



How does a sugar free drink effect a chicken bone VS. A sugared drink

Have you ever wondered what sugar is doing to your bones? Adults always tell you that sugar drinks are making your bones less strong. Well, they are actually correct. Sugar and sugar drinks rob calcium from your bones making them weak. Studys show that we lose 1% of our bone each year due to sugar. In my experiment I will be placing a chicken bone in 3 different sugar drinks and 3 different sugar free drinks. I will be looking to see what these drinks do to the bone in four days.

Introduction

Question and Hypothesis

Question

- Will the diet soda cause the chicken bone to deteriorate?

Hypothesis

I think the sugar free soda is going to be the worse for the chicken bones. I claim this because in my research I have found statements about sugar free drinks being worse on your bones. I believe the bone will start to weigh less and deteriorate.



Materials



Scale

6 Chicken bones

3 Sugar Drinks

3 Sugar free drinks

6 Clear plastic cups

Measuring cup



Procedure

In this project I will put 3 bones in sugar free drinks and 3 bones in sugared drinks. I put 1 cup and 1/2 of the 6 different drinks in 6 different cups. I then put the bones in each cup to soak. I will leave the bones in each drink for five days. Every day I will observe the bones to see if there are changes. I will also weigh them in grams every day to see if their weight changed.



Science Fair Journal

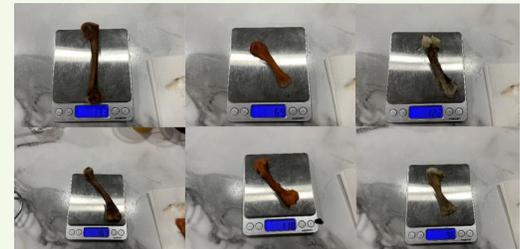
Day 1

In day one, the sugar free juice bone weighed 2 grams less than the sugar bone. The other 2 sugar free bones weighed more than the sugar free juice.



Day 2

Day two, I noticed again only the sugar free juice bone weighed less than all the other bones.



Day 3

In day three I observed the sugar free juice bone and one sugar bone weighing more than the rest. The other bones weighed the same.



Day 4

The final day I observed the sugar juice bone weighing more and the rest of the bones weighed less than their starting weight.



Results



Before

In my investigation, I noticed the sugar free drinks made the bones skinnier and fragile. The sugar free bones weighed at least two grams less than their original weight.



Day 1





Research



- Too much sugar lowers threshold level for sugar intake
- Impairs body's uptake, utilization of calcium and magnesium
- Skew body's mineral balance
- Sugar speeds up deterioration
- Sugar canes strip 40 vitamins from bones
- Sugar effects dopamine in the brain
- Takes years for sugar to thin bones
- Sugar hollows your bones
- We lose 1% of bone per year
- Sugar can cause osteoporosis (osteoporosis a bone condition)
- Sugar effects bones by releasing glucose
- Becoming acidic pulls calcium from bones
- Not enough calcium leads to a hollow bone
- Carbonated drinks are worse for bones
- Carbonated drinks use a lot of calcium
- Carbonated drinks associate low bone density
- Calorie intake in woman shows a lower BMD (Bone Mineral Density)
- Caffeinated beverages also use a lot of calcium
- Drinks including vitamin D increases calcium
- 3-4 months to build BMD
- No calcium makes osteoporosis
- No calcium means low density
- Fruit builds density
- Sugar strips magnesium
- Sugar pulls nutrients
- Low bone mass is common
- Magnesium is more important than calcium
- Fruit instead of candy
- Joints also get harmed
- Osteoporosis is very common in the U.S

Bibliography

(Website #1)

Author: *Unkown* **Title:** *The Dangers of Sugar and Bone Health: More Addictive Than Cocaine?* **Date Published:** (2017, October 19). **Name:** AlgaeCal. **Date accessed:** Retrieved January 19, 2022, from <https://www.algaecal.com/expert-insights/dangers-sugar-bone-health-addictive-cocaine/>

(Website #2)

Author: *Unknown* **Title:** *By the way, doctor: Does carbonated water harm bones?* **Date Published:** (2019, April 16). **Name:** Harvard Health. **Date accessed:** Retrieved January 19, 2022, from <https://www.health.harvard.edu/staying-healthy/does-carbonated-water-harm-bones>

(Website #3)

Author: Erick A. **Date Published:** (2016, November 21). **Title:** *3 Reasons Why Sugar is The Greatest Enemy of Your Bone Health*. **Name:** Lifehack. **Date Accessed:** Retrieved January 19, 2022, from <https://www.lifehack.org/493215/3-reasons-why-sugar-is-the-greatest-enemy-of-your-bone-health#:~:text=Sugar%20causes%20calcium%20depletion&text=Lack%20of%20calcium%20leads%20to,our%20bones%20of%20their%20density>

(Website #4)

Author: Cooley, R. J. N. **Date Published:** (2021, January 19). **Title:** *Why Is Sugar Bad for You?* **Name:** University Health News. **Date Accessed:** Retrieved January 19, 2022, from <https://universityhealthnews.com/daily/bones-joints/why-is-sugar-bad-for-you/>

(Website #5)

Author: *Unknown*, **Title:** *Sugar Weakens Your Bones and Increases the Risk of Fractures in the Young and Elderly*. **Date Published:** (2017, November 2). **Name:** Health and Science. **Date Accessed:** Retrieved January 19, 2022, from https://healthandscience.eu/index.php?option=com_content&view=article&id=1275:sugar-weakens-your-bones-and-increases-the-risk-of-fractures-in-the-young-and-elderly-us&catid=20&lang=us&Itemid=374

Conclusion

In my investigation I can conclude that sugar free drinks are worse for your bones. This reason being for this is the sugar free bones not only started weighing less or more, but they started feeling weak. I noticed by the 3rd day, the sugar free bones were more transparent. The bones were also starting to get thinner and fragile. In the drinks with sugar free bones, I also noticed little pieces of bones. The bones also seemed to have little dents in them. Some of the bones weighed 2-3 more grams while only 1-3 ever weighed less. The weight of each bone would change daily, whether some bones weigh more one day and weigh less the next. The sugar free Tampico was the worse for the bones. I conclude my hypothesis to be correct, the sugar free bones weighed less and got weaker.

Data/Graphs

Day	Sugar Free Bones	Sugar Drink Bones
1	Tampico 6.9 g, Dr. Pepper 13.3 g, Red Bull 12.2 g	Tampico 11.8 g, Dr. Pepper 16.7 g, Red Bull 9.6 g
2	Tampico 6.8 g, Dr. Pepper 13.7 g, Red Bull 12.6 g	Tampico 12.0 g, Dr. Pepper 16.9 g, Red Bull 10.0 g
3	Tampico 6.8 g, Dr. Pepper 14.1 g, Red Bull 12.7 g	Tampico 12.0 g, Dr. Pepper 16.6 g, Red Bull 10.0 g
4	Tampico 6.8 g, Dr. Pepper 14.1 g, Red Bull 12.7 g	Tampico 12.2 g, Dr. Pepper 16.6 g, Red Bull 10.0 g

END