

Nutritional Issues and Positive Living in Human Immunodeficiency Virus/AIDS



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KEYWORDS

- Food safety • Hyperlipidemia • Oxidative stress • Diabetes • Antioxidant
- Malabsorption • Nutrition counseling

KEY POINTS

- Nutrition management for individuals infected with HIV can be helpful in maintaining lean body weight, combating oxidative stress, reducing complications from hyperglycemia and hyperlipidemia, and managing gastrointestinal function.
- Patients may need to be individualized to meet each individual's unique requirements.
- Consideration should be given to including the expertise of a registered dietitian/nutritionist as part of the health care team to promote wellness in the individuals infected with HIV.

INTRODUCTION

With the advent of pharmacologic protease inhibitors (PIs) and highly active antiretroviral therapy (HAART), treatment of human immunodeficiency virus (HIV)/AIDS has made significant advances with resultant increases in life expectancy¹ and well-being.² The disease state itself (viral load), decreases in CD4 (white blood cell, T-cells) counts, and pharmacologic treatment protocols have created several physiologic issues that can be detrimental to the patients' health in many cases; however, these conditions can be counteracted by dietary intervention. Many persons with an HIV infection and undergoing treatment with HAART still experience weight loss, hyperglycemia, oxidative stress, hyperlipidemia, gastrointestinal issues (diarrhea and malabsorption), and fat redistribution in the body. This article provides nutrition advice for individuals infected with HIV/AIDS who are receiving PI or HAART treatment, have CD4 counts more than 200 cells/ μ L and are in stable condition.

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Energy Expenditure

“A sick person’s nutrition is further aggravated by diarrhea, malabsorption, loss of appetite, diversion of nutrients for the immune response, and urinary nitrogen loss, all of which lead to nutrient losses and further damage to defense mechanisms. These, in turn, caused reduced dietary intake. In addition, fever increases both energy and micronutrient requirements.”³ Energy requirements are higher in asymptomatic individuals infected with HIV, with most estimates indicating a resting metabolic rate about 10% higher than that of individuals not infected, and nutrient requirements increase with the severity of the disease.^{4–7} A World Health Organization report⁸ suggests an increased energy requirement between 20% and 30% during periods of symptomatic disease or opportunistic infection. Weight maintenance is a primary goal for patients with HIV/AIDS. Contributing factors to weight loss include increased energy and protein needs during periods of infection; anorexia; and common side effects of malabsorption, nausea, vomiting, or diarrhea. Fat malabsorption and steroid-induced diabetes may also occur.

Powanda and Beise⁹ reported that the catabolic nature of infections can be seen with weight loss and a correlating negative nitrogen balance. They reported that, “the translocation of amino acids from muscle to liver not only leads to increased amino acid degradation and increased urinary nitrogen excretion, but also permits an increased synthesis of plasma protein, that of the acute-phase proteins,”⁹ which may assist in combating the infection. Diets that meet increased nutrient requirements for both energy and protein during periods of infection seem to be able to protect against a negative nitrogen balance.^{10,11} In their report on energy expenditure and wasting in individuals infected with HIV, Macallan and colleagues¹² reported that reduced energy intake and not increased energy expenditure was primarily responsible for the resulting weight loss.

Fig. 1 shows the cycle between malnutrition and infection and the resulting physiologic consequences that result from undernutrition. Even after establishment of effective HAART treatments, Mangili and associates¹³ reported that “HIV-associated weight loss is common in persons with HIV infection, regardless of whether HAART is used, and that appears to have a multifactorial etiology.”¹³ Wilson and colleagues¹⁴ established a linear relationship between lean body mass and health-related quality-of-life issues in men infected with HIV. Maintenance of body weight is critical to the health of patients infected with HIV but is challenged by appetite loss (infection and pharmaceutical related), nutrient malabsorption, and inadequate dietary intake. Appetite stimulants, megestrol acetate, and oxandrolone have been used successfully to increase weight gains¹⁵ in individuals infected with HIV receiving HAART and who have weight loss greater than 5 kg. Although maintaining weight during periods when the patient is symptomatic is difficult, recovery of weight during asymptomatic periods is critical for maintaining lean body mass in individuals infected with HIV. This period of make-up weight gain after symptomatic periods is critical in maintaining the best quality of life for individuals with an HIV infection.

Increased energy and protein needs present during periods of infection, complicated by anorexia and general fatigue, and inhibit the ability to maintain weight. Addition of nutrient-dense items to foods consumed can help meet these increased needs. Protein can be enhanced by adding powdered milk, protein powders, instant breakfast, cheese, cottage cheese, puddings, Greek yogurt, peanut butter and other nuts and butters, and well-cooked eggs to foods. Calories can be enhanced through the addition of foods such as vegetable oil, sour cream, mayonnaise, whole milk (versus skim milk), nut butters, and ice cream. Nutritional

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