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Health Options
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Tuesday, August 3, 2010

Little-noticed choline plays essential role

You have likely seen hundreds of articles extolling the benefits of antioxidants, vitamins and such, but it is unlikely you have ever read about choline. There was no recommended intake for this substance until 1998. It is now considered to be essential in the diet and has gained the status of an essential nutrient.

QUESTION: Why wasn't the requirement for choline discovered sooner?

ANSWER: Choline is chemically produced in the body from other common chemicals, so it was thought the body produced enough choline to meet its needs. Because small to modest amounts of choline are found in many foods, it also seemed there should be enough choline in people's diets. When scientists finally fed a choline-free diet to human volunteers, health problems clearly developed due to liver and muscle damage.

Q: What are the main functions of choline in the body?

A: Choline has several important functions. At the basic level is an integral component of all cell membranes. Choline also is required for the formation of a key neurotransmitter called acetylcholine that is necessary for muscle control, memory and many other neural activities. Liver function is dependent on an adequate supply of choline, and fatty liver disease develops if choline intake is too low. Adequate choline also helps to protect against cardiovascular disease by helping to lower a compound called homocysteine.

Q: Do most people consume the recommended amounts of choline?

A: Recent analysis of national eating patterns found choline intakes for older children and adults were far below recommended levels known as the "Adequate Intake" for choline. The average adult over 70 consumed about half of the recommended intake for this nutrient.

Q: What health problems are likely to be associated with low intake of choline?

A: Research indicates that low choline intake can increase the risk of birth defects when a mother is deficient during pregnancy. Animal studies have found that early choline deficiency can impair memory function in later life, and consuming plenty of choline during critical periods of development results in better memory function during old age.

By helping to lower blood levels of homocysteine, choline might indirectly reduce the risk of cardiovascular disease, cancer, bone loss and cognitive decline. A recent study of 18,000 women reported that those with the greatest amount of choline in their diets had a lower risk of breast cancer than those with lower intake.

Q: What foods are good sources of choline?

A: The richest sources are liver and eggs that provide the adult AI values within the least number of calories — about 225 calories of liver and 310 calories of eggs. other foods are much lower in choline. A little more than 1,000 calories of wheat germ, edamame, tofu or various cuts of meat, poultry and fish can meet the AI. A cup of milk or yogurt contains only about 10 percent of the AI, and most grains, fruits and vegetables are relatively poor sources of choline in the amounts commonly consumed.

Since eggs and meat are the richest food sources of choline, recommendations to limit these foods will also limit choline intake.

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