

**EDITORIAL**

**THE FACTS ABOUT NUTRITION AND HIV/AIDS**

*The Effect of HIV/AIDS on Nutrition* HIV/AIDS affects nutrition in these ways :

*Reductions in food intake* - Reductions in food intake may be due to painful sores in the mouth, pharynx, and/or esophagus. Fatigue, depression, changes in mental state (sometimes due to specific nutrient deficiencies), and other psychosocial factors may also play a role by affecting a person's appetite and interest in food. Economic factors affect food availability and the nutritional quality of the diet. Side effects from medications - including nausea, vomiting, metallic taste, diarrhea, abdominal cramps and anorexia - also result in lower dietary intakes.

*Nutrient malabsorption* - Nutrient malabsorption accompanies frequent bouts of diarrhea commonly experienced by people with HIV/AIDS. In addition, some HIV - infected people have increased intestinal permeability and other gut defects, even when asymptomatic, that contribute to nutrient malabsorption<sup>1</sup>. It is believed that HIV infection of the intestinal cells may also cause epithelial damage and nutrient malabsorption. Malabsorption of fats and carbohydrates is common at all stages of HIV infection in adults and children. Fat malabsorption, in turn affects the absorption and utilization of fat-soluble vitamins further compromising both nutrition and immune status.

*Metabolic alterations* - Changes in metabolism may occur as a result of severely reduced food intake as well as from the immune system's response to HIV infection. Anorexia, fever, and the break down of muscle frequently accompany this response. When the body responds to invading pathogens, it releases pro-

oxidant cytokines and other reactive oxygen species. This leads to the increased utilization of "anti-oxidant vitamins (vitamins A, E, C and beta-carotene) as well as utilization of several minerals that form anti-oxidant enzymes (such as zinc and selenium). Oxidative stress occurs when there is an imbalance between the pro-oxidants and anti-oxidants, causing further damage to cells, proteins, and enzymes. Oxidative stress is believed to increase HIV replication and transcription, leading to higher viral loads and disease progression.

*Increased energy and protein requirements* - The body's cytokine-mediated reactions to infection adversely affect metabolism. The result is an increase in energy and protein requirements of people living with HIV and AIDS. This increase ranges from about 10-15% for energy requirements among asymptomatic HIV-infected persons, to up to 50% for protein requirements<sup>2</sup>. This translates roughly into an additional 300 kcals and 25 g of protein per day, which could be met through snacks or an extra serving of the family meal.

In summary, the impact of HIV/AIDS on nutrition results in weight loss and the wasting that is common in people living with AIDS. During the early stages of HIV infection, weight loss is mainly associated with reduced dietary intake and secondary infections, particularly diarrhoea<sup>3</sup>. This weight loss may be addressed, and even reversed, by nutritional or dietary management. However, once the metabolic abnormalities begin to play a leading role, it becomes very difficult, perhaps impossible, to reverse the nutritional consequences of the disease.

**The effect of nutritional status on HIV disease progression**

Studies from both industrialized and developing countries have shown that HIV - infected individuals have decreased absorption, excessive urinary losses and low blood concentrations of vitamins A, B1, B2, B6, B12, C, E as well as folate, betacarotene, selenium, zinc and magnesium<sup>4,5</sup>. It is *not known* whether these deficiencies are independent markers of disease progression resulting from a compromised immune system, or whether they are causally related to HIV disease progression and mortality. This distinction is important in order to determine whether the nutritional deficiencies can be reversed, and whether nutritional therapy and management can slow or alter the course of disease. Randomized, controlled trials are required in order to assess a causal relationship between these nutritional observations and HIV outcomes. Relatively few such trials have been carried out.

The body of literature reporting on trials in Africa (mostly of vitamin A) and in industrialized countries (on vitamin B12, E, selenium and zinc) suggests that nutritional status affects HIV-related disease progression and mortality, and that improving nutrition status may improve some HIV-related outcomes. Current understanding of the potential impact of nutritional interventions is incomplete and there are issues to consider when extrapolating findings from research undertaken in North America and Europe to

populations where malnutrition is widespread.

**References :**

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