Class Starters & Enders

Making the Most of Instructional Time
Five Minute Lessons

Class Starters and Enders help utilize the last minutes of class when a lesson ends but there is not enough time to start another, or for an interest approach at the beginning of class. Mini-lessons correlate to GPS in the programs areas below.

Vitamin D

Program Areas: Healthcare, Family and Consumer Sciences, Agriculture

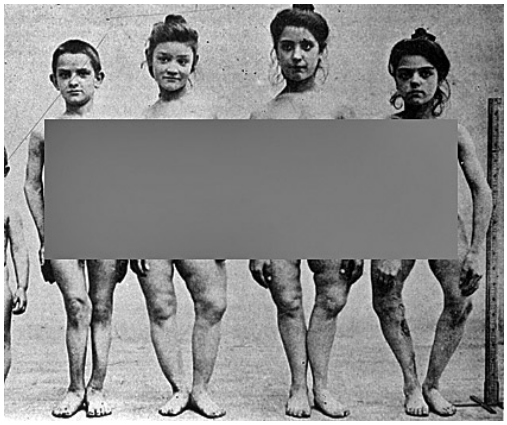
Instructions: Read the narrative and make notes of important points, answer questions, if provided, and be ready to discuss this topic.

The alarm has been sounded for an epidemic of vitamin D deficiency. Up to 36% of Americans are vitamin D deficient and 40% of infants and toddlers test below the optimal blood threshold for vitamin D. One study showed that only 5% to 37% of American infants are within the standard for vitamin D set by the American Academy of Pediatrics in 2008.

Vitamin D is produced by the sunlight. Vitamin D is fat-soluble. Vitamin D_2 and vitamin D_3 are physically important forms. The vitamin might help prevent serious diseases such as infections, some cancers, and diabetes. Without a subscript, vitamin D refers to D_2or D_3, or both. Vitamin D is produced in the skin of vertebrates after exposure to ultraviolet B light.

The current standard for vitamin D is 400 international units(IU) a day. In 2003 it was only 200 international units a day. International units are measurement of a substance, based on measured biological activity or effect. International Units are abbreviated as IU and are not associated with the International System of Units. Recommended rates of daily vitamin D intake have dramatically risen over the past decade, and expecting mothers are now advised to supplement their diets with vitamin D, as breastfed babies are more at risk for vitamin D deficiencies. Fifty-eight percent of newborns and 36% of mothers are vitamin D deficient. Within different minorities the rates are higher. Eighty percent of Hispanic kids and 90% African American kids are deficient between the ages of 1 to 11.

Absorption of vitamin D into the human body is done through spending time in sunlight, eating certain foods, and/or taking supplements. After the initial absorption takes place, vitamin D is carried in the bloodstream to the liver and is then converted. It is then converted once more to the active stage of vitamin D; this can be done in either the kidneys or the immune system. When this occurs in the kidneys, vitamin D will be transferred as a hormone and regulate growth.



Deficiencies of vitamin D can cause rickets in children. Rickets is a disease effecting growth and can cause deformities, of long bones such as femurs. Francis Glisson described the illness in 1650, stating it had previously appeared thirty years prior in Southern England. The condition is found largely in low income countries in Africa, Asia, or the Middle East.

Vitamin D intake in addition to sunlight can be increased by eating certain animal-based foods. Few foods are naturally high in vitamin D, so many dairy and cereal products are fortified, or enhanced, to help meet the recommended amounts. One of the most common forms is milk. Milk fortified with vitamin D provides 25% of the daily value per serving, or 98 international units. Some fish are high in vitamin D, such as canned tuna fish (3 ounces, in oil) containing 200 international units and 50% of the recommended daily amount needed. Other vitamin D foods include salmon, margarine, eggs, and Swiss cheese.

Review Questions

1. Vitamin D is produced in the skin after exposure to _____.
2. The standard set by the American Academy of Pediatrics in 2008 was how many international units?
3. _____of newborns are vitamin D deficient.
4. Rickets was first described in what country?
5. What countries are most likely to have children with rickets?
6. Vitamin D intake can be boosted by consuming what type of food?
7. Milk provides _____of the daily value of vitamin D recommended per serving.

Health Connection

Vitamin D deficiencies can cause many problems with rickets being only one of them. Research other health problems associated with a Vitamin D deficiency and write a paragraph on your findings.

Georgia CTAE Resource Network - Written by Sarah Jean Dover and Frank B. Flanders, Ed.D.