

Ashes and Abs: Testing Calcium in Gladiator Tonic

Activity 1: Worksheet

Complete the table below with your results.

EDTA volume (ml)	Calcium (%)

1. Could a handful of ashes really match a glass of milk?

Use your experimental results to compare the calcium content in the ash tonic with milk or sports drinks. What did your data suggest?

Complete the table below with reference values or your results.

Sample	Calcium content	Equivalent to milk
Milk	120 mg/100 mL	–
Plant ashes		

- Which contains more total calcium: milk or ash?

- Why is total calcium not enough to determine which is better for your bones?

- Is it better to get calcium from supplements or from natural foods? Justify your answer based on what you've learned.



2. Is calcium from ashes as bioavailable as the calcium in milk?

Bioavailability describes how much of a nutrient your body can actually absorb and use. Even if some foods are rich in nutrients, your body may not be able to easily access them.

- What factors help or block calcium absorption in the body?
(Hint: Think about vitamin D, other minerals, or the chemical form of the calcium.)

- Do you think your body can easily absorb calcium from ash? Why or why not?

- Does milk contain the same type of calcium as ash? Which one might be better absorbed and why?

3. Strategies to improve calcium absorption

Before answering, you'll need to read the introduction text again carefully. Three subtle hints are hidden in the way gladiators ate, trained, and prepared their drink. These clues can help you understand how they might have improved calcium absorption.

Think of three possible strategies gladiators could have used to absorb more calcium from their diet:

1.

2.

3.

Are any of these strategies still used today? Think of some examples.

4. Would you drink an ash tonic after a workout?

- Would you try it once? Why or why not? Justify your opinion.

- How do you think ancient people saw this type of drink compared to how we see functional or natural foods today?

5. What parallels can you find between Roman nutrition and today's sports culture?

Think about supplements, recovery drinks, daily routines, rituals, and how athletes manage their public image. Can you find modern equivalents to the gladiator ash drink?
