Tyrosine

Overview

Tyrosine is a nonessential amino acid the body makes from another amino acid called phenylalanine. It is an essential component for the production of several important brain chemicals called neurotransmitters, including epinephrine, norepinephrine, and dopamine. Neurotransmitters help nerve cells communicate and influence mood. Tyrosine also helps produce melanin, the pigment responsible for hair and skin color. It helps in the function of organs responsible for making and regulating hormones, including the adrenal, thyroid, and pituitary glands. It is involved in the structure of almost every protein in the body.

It's rare to be deficient in tyrosine. Low levels have been associated with low blood pressure, low body temperature, and an underactive thyroid. This does not mean, however, that taking tyrosine supplements will help any of these conditions.

Phenylketonuria (PKU)
This serious condition occurs in people whose bodies can't use the amino acid phenylalanine. It can lead to brain damage, including intellectual disability. People with PKU must avoid any phenylalanine in their diets. Because tyrosine is made from phenylalanine, people with PKU can be deficient in tyrosine. Tyrosine is used in protein supplements for people with PKU, but most doctors don't recommend more tyrosine supplements. If you have PKU, your doctor will determine if you need more tyrosine and how much.

Stress
Tyrosine is involved in the production of the stress neurotransmitters epinephrine and norepinephrine. Some researchers believe that, under stress, the body isn't able to make enough tyrosine from phenylalanine. Some animal and human studies suggest that tyrosine supplements may help improve memory and performance under psychological stress. More research is needed.

Sleep deprivation
One study suggests that taking tyrosine may help you be more alert after sleep deprivation. More research is needed.

Other
Some athletes claim that tyrosine helps their performance. However, there is no proof that this claim is true or safe.

Because tyrosine helps the body produce the mood-influencing chemical dopamine, and because people who are depressed often have low levels of tyrosine, researchers thought that tyrosine might help treat depression. However, studies have found that it has no effect.

Preliminary research suggests that tyrosine kinase inhibitors may play a role in the treatment of thyroid cancer. Other studies suggest tyrosine kinase inhibitors may help improve lung function among people who have lung cancer or pulminary fibrosis. More research is needed.

Dietary Sources

Tyrosine is found in soy products, chicken, turkey, fish, peanuts, almonds, avocados, bananas, milk, cheese, yogurt, cottage cheese, lima beans, pumpkin seeds, and sesame seeds.

Available Forms

Tyrosine is also available as a dietary supplement, in capsule or tablet form.

Supporting information:

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