

Beverages & Bone Health: Sorting Out the Science

Quiz Questions

- 1) According to Dr. Heaney, what are the two major factors contributing to poor bone health today?
 - a. Inadequate calcium intake and low levels of physical activity.
 - b. Inadequate calcium intake and inadequate protein intake.
 - c. Decreased milk consumption and increased soft drink consumption.
 - d. Poor overall diet quality, including low intake of key bone nutrients, and low levels of weight-bearing physical activity.

- 2) A research review conducted by Specker demonstrates that both a high calcium intake and physical activity are required to significantly increase bone mineral density, but either factor alone does not.
 - a. True
 - b. False

- 3) For which of the following reasons is taking a "mono-nutrient" approach to bone health usually wrong?
 - a. Nutrients do not work independently in the body—they work in "teams."
 - b. Diets that are low in one nutrient tend to be low in several nutrients.
 - c. Bone, like all tissues, needs all nutrients.
 - d. All of the above are true.

- 4) Research conducted by Dawson-Hughes, et al., examined changes in bone mineral density (BMD) at the femoral neck of healthy elderly subjects who received either supplemental calcium and vitamin D or placebo. What finding from this research supports the concept that taking a mono-nutrient approach to bone health is inadequate?
 - a. BMD increases in the group of subjects who received calcium and vitamin D supplements were not significantly different than the group who received the placebo (control).
 - b. Significant BMD increases in the group of subjects who received calcium and vitamin D supplements were almost completely limited to those who also exercised regularly.
 - c. Significant BMD increases were almost completely limited to those subjects who received calcium and vitamin D supplements and whose dietary protein was also high.
 - d. None of the above.

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- 5) A reanalysis of 644 calcium balance studies by Heaney found a significant positive relationship between calcium intake and protein intake on calcium balance.
- True
 - False
- 6) Which of the following conclusions may be drawn from research examining the effects of caffeine on urinary calcium loss?
- Upon comparing subjects who received caffeine to those who didn't, neither group experienced a net increase in urinary calcium after two to five hours.
 - Subjects who received caffeine experienced a small increase in urinary calcium loss (~6.4 mg) two to five hours following ingestion, but after 24 hours, net calcium loss was no different than in subjects who did not receive caffeine.
 - Compared to subjects who did not receive caffeine, subjects who received caffeine experienced no increase in urinary calcium two to five hours following ingestion, but did experience a large net urinary calcium loss over 24 hours.
 - Compared to subjects who did not receive caffeine, subjects who received caffeine experienced a small net increase in urinary calcium loss (~6.4 mg) two to five hours following ingestion that persisted for 24 hours.
- 7) The amount of urinary calcium loss caused by consuming 6 ounces of caffeine-containing coffee can be offset by increasing calcium intake by about:
- 15 mg, or about the amount of calcium in 2 teaspoons of milk.
 - 40 mg, or about the amount of calcium in 2 tablespoons of milk.
 - 150 mg, or about the amount of calcium in 1/2 cup of milk.
 - 300 mg, or about the amount of calcium in 1 cup of milk.

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- 8) What were the results of a study by Heaney and Rafferty that compared the effects of carbonated beverages containing phosphoric acid (colas) with those containing citric acid on urinary calcium loss?
- Carbonated beverages with phosphoric acid significantly increased urinary calcium losses, but carbonated beverages with citric acid did not.
 - Neither carbonated beverages with phosphoric acid nor carbonated beverages with citric acid caused significant urinary calcium losses.
 - Both carbonated beverages with phosphoric acid and carbonated beverages with citric acid caused significant urinary calcium losses.
 - Carbonated beverages with citric acid significant losses, but carbonated beverages with phosphoric acid did not.
- 9) Which research finding supports the conclusion that carbonated soft drinks do not negatively affect bone health?
- Caffeine has no net effect on urinary calcium loss over 24 hours.
 - The impact of colas containing phosphoric acid on calcium balance is small and biologically insignificant.
 - Carbonated waters rich in calcium have a positive effect on bone density.
 - All of the above.
- 10) According to Dr. Heaney, which of the following statements about bone health are true?
- Taking a mono-nutrient approach to bone health is usually wrong. Good bone health requires both regular weight-bearing physical activity and an overall nutritionally adequate diet that provides adequate amounts of key bone nutrients.
 - The primary concern regarding low milk intakes is that it is difficult to get adequate amounts of the key bone nutrients without milk in the diet.
 - Calcium balance studies show that the primary ingredients in soft drinks, including caffeine, phosphoric acid, citric acid, and carbonation, have no negative impact on bone health.
 - All of the above are true.