CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

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Project Number

J0510

Project Title

How to Maximize Iron Absorption from Food

Abstract

Objectives

The objective of this experiment is to determine how different stomach pH levels affect the rate iron is dissolved from an iron-rich food.

Methods

Almond meal, hydrochloric acid, water, LaMotte Iron Test Kit, test tubes, timer with splits. Added almond meal to three different stomach pH models with iron reagents. Measured and compared the time it took iron to dissolve from the almond meal and reach varying levels of iron concentration in three different pH stomach models.

Results

Iron from the almond meal dissolved at different rates in various stomach acidic conditions. The lowest pH model showed the most iron dissolved from almond meal in the least amount of time. The highest pH model showed the slowest rate for iron to dissolve.

Conclusions

After measuring iron concentration levels in different stomach acidic models, it was concluded that iron dissolves best in an empty stomach condition with the lowest pH level. Iron is dissolved faster and can be more efficiently absorbed in a more acidic stomach condition than in a less acidic condition like a full stomach.

Summary Statement

I showed that iron is best absorbed in an empty stomach condition rather than a full stomach condition.

Help Received

My mom helped me purchase the materials for this project and gave me feedback on my experimental design. I performed all the trials of the experiments myself.