Curcumin Corrects Cystic Fibrosis Defects

The spice pigment curcumin, a powerful antioxidant and anti-carcinogenic agent, has properties that correct for a defective protein implicated in cystic fibrosis, according to newly published research.

Cystic fibrosis is a genetic disease affecting approximately 30,000 children and adults in the US. A defective gene causes the body to produce an abnormally thick, sticky mucus that clogs the lungs, leads to life-threatening lung infections, and obstructs the pancreas, preventing digestive enzymes from reaching the intestines to help break down and absorb food. Cystic fibrosis is uniformly fatal, with a median survival time of 30 years.

The molecular basis of cystic fibrosis involves a defective protein called CFTR, which is required for energy transport. The defective CFTR protein is not delivered to the cell membrane, its site of action. When human cells with the cystic fibrosis mutation are treated in the laboratory with calcium-pump inhibitors, normal movement of CFTR to the cell membrane results.

Curcumin is a calcium-pump inhibitor, albeit a weak one. Recently, researchers at Yale University demonstrated that administering curcumin orally to mice homozygous for the defective CFTR protein resulted in the expression of normal CFTR activity in both the respiratory and gastrointestinal tracts.

Mice that are homozygous for the defective CFTR protein have a 60% mortality rate within 10 weeks, with death caused by intestinal obstruction and characterized by progressive weight loss. When such mice were administered curcumin, the mortality rate dropped to 10% and the surviving mice gained weight, as did their normal littermates.

—Dean S. Cunningham, MD, PhD

References

Acetyl-L-Carnitine Improves Andropause Symptoms

New research suggests that the supplement acetyl-L-carnitine relieves the depression, fatigue, and sexual dysfunction that often accompany andropause, or male aging.

Multiple studies have shown that levels of bioavailable carnitine decrease with age in both men and women. Carnitine, and its more bioavailable forms such as acetyl-L-carnitine, are essential cofactors for transporting fatty acids into the mitochondria, the cellular engines that produce energy for the body.

Italian researchers conducted a randomized study to determine whether supplemental acetyl-L-carnitine could improve these symptoms in aging men. Over a six-month period, 120 men aged 60-74 received either 160 mg per day of testosterone undecanoate, 2 grams per day of acetyl-L-carnitine and propionyl-L-carnitine, or placebo. The men treated with testosterone reported significant improvements in erectile capability and sexual desire, and a decrease in fatigue and depression; no improvement was noted in orgasm or general sexual wellbeing. Men who received the carnitine supplements saw significant improvements in erectile capability, sexual desire, orgasm, and general sexual well-being, along with fewer complaints of fatigue and depression.

These impressive findings led the study authors to conclude: "Testosterone and, especially, carnitine proved to be active drugs for the therapy of symptoms associated with male aging."

—Edward R. Rosick, DO, MPH, MS

References
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