in your chest cavity. So what's going to happen is that you have high pressure in your chest cavity relative to atmosphere. So the pressure in your chest cavity is higher than atmospheric pressure.

So this pressure gradient is going to cause air to be pushed out of the lungs as you exhale, and then your lungs will deflate. So that's what's happening during exhalation. OK. So during inhalation, kind of the opposite thing is happening. Inhalation occurs when you take air into your lungs.

So during this process, the diaphragm is going to contract. And when it contracts, it moves downward slightly. At the same time, your intercostal rib muscles, which are the muscles in between your ribs, are going to lift your rib cage up and out.

So between your diaphragm moving down and your rib cage moving up and out, there is a decrease in pressure in your chest cavity because there is now more room in your chest cavity, OK? So your

diaphragm moving down and your rib moving up and out is producing more room in your chest cavity. And therefore, a decrease in pressure.

So pressure inside your chest cavity relative to pressure in the atmosphere, there's less pressure in your chest cavity relative to pressure in the atmosphere. So because of this pressure gradient, you have higher pressure up here than in here. Air that is going to flow to where there's less pressure. so it's going to flow inward towards your lungs and cause your lungs to inflate.

So you can see here, our lungs are inflated full of air. Here, they're deflated as they're pushing the air out. So lungs are caused to inflate as air moves in towards your lungs due to that difference in the pressure gradient. So a couple of terms we're going to take a look at right here are tidal volume and vital capacity.

So tidal volume is the amount of air that enters your lungs in a normal breath. Now, that's an average of about two cups per person, or about 500 milliliters, OK? And then vital capacity is the maximum amount of air you exhale after the deepest breath possible.

So the tidal volume and vital capacity are going to vary a little bit from person to person depending on the person's size and depending on how in shape they are, how athletic they are. So people who are more athletic can hold more air in their lungs. So this lesson has been an overview on the respiratory cycle.