One of the most underestimated and under-utilized natural food supplements I have recommended to my patients over the past 35 years is an amino acid derivative known as NAC (N-Acetyl-Cysteine). Why underestimated? Well, even naturopaths seldom recommend it and most people who take natural food supplements have never even heard of it. Yet, this supplement could be the difference between life and death.

What is NAC?
NAC is a form of the essential amino acid cysteine, something used by the body to make glutathione (GSH), one of the body’s most important antioxidants. In fact, all the benefits of NAC are due to the fact that it boosts the blood levels of GSH. The major impact of NAC is on the immune system, liver protection, detoxification, and cardiovascular health. We all badly need its anti-inflammatory protection.

How It Works
NAC modulates the expression of genes that affect the inflammatory process. It inhibits the expression of pro-inflammatory cytokines, suppresses NF-kappa B and regulates the gene for COX-2 thereby preventing inflammation and pain. These chemicals are involved in hundreds of inflammatory conditions and diseases. In other words, NAC is anti-inflammatory and can either blunt or reverse chronic inflammatory conditions.

Respiratory Tract Benefits
NAC is mucolytic (dissolves mucous). Just about any lung or bronchial problem can benefit from high NAC supplementation. Whether you have chronic bronchitis, cystic fibrosis, asthma, sinusitis or pneumonia, NAC helps reduce the viscosity of mucous so that the body can more easily cough it up. A number of studies also conclude that NAC prevents influenza, possible through this mucolytic mechanism.

NAC reduces both the frequency and duration of COPD (chronic obstructive pulmonary disease) attacks and may blunt the ravaging clinical course of pulmonary fibrosis, a usually lethal lung disease. In my practice I have had a great deal of success using an NAC nasal spray to treat chronic sinus pain and congestion. Combining the spray with high dose oral NAC and vitamin C is often more effective than prescription antibiotics for chronic or recurrent sinusitis.

Cardiovascular System Benefits
NAC prevents LDL-cholesterol (“bad” cholesterol) from being oxidized and causing inflammatory damage to the blood vessels. NAC lowers the levels of homocysteine, which prevents the buildup of plaque in the arteries. The lower the homocysteine, the less likelihood of arterial blockage.

NAC is also the most effective natural remedy that lowers the blood levels of lipoprotein a (Lp(a)), thought by many scientists to be a more accurate predictor of cardiovascular disease than blood levels of cholesterol. Diet changes and drugs do not lower Lp(a) anywhere as well as NAC. NAC also improves insulin resistance and will improve metabolic syndrome, diabetes and hypoglycemia.
Neurological Benefits
Since GSH has been documented to help numerous neurological conditions such as Parkinson’s Disease, MS, Alzheimer’s, hearing damage, ataxia and ALS, it stands to reason that NAC would be helpful because supplementation of it raises the blood levels of GSH.

Immune System Benefits
Because NAC boosts the body’s levels of GSH, it helps fight most viruses, including the influenza virus and HIV, the AIDS virus. GSH is vital for optimal T and B-lymphocyte function. NAC can block the production of the AIDS virus so is a valuable natural defense against at least this virus if not millions of others.

One would think it might be a good idea to supplement the body with GSH but the major problem here is that GSH is not absorbed intact from the gastrointestinal tract. Oral GSH supplementation is destroyed and inactivated by stomach acid. NAC is not. Supplementation of NAC is therefore more desirable because the body will make much more GSH than if supplementing GSH orally in any form.

Aside from viruses, NAC protects the body from numerous pollutants, drugs, microbes and toxic heavy metals like mercury. NAC is mucolytic which means that it breaks up heavy and sticky mucous that can build up in conditions such as sinusitis, asthma, bronchitis, pneumonia and cystic fibrosis. NAC is therefore indispensable in any condition that involves excessive mucous.

Evidence exists that NAC blocks the progression of most cancers and could be taken with chemotherapy to improve treatment outcomes.

Detoxification Benefits
NAC protects the body from many different toxins because of its content of sulfhydryl groups that can bind and inactivate herbicides, mercury, cadmium, lead, other toxic heavy metals, drugs like acetaminophen, environmental pollutants, microbes like E. Coli, carbon tetrachloride and aflatoxin.

A very common condition that plagues over 50 million people in North America is a condition known as non-alcoholic fatty liver disease (NAFLD). In this condition, the liver stores excessive amounts of fat mostly due to insulin resistance, metabolic syndrome or diabetes. Liver function tests are usually elevated indicating damage to liver cells and the liver appears grossly fatty on an ultrasound.

This condition is benefitted by strict restriction of simple carbohydrates as well as a vigorous exercise program. Studies also show a significant improvement in liver function tests in those suffering from NAFLD with supplementation of NAC. Not only does it protect liver cells but it also helps heal a damaged liver.

Kidney Disease Benefits
Kidney disease is greatly helped by NAC supplementation. Even dialysis patients can be helped by as little as 600 mg NAC daily to reduce inflammation occurring in chronic kidney disease.

Stomach and Other Gut Benefits
The bacteria known as H. Pylori has been acknowledged to be the cause of ulcers, gastritis, reflux disorder discomforts and even different types of gastrointestinal cancer. In fact, it’s the second leading known cause of all cancers. NAC supplementation is capable of inactivating H. Pylori and is something worth adding to anyone resistant to antibiotics H. Pylori infections.

Compulsive Hair Pulling/Psychiatric Illness Improvement
Trichotillomania is a bizarre obsessive-compulsive disorder in which victims pull out their hair for inexplicable reasons causing noticeable hair loss. The usual treatment is anti-depressant drugs or major tranquilizers. Studies indicate that NAC significantly reduces the compulsive hair pulling. Schizophrenia, autism, bipolar illness and other obsessive-compulsive disorders are also improved with NAC.

Athletic Benefits
Due to its antioxidant effects and benefits to the respiratory system, NAC improves athletic performance. Specifically, NAC reduces muscle fatigue and as proven in double blind studies, enhances athletic endurance.

Anti-Aging Benefits
If you can effectively scavenge harmful free radicals it stands to reason that you can prevent premature aging. This phenomenon has indeed been proven in numerous scientific studies.

Drug Addiction Benefits
Studies also indicate that NAC also diminishes the craving for highly addictive drugs like cocaine, nicotine and marijuana. As such it may be a useful adjunct in any drug detoxification program.

Ideal Dosages
There are no accepted ideal dosages for NAC. My advice is to start at 600 mg daily and gradually build up to a maximum of 3000 mg daily. Ideally, take with an equivalent amount of vitamin C for maximum free radical scavenging effects.

Side Effects
Despite over 40 years of clinical use by naturopaths, holistic medical doctors and nutritionists of virtually every stripe, NAC has a well-established safety record even at very high dosages over long periods of time (you can take it virtually without worry for months and probably years).

Some people experience nausea when taking NAC on an empty stomach but the majority does not experience any side effects if they take it with food.

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REFERENCES


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