

Our organism needs vitamins, minerals and antioxidants (also known as micronutrients) in very small quantities for the cells to be able to perform the chemical reactions necessary to live.

A balanced diet provides the required quantity of micronutrients. Many people with HIV, however, either because of the infection itself or because of the side effects of antiretroviral treatment, may require greater amounts of micronutrients in order to repair and heal their cells. A deficiency of micronutrients has in fact been observed in many people with HIV and weakened immune systems.

Supplements of vitamins, minerals and antioxidants are not a substitute for antiretroviral medication. There is some evidence that taking them while you feel well may help to strengthen your immune system. Some studies have shown that taking a multivitamin or micronutrient complex on a daily basis may postpone the appearance of AIDS and/or reduce the risk of death in people with very advanced HIV infection.

Choosing nutrients

Not much research has been done on the efficacy and safety of micronutrient supplements in people with HIV. Data available shows that taking daily vitamin and mineral supplements could be a significant part of a nutritional health plan for many people with HIV. Taking antioxidants may also help to neutralise the action of free radicals that form either naturally in the organism or because of HIV and cause damage to cells.

Some of the main micronutrients studied in people with HIV are:

- **Vitamins:** In the vitamin B group, vitamin B1 (thiamine), vitamin B2 (riboflavin), vitamin B6 (pyridoxine), vitamin B12 (cobalamin) and folate (folic acid). Vitamin D.
- **Antioxidants:** Beta-Carotene (the body processes it and transforms it into vitamin A), selenium, vitamin E (tocopherol) and vitamin C.
- **Minerals:** Magnesium, zinc and calcium.

How much to take

Some researchers and doctors consider that micronutrients have a therapeutic benefit in people with HIV when administered in higher doses than those recommended for healthy people. Other health professionals prefer to be more careful

and advise normal doses in order to prevent the side effects associated with taking high quantities of some of these micronutrients.

- **Vitamin A:** Doses of over 9,000 micrograms in men and 7,500 micrograms in women can be harmful. A high quantity may cause damage to the liver and bones, vomiting and headache. Women who are either pregnant or intending to become so are highly advised to consult their doctor prior to taking vitamin A as high doses may cause damage to the foetus.
- **Vitamin C:** Doses of over 1,000 milligrams a day may cause kidney stones. People who take the protease inhibitor indinavir (Crixivan®), which may also cause this side effect, should take special care. It has also been shown that large doses of vitamin C can reduce indinavir levels in the blood.
- **Vitamin E:** Doses of over 800 milligrams a day may interfere with normal immune system function. People who take anticoagulants or haemophiliacs require special attention.
- **Zinc:** Doses of over 75 milligrams a day have been associated with copper deficiency, low neutrophil counts (specific immune system cells; see [InfoVIHTal #2 Immune system cells](#)) and anaemia.
- **Selenium:** Doses of over 750 micrograms a day have been associated with poor immune system function.
- **Vitamin B6:** Doses of over 2 grams a day may cause nerve damage (neuropathy).

Herbal supplements

Many people with HIV make extensive use of herbal supplements. Some of these remedies may, however, interact with antiretroviral medication, prompting a decrease in its concentration in the blood and making it not effective enough to control HIV infection.

No exhaustive studies have been done to evaluate the joint use of antiretroviral drugs and herbal supplements, which means that not all the possible interactions that may occur are known. Some that are currently known and are cause for concern are:

- **African potato (*Hypoxis rooperi*):** Laboratory studies have shown that the body processes this plant, which is used widely in Africa by people with HIV, along the same pathway it uses to process antiretroviral drugs. This interaction may prompt a reduction in antiretroviral medication levels in the blood.
- **Garlic:** Some studies have shown that garlic supplements may interact with protease inhibitor (PI) and non-nucleoside reverse transcriptase inhibitor (NNRTI) drugs. There is, however, no evidence that garlic used for cooking may have this effect.
- **St. John's Wort:** Use of this popular antidepressant herb diminishes blood indinavir levels and may also affect levels in the blood of all protease inhibitors, of non-nucleoside reverse transcriptase inhibitors and of the entry inhibitor maraviroc (Celsentri®).
- **Ginkgo biloba:** A recent study has shown interaction between supplements of Ginkgo biloba, a herbal remedy used to treat problems of concentration, memory, dementia and depression, and efavirenz (Sustiva®; also in Atripla®). This interaction may prompt a reduction of efavirenz levels in the blood.

Help and recommendations

Before taking any micronutrient or herbal supplement you are advised to consult your HIV doctor or chemist. They will be able to inform you whether there is any risk of interaction with your antiretroviral medication.

You may also consult a dietician for an assessment of your diet, advice on how to optimise your nutritional intake and information on the supplements and foods that provide the vitamins and minerals your organism requires.

Supplements of vitamins, minerals, antioxidants and herbs may also have side effects and should therefore not be taken in doses higher than those recommended.