Evyn Bowen

Professor Don Larson

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STEAM Project

How Asthma Affects the Lungs

For my STEAM project, I decided to focus on asthma and how it affects the lungs compared to healthy lungs. This topic connects to our unit on the respiratory system. Also how disease changes the structure and function of organs. I chose asthma because breathing is something we do all the time without thinking. But this condition shows how difficult it can become when something is wrong. I also liked the idea of showing this through a visual comparison because it makes the differences easier to understand instead of just reading about them.

Asthma is a condition where the airways become inflamed, narrowed, and can be filled with mucus. This is very different from healthy lungs. With healthy lungs the airways stay open and allow air to move freely. Because of this narrowing and blockage, people with asthma usually have symptoms like wheezing, coughing, and shortness of breath. Research shows that people with asthma have reduced airflow and more airway obstruction compared to healthy individuals (Zha et al., 2017).

Learning this helped me understand that asthma is not just a minor issue. It is something that actually changes how the lungs work.

The main part of my project is a side by side poster that compares healthy lungs and asthma lungs. On the healthy side, I showed open airways with smooth airflow. I used cooler colors, and a visual on the inside of the tube. On the asthma side, I showed narrowed airways with inflammation and mucus buildup, I used gray to make it look slightly dirtier. I used warmer colors like pink and orange to represent irritation. Before this project, I didn't fully understand what was happening inside the lungs during an asthma attack. Now I can clearly see how airflow becomes limited.

Another important idea I learned is that even small changes in the airways can have a big impact on breathing. One study showed that airflow patterns become uneven and disrupted in diseased lungs (Talaat et al., 2023). This connects directly to my poster because I showed airflow being blocked and irregular in asthma lungs. It helped me realize that breathing is not just about air going in and out. But actually how smoothly that process happens.

I also tried to go beyond what we learned in class. Instead of just labeling parts of the lungs, I focused on how everything actually connects and what it does. For example, inflammation leads to narrowing. This then leads to less oxygen reaching the body. This cause and effect made more sense when I drew it out. It showed me that the body systems are all connected. Also even a small problem in one area can affect the whole system.

For creativity, I wanted my project to be simple but visually clear. I did not want it to look like a textbook diagram. I exaggerated the differences between healthy and asthma lungs so someone could understand it quickly just by looking at it. The colors and structure helped make the information easier to follow.

Overall, this project helped me understand the respiratory system in a deeper way. I think I will remember this because I created something visual instead of just memorizing notes. It also made me realize how serious asthma can be and how much it affects everyday life. In the future, I can use this knowledge to better understand breathing problems. Also be more aware of how important healthy lungs are.

References

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