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## What Happens When Animals Breathe Out Carbon Dioxide



Have you ever wondered why we breathe? It's not just to take in oxygen; it's also about getting rid of something our bodies don't need – carbon dioxide. When animals breathe out, they release carbon dioxide, a waste product of the energy-making process that keeps us alive. Let's explore what happens when animals exhale carbon dioxide and why it's a vital part of our lives.

### The Oxygen-Carbon Dioxide Exchange

Breathing is a remarkable process that takes place in our lungs. When we inhale, we bring oxygen-rich air into our lungs. Oxygen is crucial for our cells because it's used to produce energy through a process called respiration.

During respiration, cells combine oxygen with glucose (a type of sugar) to create energy, carbon dioxide, and water. It's like a mini-power plant within our cells. But as cells create energy, they also produce carbon dioxide (CO<sub>2</sub>) as a waste product.

### Getting Rid of Carbon Dioxide

Just as our bodies need oxygen to function, they also need to get rid of excess carbon dioxide. Here's how it happens:

- **Transport in the Blood:** After cells produce carbon dioxide, it enters the bloodstream. Blood vessels carry this CO<sub>2</sub> back to the heart, which pumps it to the lungs.

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- **Exchange in the Lungs:** In the lungs, a fascinating exchange takes place. Oxygen from the air we inhaled is taken up by the blood, while carbon dioxide from the blood is released into the air within our lungs.
- **Breathing Out:** When we exhale, we're essentially pushing the air containing carbon dioxide out of our lungs and into the atmosphere. This is how we get rid of the waste gas.

### Why Is This Important?

Getting rid of carbon dioxide is crucial for several reasons:

- **Maintaining pH Levels:** Carbon dioxide is acidic when dissolved in water, and our bodies rely on a delicate balance of acidity and alkalinity, known as pH. Excess carbon dioxide can disrupt this balance, leading to health problems.
- **Preventing Toxicity:** High levels of carbon dioxide in our bloodstream can be toxic. Removing excess CO<sub>2</sub> through breathing helps prevent this toxicity.
- **Regulating Respiration:** Breathing rate and depth are controlled by the levels of carbon dioxide in our bloodstream. When CO<sub>2</sub> levels rise, we breathe faster and deeper to expel it.
- **Supporting Cellular Respiration:** Cells need a constant supply of oxygen to create energy. Breathing out carbon dioxide ensures that there's enough oxygen available for cellular respiration.

### The Environmental Connection

While the main focus here is on the human body, the carbon dioxide we exhale is also part of the larger carbon cycle in our environment. Plants, for example, take in carbon dioxide during photosynthesis to produce oxygen and glucose. This process helps maintain a balance in the levels of carbon dioxide in the atmosphere.

