

## Our Breathing Experiment

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For our Human Anatomy Course today, we followed an experiment to find out what triggers the area in your brain that makes you want to breathe while holding your breath. To start with, we timed how long we could hold our breath after breathing normally for several minutes. You can see the results in the chart below.

After that, we took a large plastic bag and breathed into it for a minute, breathing only the air in the bag, and then held our breath. We found that we couldn't hold our breath for as long as we could after breathing normally.

Why was this? There were many things that may have triggered the breathing, but after following a process of elimination, we concluded that high levels of CO<sub>2</sub> trigger the breathing reflex.

Lastly, I tested what happened to my breathing after I held my breath for as long as I could. I noticed I breathed faster and harder for a minute or so afterwards, but my breathing slowly calmed down.

### How Could We Improve Our Experiment?

When we were breathing into the plastic bag, we were breathing in a lot of carbon dioxide. To test our hypothesis that high levels of CO<sub>2</sub> trigger breathing, we would need to find a way to get rid of that carbon dioxide before we breathe into the bag. There is a chemical, called Calcium Hydroxide (KOH), which can do this. If we put the KOH into the bag first (thus reducing the CO<sub>2</sub>), then breathed into it and held our breath, we could look at how long we could hold our breath there compared to the first experiment, and see if the data supports our hypothesis.

Participants	After Normal Breathing	After Normal Breathing	After Breathing Into A Bag For 60 Seconds
Mom	34	40	32
Dad	48	65	40
Jack	34	46	43