

N-Acetylcysteine

N-acetylcysteine (pronounced en-uh-see'-tul-sis-teen) is a powerful immune booster and also helps your liver break down hazardous chemicals. Its acronym is NAC.

ALIAS: NAC is formed through the combination of cysteine (a building block of protein) and a molecule related to acetic acid (found in vinegar). Compounds very similar to NAC are found in garlic, which may explain that food's many health benefits.

HOW IT WORKS: First, NAC is a powerful antioxidant. Second, it is the precursor to glutathione, the most powerful antioxidant made by the body. Third, NAC is a rich source of sulfur, a mineral needed to make some vitamins, hormones, and tissue.

HEALTH BENEFITS: As a dietary supplement, NAC has several important benefits.

- *Flu fighter.* NAC may be the ultimate—and safest—flu and cold fighter available. In a study of seniors during the cold-and-flu season, people supplementing with NAC (600 mg, twice daily) developed relatively few flu symptoms when infected.¹ NAC controlled the respiratory symptoms of the flu and, through its conversion to glutathione, boosted the body's ability to fight infection.

- *Virus suppressor.* In a study of patients with AIDS, Stanford University researchers found that high daily doses of NAC boosted glutathione levels and doubled the rate of survival over two years, compared with people who decided not to take NAC. High glutathione levels were a better predictor of survival than was the numbers of immune cells.²

- *Kidney booster.* People undergoing angioplasty, a heart procedure, have a high risk of developing kidney complications. That's because doctors inject a mildly radioactive dye, which generates free radicals and constricts blood vessels in the kidneys. In the June 29, 2006, *New England Journal of Medicine*, physicians reported that a combination of oral and intravenous NAC significantly reduced the risk of kidney complications after angioplasty.³ Other research also points to NAC's ability to heal kidney damage.

- *Polycystic ovary syndrome.* Women with PCOS suffer from enlarged cystic ovaries, high levels of male hormones, infertility, and prediabetic insulin resistance. A high-protein diet can help manage blood sugar levels, but a recent study found that NAC supplements can improve both hormone levels and glucose tolerance.⁴

- *Obsessive-compulsive behavior.* Two recent reports from Yale University note that NAC supplements can reduce obsessive-compulsive and self-destructive behavior patterns. Doctors found that NAC reduced the desire to compulsively wash hands and to mutilate oneself. Other researchers have found that NAC can reduce cravings for cocaine. NAC seems to help regulate levels of serotonin and dopamine in the brain.^{5,6}

- *Cancer.* NAC has also shown promise as a “chemopreventive,” or cancer-preventing, compound. Most cancers are caused by damage to deoxyribonucleic acid (DNA), which contains the genetic instructions for cell growth. Cancer-causing compounds attach to DNA via chemicals called “adducts.” NAC reduces adduct formation, according to an animal study published in *Cancer Research*.⁷

BACKGROUND CHECK: NAC is used by every hospital to treat acetaminophen (Tylenol) overdose. Large amounts of acetaminophen deplete the liver's glutathione, which is needed to detoxify hazardous chemicals. Without glutathione, the liver itself will quickly break down. NAC quickly restores glutathione levels and normal liver function. In addition, hospitals often use NAC as a mucolytic—that is, to break up mucous in the lungs and to improve breathing.

GLEANINGS: A recent study in laboratory rats and mice suggests that NAC may help reduce belly fat, the type most likely to increase the risk of a heart attack. Combine it with a low-carb, low-calorie diet.

HEADS UP: NAC is extraordinarily safe. Because of its high sulfur content, it does smell like rotten eggs. So just take the capsules without sniffing them.

WHAT SHOULD YOU TAKE: Take 500-600 mg of NAC daily, doubling this dosage during the cold-and-flu season. On the first day of cold or flu symptoms, you can increase the dose up to 4,000 mg daily to reduce symptoms. (After the first day, any cold and flu remedy will be less effective because viral concentrations have increased.) For PCOS, take 600 mg three times daily. For obsessive-compulsive disorder, take 600 mg daily, increasing it to 3,000 mg daily over six weeks. To prevent kidney damage, work with your doctor, but a medical journal article reported that 1,200 mg intravenously, followed by 1,200 mg oral NAC twice daily was helpful.

Written by Jack Challem, 2006

References available upon request.