

# SAMe, Ademetionine

## Description

Ademetionine, also known as SAMe, is a specific form of the amino acid **methionine** known as S-adenosyl-methionine. The body manufactures it, and it is found in most tissues of the body. Ademetionine is essential for the formation of **glutathione**, a water-soluble peptide that helps the body fight free radicals. SAMe also helps the liver to process fats (protecting against a fatty liver) and is believed to play a role in protecting the body from **heart disease**. SAMe is a methyl donor, which means that it provides other molecules with methyl groups that are critical to their metabolism. In general, ademetionine raises the level of functioning of other **amino acids** in the body. Severe deficiencies of SAMe can cause problems with other important body functions, such as secretion of important hormones like **melatonin**, which plays a key role in regulating sleep and circadian rhythms.

## General use

The synthetic formula of ademetionine has been hailed as an anti-aging formula because it is such a powerful antioxidant. **Antioxidants** are substances that counteract the damaging effects of free radicals in human tissue. Ademetionine has been widely popularized recently, but it is not a recent discovery. In fact it was discovered in Italy in 1952, and has been widely researched over the past few decades. In the 1970s, Italian researchers investigating its properties as a treatment for **schizophrenia** discovered that it also had definite antidepressant properties. Ademetionine became a useful treatment only during the 1990s, however, when scientists found a way to stabilize it for research purposes. After that technological development, ademetionine could be sold as a medical supplement.

Ademetionine has been used successfully to treat **depression**, arthritis, schizophrenia, liver disease, **peripheral neuropathy**, and other illnesses. Many people who have these illnesses, particularly schizophrenia, peripheral neuropathy, and myelopathy, may have low blood levels of **folic acid, vitamin B<sub>12</sub>**, and certain amino acids, particularly SAMe and those with which it interacts.

## Pain relief

The effectiveness of ademetionine has been studied in clinical trials with human subjects. One six-week study compared SAMe to transcutaneous electrical nerve stimulation (TENS), which is a popular form of **pain** relief in Europe. SAMe proved to be a more effective treatment.

## Liver function

SAMe has been found to restore normal liver function in patients suffering from a variety of liver disease, both alcohol induced and other. It has also been found to reverse liver damage resulting from the ingestion of various drugs and chemical agents (paracetamol and others).

## **Depression**

Several clinical trials found that ademetionine has a rapid effect on depression. Within double blind trials, ademetionine was found to have a markedly greater effect than placebos, with only mild side effects. Although the substance seems to work surprisingly well on most forms of depression, a study done at Northwick Park Hospital in Harrow, England, suggests that it is more effective for endogenous depression (depression that does not have an obvious external cause) than for neurotic depression (depression that has an identifiable cause).

These findings may be related to the fact that patients suffering from endogenous forms of depression are often found to have low levels of this amino acid. This is a particularly exciting discovery, because endogenous depression is the most difficult form to treat. Ademetionine was found to be particularly helpful to post-menopausal women suffering from depression. Some practitioners are suggesting the use of ademetionine in conjunction with other antidepressants to shorten the period between the beginning of antidepressant treatment and the patient's sense of improvement. Since ademetionine generally has fewer side effects than many antidepressants, it may be preferable to use it alone.

## **Peripheral neuropathy**

Ademetionine has been used successfully to treat cases of peripheral neuropathy that had not previously responded to treatment with vitamin B<sub>12</sub> (cyanocobalamin). This is an important discovery, because peripheral neuropathy is difficult to treat.

## **Migraine**

Ademetionine has been found to be a useful painkiller. Over the long term, it may work less rapidly than some other analgesics, but it does not have the high incidence of gastrointestinal disturbance that results from taking ibuprofen, for example. Ademetionine may be the answer for patients who also suffer from GI tract diseases and cannot safely take other analgesics.

## **Fibromyalgia**

**Fibromyalgia** is characterized by persistent muscle pain and aching that has no apparent cause. One Scandinavian study noted that patients with fibromyalgia who took SAME showed some improvement.

## **Osteoarthritis**

Studies have shown that **osteoarthritis** patients not only experienced less pain while taking ademetionine, but that the depression that often accompanies the disease was less evident. Ademetionine is also less toxic than the allopathic drugs used to treat such diseases.

## **Alzheimer's and Parkinson's diseases**

Ademetionine has been shown to treat nerve damage and depression sometimes as effectively as standard pharmaceutical drugs without serious side effects. Some believe that SAME may increase the effectiveness of levodopa, which is the drug most often prescribed for **Parkinson's disease**.

## Preparations

Ademetionine is available in preparations for oral, intravenous, and intramuscular administration. Treatment with ademetionine should always be monitored by a qualified practitioner.

For liver function: 200 mg of ademetionine can be taken twice daily, gradually raising the dosage to 400 mg three times daily. Patients with peripheral neuropathy have been given dosages as high as 1600 mg daily.

For depression the following program may be effective: 200 mg taken twice daily for the first two days. For the third to the ninth day, dosage may be increased to 400 mg twice daily, and for days ten to nineteen, 400 mg should be taken three times daily. After the twentieth day, the dosage should be stabilized at 400 mg four times daily. Some practitioners recommend doses as high as 1600 mg daily.

Migraine and fibromyalgia sufferers can take 200 mg of ademetionine twice daily, increasing to 600 mg doses. Osteoarthritis patients may be advised to take as much as 1200 mg daily for effective treatment.

## Precautions

Patients with serious diseases such as those mentioned above should seek the help of a qualified practitioner. It is significant, however, that no patient has ever dropped out of studies related to ademetionine testing due to side effects, even though it has been administered in high doses and in all forms, i.e., orally, intravenously, and intramuscularly. In addition, antidepressants, particularly the tricyclics, may cause accidental or intentional overdoses. SAME is also free of the hazard of potential addiction.

One possible drawback to ademetionine treatment is its cost. A month's supply may cost between \$60 and \$100. This is about the same as the cost of many antidepressants, but ademetionine is less likely to be covered by medical insurance.

## Side effects

SAME is not suitable for patients with **bipolar disorder**, as it may amplify the manic phase of the condition.

The only side effects observed with SAME in clinical trials were mild gastrointestinal distress.

In patients who are deficient in the B vitamins, notably B<sub>6</sub> and B<sub>12</sub>, there is a danger that SAME may break down to form homocysteine, an amino acid that has been linked to heart disease and **stroke**. If the patient's levels of B vitamins are maintained, however, the body will be able to convert the homocysteine back into methionine and glutathione, and the use of SAME will not increase the risk of heart disease.

## Interactions

Ademetionine should not be used in conjunction with prescription medications for depression, as it increases their effects. It should also not be taken with MAO inhibitors,

as it may produce a toxic reaction. Lastly, it should not be given to pregnant or lactating women.

## Resources

**BOOKS :** Brown, Richard, Carol Colman, and Teodoro Bottiglieri. *Stop Depression Now*. New York: Putnam Publishing Group, 1999.

**PERIODICALS:** Fournier, Isabelle, et al. "Folate Deficiency Alters Melatonin Secretion in Rats." *The Journal of Nutrition* (September 2002): 2781.

## ORGANIZATIONS

American Holistic Medicine Association. <http://www.holisticmedicine.org/index.html>.

The Linus Pauling Institute. <http://osu.orst.edu/dept/lpi/resagenda/timeline.html>.

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