Amyotrophic Lateral Sclerosis

En Español (Spanish Version)

Proposed Natural Treatments | References

Related Terms
• ALS; Lou Gehrig's Disease

Other Proposed Natural Treatments
• Antioxidants; Branched-Chain Amino Acids (BCCAs); Coenzyme Q₁₀ (CoQ₁₀); Genistein; Guanidine; L-Threonine; Multivitamins; Vitamin B₁₂

Probable Not Effective
• Creatine; Vitamin E

Amyotrophic lateral sclerosis (ALS) is a nerve disorder that causes progressive muscle weakness. It usually begins with weakness in the hands or feet, which then spreads to the rest of the body. Affected muscles become spastic (tight and prone to spasm) and ineffective. As the weakness spreads, speaking, breathing, and swallowing become difficult. Most people die within 3 years of being diagnosed. However, for reasons that are unclear, some individuals (such as the physicist Stephen Hawking) live much longer.

The cause of ALS is unknown, and there is no cure for the disorder. Physical therapy can help the muscles maintain strength and flexibility for a time. Drugs, such as baclofen, may reduce muscle spasms and cramping. Eventually, individuals with ALS must be fed through a tube and sustained on a ventilator.

Proposed Natural Treatments

Vitamin E

Vitamin E is a potent antioxidant, capable of fighting dangerous natural substances known as free radicals. It has been hypothesized that free radicals might play a role in ALS, and that, therefore, antioxidants might slow the progression of the disease.

Based on this theory, a 1-year, double-blind, placebo-controlled trial of 289 people with ALS was conducted in which participants were given the drug riluzole plus either vitamin E (alpha-tocopherol, 500 mg twice daily) or placebo. However, to the disappointment of researchers, use of vitamin E failed to improve survival time or measurably improve movement ability.

By looking closely at the data, the researchers did manage to find one benefit: According to one measurement of disease severity, vitamin E did appear to delay the progression of mild ALS to its more severe form. Unfortunately, this finding is quite likely a statistical fluke. When researchers look at enough measures of a disease, benefit will tend to be seen in one or two simply as the result of chance.

Some vitamin E proponents felt that the dose of vitamin E used in this study might have been too low. Researchers, therefore, conducted another study using ten times the dose, this one lasting 18 months and enrolling 160 people. Once again, vitamin E failed to prove significantly more effective than placebo.

One study supposedly found that vitamin E along with high consumption of polyunsaturated fats reduced the risk...
of developing ALS, but the study was, in fact, too low in quality to provide any meaningful evidence at all.

In a carefully conducted, comprehensive review of studies evaluating the effectiveness of vitamin E and other antioxidant supplements, either alone or in combination, on ALS, researchers concluded that none significantly improved the symptoms or altered the course of ALS.33

**Branched-Chain Amino Acids**

Branched-chain amino acids BCAAs are most well-known as a sports supplement, but have also been tried as a treatment for ALS. The theory behind this treatment is that people with ALS might not metabolize the substance glutamate properly. Glutamate plays a major role in nerve function. Since BCAAs help the body to metabolize glutamate, they could be useful for ALS. However, at best, BCAAs have been found only modestly effective in ALS, and study results have been mixed.1-6

One very small double-blind, placebo-controlled study found that people treated with BCAAs for 1 year maintained muscle strength and the ability to walk longer than those on placebo. However, other studies found no effect,8,9 and one actually found a slight increase in deaths during the study period among those treated with BCAAs compared to placebo.10

**L-Threonine**

L-Threonine, an essential amino acid, has been tried for ALS because, like BCAAs, it affects glutamate metabolism. Open trials and one double-blind study have shown some short-term improvement in symptoms. But, in other research, the results have not been impressive.11-14

**Creatine**

Another sports supplement, creatine, has been tried for ALS based on studies showing that it can improve muscle performance in certain situations. Evidence from animal and open human trials had suggested that creatine improved strength and slowed the progression of the disease, and for these reasons many people with ALS have tried it.15,16,17 However, hopes raised by these findings were dashed in 2003 when the results of a 10-month, double-blind, placebo-controlled trial of 175 people with ALS were announced.27 Use of creatine at a dose of 10 g daily failed to provide any benefit at all in terms of symptoms or disease progression. Creatine also proved ineffective in two other slightly smaller studies.29,32

**Other Natural Treatments**

Other nutrients that have been tried for ALS with some promising results in extremely preliminary research include vitamin B12, CoQ10, genistein, and guanidine.18-22 However, there is no solid evidence as yet that they are effective.

Non-nutrient nutritional supplements have been tried for ALS but have failed to prove effective in studies. These include multivitamins, adenosine monophosphate (AMP), and policosanol.23,24

One very small trial tested a combination pill containing amino acids, antioxidants, and the calcium-channel blocker nimodipine, finding some evidence that it might slow the progression of the disease.25

A systematic review did not support the use of antioxidants as a treatment for ALS.34 Ten randomized trials involving 1,015 people with ALS compared a range of antioxidants (eg, vitamin E, N-acetyl cysteine, methionine, selenium, CoQ10) with placebo. Those in the antioxidant groups did not experience an improvement in their 12-month survival rate. The authors commented, though, that the overall quality of these studies was poor.

A small pilot study hinted that a special variety of magnetic therapy, called repetitive transcranial magnetic stimulation (rTMS), may be beneficial in the treatment of ALS, at least temporarily.31
References


19. Trieu VN, Uckun FM. Genistein is neuroprotective in murine models of familial amyotrophic lateral sclerosis.


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