

# Body weight gain in HIV-positive people treated with antiretroviral therapy in Brazil

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Weight gain, body fat percentage increase, and obesity are nutritional problems of individuals with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) using antiretroviral therapy. HIV damages the immunological system of people affected, infecting important cells in the organism that cause severe suppression of defense cells [1]. HIV infection is an important public health issue, despite progress in prevention and treatment. The virus is transmitted through unprotected sex (i.e., condomless sex), vertical transmission, breastfeeding, needles, and other sharp objects [2].

HIV is a virus that destroys CD4+ T lymphocytes and progresses due to disturbance, causing opportunistic infections, nutritional changes, and even death [1]. Currently, sexually transmitted diseases still affect thousands of people in Brazil and worldwide, regardless of sex, race, and social condition. Antiretroviral therapy extends lives of people living with HIV/AIDS and decrease risk of transmission [3]. Nutritional attention to this group is essential, because physiological changes interfere from chewing to absorption as well as drug interactions [4]. According to Costa *et al.* [5], AIDS has a feature that change nutritional status of individuals, often causing nutrient deficiencies, leading to a longer recovery of hospitalized patients. Factors, such as opportunistic infections and drug therapy itself can cause nutritional and body changes, contributing to changes ranging from weight loss and body mass depletion to emergence of overweight or elevation of serum lipid levels [3]. Currently, body weight gain that often leads to obesity and body fat re-distribution, is a new nutritional dilemma of individuals with HIV/AIDS

using antiretroviral therapy [5]. Even though weight gain is beneficial to the immune system, it is linked to weight increase, and a growth in the appearance of non-communicable diseases associated with the use of antiretroviral therapy. Excess body fat in people living with HIV/AIDS is an additional factor for insulin resistance and development of diabetes mellitus [1, 3]. Improvement in clinical picture, reduction of complications, and aggravation, including mortality rates are associated with pharmacological therapy. Antiretroviral therapy has been introduced and provided in Brazil in mid-1996 free of charge and sustainably, through the Law No. 9, 313/1996 [6]. According to Pereira Da Silva *et al.* [2], the introduction of antiretrovirals from the 1990s onwards, exponentially increased the survival of HIV-positive individuals in Brazil and worldwide. In contrast to the decrease in mortality, there was also an increase in comorbidities associated with HIV infection and use of antiretroviral drugs [7]. Among these comorbidities, non-communicable diseases are half of the change that antiretrovirals induce in people living with HIV/AIDS. These factors associated with weakened nutritional status increase the risk of developing chronic diseases [8].

At the beginning of the epidemic, it was common for AIDS patients to have a history of involuntary weight loss, and about 40-90% of them were malnourished, a condition related to increased mortality. The nutritional status of these patients changed with the introduction of antiretroviral therapy in the 1990s, and currently, there is a high prevalence of overweight and obesity [7]. Although body weight gain benefits the immune system and attenuates

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the impact of opportunistic diseases in HIV-positive individuals, increased body fat, especially abdominal fat, might be a chronic source of pro-inflammatory proteins that influence the course of the disease and premature aging [1]. As HIV's inflammatory activity is independent of other factors, excess body fat in people living with HIV is an additional risk factor for insulin resistance, diabetes mellitus, and metabolic syndrome [2]. Moreover, HIV infection may have effects on physical appearance, which directly affect individuals' self-esteem and therapeutic adherence [4]. Throughout the history of the epidemic, these individuals have experienced drastic body changes, evolving from severe malnutrition to lipodystrophy-related body changes, and finally, there is a significant increase in the prevalence of overweight individuals [8].

The introduction of antiretroviral drugs in HIV treatment has brought great improvement in health conditions of affected people; nonetheless, the increased prevalence of overweight and obesity among HIV/ AIDS patients is another characteristic related to medications [3]. Although there is a change in the body pattern of this population, with the increase of overweight or obese individuals, attention from public health policies is needed. Both high weight and low weight are harmful, especially in this population; however, the excess of body weight allows the emergence of other pathologies [5]. Therefore, monitoring nutritional status is indispensable in this group of patients, so nutritional disorders may be detected early in order to enable an appropriate intervention.

## Conflict of interest

The authors declare no conflict of interest.

## References

- Schuelter-Trevisol F, Caetano Gonçalves e Silva H, Almeida da Silva M, Esmeraldino Mendes Marcon C, Ferreira Sene R, Trevisol DJ. Lipohypertrophy and nutritional profile among people living with HIV in Southern Brazil. *Jornal Brasileiro de Doenças Sexualmente Transmissíveis* 2022. DOI: 10.5327/DST-2177-8264-2022341195.
- Pereira da Silva O, Vieira do Nascimento E, Campos JRE, et al. Prevalência de sobrepeso e obesidade em indivíduos com HIV/AIDS: uma revisão integrativa. *Rev Nursing* 2021; 24: 5148-5161.
- Oliveira Aires I, do Socorro Caldas Carvalho de Almeida Teixeira N, Fonseca Oliveira IK, et al. Aspectos clínicos e nutricionais em pessoas vivendo com HIV/AIDS: uma série de casos. *Revista Eletrônica Acervo Saúde* 2019; 28: e1077-e1077. DOI: <https://doi.org/10.25248/reas.e1077.2019>.
- Pereira MD, do Socorro Caldas Carvalho de Alme Teixeira N, Fonseca Oliveira IK, Ribeiro Lima CH, de Azevedo Paiva A. Esquema terapêutico e consumo alimentar em pessoas vivendo com HIV/ Aids. *Arch Health Invest* 2019; 8. DOI: <https://doi.org/10.21270/archi.v8i7.4625>.
- Silva da Costa C, de Arruda Neto CL, Câmpelo WF, de Rezende Ferreira Mendes AL. Associação entre diferentes métodos de avaliação nutricional em pacientes com HIV/AIDS em um hospital público. *Revista Brasileira em Promoção da Saúde* 2017; 30. DOI: <https://doi.org/10.5020/18061230.2017.6136>
- Garrido de Barros S, Vieira-da-Silva LM. A terapia antirretroviral combinada, a política de controle da Aids e as transformações do Espaço Aids no Brasil dos anos 1990. *Saúde em Debate* 2017; 41: 114-128.
- de Senna AFK, de Oliveira SA, Velarde LGC, Setúbal S. Nutritional Status of HIV-positive Patients in Niterói, Rio de Janeiro, Brazil. *J Health Popul Nutr* 2014; 32: 595-599.
- Helena L, Leite M, Papa A, Castanheiras R. Insatisfação com imagem corporal e adesão à terapia antirretroviral entre indivíduos com HIV/AIDS. *Revista de Nutrição* 2011; 24: 873-881.