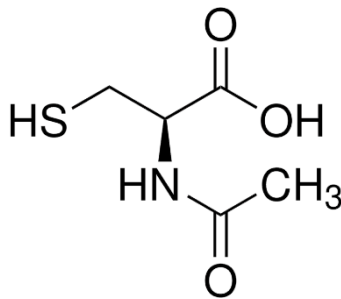


NAC (N-Acetyl-Cysteine) 1,000 mg

TECHNICAL SUMMARY

N-acetyl-cysteine (NAC) is a stable and bioactive form of cysteine, an amino acid that plays a key role in phase II detoxification and homocysteine metabolism.* NAC is efficiently transported into the cell, where it is readily converted to cysteine for glutathione synthesis and regeneration.* Because NAC can penetrate the blood-brain-barrier, it is especially important for maintaining healthy brain and nervous system tissues.* NAC also helps to support respiratory health by promoting normal mucus viscosity.*

Structure formula:



Chemical name: (2R)-2-acetamido-3-sulfanylpropanoic acid

Allergen and Additive Disclosure: Not manufactured with wheat, gluten, soy, milk, egg, fish, shellfish, tree nut or sesame ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

Delivery Form: Tablets

ROLE AS NUTRIENT/FUNCTION

NAC is converted to cysteine and serves as a precursor to glutathione, a major intracellular free radical scavenger.* It promotes production of free radical scavengers, regulates the productions of cytokines involved in immune response to normal biological stress, aids in detoxification, supports respiratory health by breaking down mucus, enhances immune function, and may benefit mental health.*

NATUROKINETICS®

Liberation: NAC tablets are designed to disintegrate in water within 0 to 60 minutes, as per USP testing standards.

Absorption: NAC is well absorbed in the gastrointestinal tract after oral administration. However, its bioavailability is relatively low, estimated to be around 4-10% due to significant first-pass metabolism in the liver. (Figure 1)

Distribution: After absorption, NAC is widely distributed throughout the body, including in the liver, kidney, lungs, and plasma. It crosses cell membranes and the blood-brain barrier, facilitating its action in various tissues.

Metabolism: NAC is rapidly metabolized in the liver. It is deacetylated to cysteine, which is then used to synthesize glutathione.*

NAC is also converted to other metabolites, including inorganic sulfates and taurine.

Supplement Facts

Serving Size 1 Tablet

Amount Per Serving

N-Acetyl-Cysteine (NAC)	1 g (1,000 mg)**
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**Daily Value not established.

Other ingredients: Microcrystalline Cellulose, Hydroxypropyl Cellulose, Stearic Acid (vegetable source), Croscarmellose Sodium, Vegetarian Coating [Hypermellose (cellulose), Stearic Acid (vegetable source), Sunflower Lecithin, Triethyl Citrate, Sunflower Oil] and Silicon Dioxide.

- Supports Glutathione Production*

- Healthy Respiratory Function*

SUGGESTED USAGE: Take 1 tablet 1 to 3 times daily, or as directed by your healthcare practitioner.

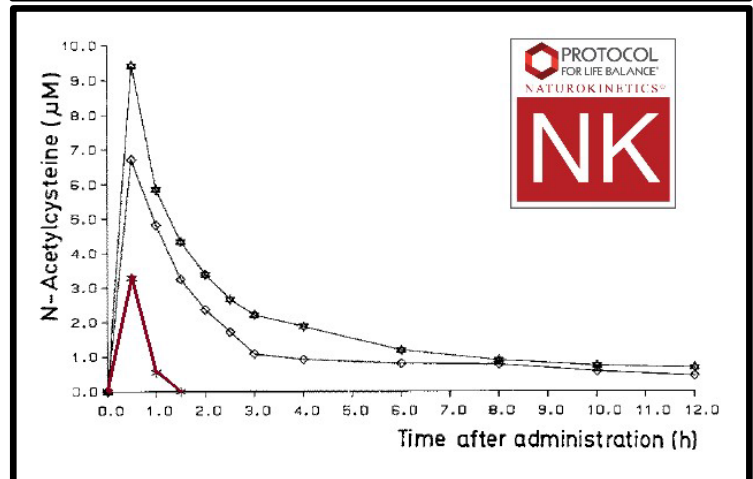


Figure 1. Plasma concentration of reduced NAC (stars), NAC as mixed disulfides (diamonds), total NAC (red) after oral administration of 400 mg NAC.

Elimination: NAC and its metabolites are primarily eliminated via the kidneys. The half-life of NAC is approximately 1.5 to 2 hours when taken orally, and about 5 to 6 hours when administered intravenously.

CLINICAL VALIDATION

NAC supplementation and its free radical scavenging properties have been extensively researched in clinical studies.*

- In the randomized, multicenter, placebo-controlled, double-blind trial involving 262 healthy individuals, NAC was taken at the dosage of 600 mg twice daily for 6 months. Results showed that NAC significantly reduced the frequency, severity, and duration of upper respiratory events.* NAC was well tolerated, improved markers of cell-mediated immunity.*
- In a randomized, placebo-controlled study, with 55 healthy, trained, young adults receiving 1.8 g per day of NAC for 3 days and performing intensity resistance exercises. NAC effectively reduced markers of

oxidative stress, , highlighting NAC's potential in mitigating exercise-induced oxidative stress.*

SAFETY INFORMATION

Tolerability: NAC is generally well-tolerated. Common side effects may include gastrointestinal discomfort such as nausea, vomiting, and diarrhea. Less commonly, it may cause rash, fever, headache, and a sulfur-like odor in the urine due to its sulfur content. These side effects are typically mild and transient.

Contraindications: NAC is contraindicated individuals with a known hypersensitivity to acetylcysteine or any components of the formulation.

INTERACTIONS

Drug Interactions: Co-administration with nitroglycerine may potentiate the hypotensive effects on nitroglycerine and increase the risk of headaches. NAC might reduce the efficacy of carbamazepine due to its effect on hepatic enzymes. Additionally, when used together, activated charcoal can reduce the absorption of NAC, potentially decreasing its effectiveness.

Supplement Interactions: None known.

Interaction with Lab Tests: NAC can produce false-positive results in urine ketone tests due to its sulfur content. It may temporarily affect liver function tests such as ALT (Alanine Aminotransferase) and AST (Aspartate Aminotransferase) levels, which could be misleading in clinical assessments. Furthermore, NAC can interfere with the measurement of prothrombin time (PT) and international normalized ratio (INR), used to assess blood coagulation, potentially complicating the interpretation of these tests.

STORAGE

Store in a cool, dry place.