

Immune Stability and Metabolic Improvements During One-Meal-a-Day Time-Restricted Eating in a Patient with Long-Standing Human Immunodeficiency Virus Infection: A Case Report

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Abstract

Time-restricted eating (TRE) has gained increasing attention for its potential metabolic benefits. Evidence describing TRE in individuals living with Human Immunodeficiency Virus Infection (HIV) remains limited.

We report the case of a 51-year-old female with long-standing HIV infection who adopted a one-meal-per-day time-restricted eating regimen beginning in June 2025. Clinical records from 2011 through February 2026 were reviewed.

Following the fasting intervention, the patient experienced:

- 10 kg weight reduction
- improvements in lipid profile and glycemic markers
- resolution of gastrointestinal symptoms including bloating, acidity, nausea, and burping
- improvement in cervical discomfort and headaches

Immune parameters remained strong with CD4 counts near 1000 cells/ μ L and sustained viral suppression (<40 copies/mL).

Introduction

Antiretroviral therapy has significantly improved the prognosis of individuals living with HIV. However, metabolic disturbances including dyslipidemia, insulin resistance, and weight changes remain common.

Time-restricted eating is a dietary pattern in which caloric intake occurs within a limited daily window, resulting in prolonged fasting intervals. Research suggests that TRE may influence metabolic regulation, insulin sensitivity, and circadian physiology.

Despite increasing interest in fasting-based dietary strategies, clinical observations describing TRE among individuals living with HIV remain limited. This report describes metabolic and clinical changes observed in a patient who adopted one-meal-per-day time-restricted eating while continuing antiretroviral therapy.

Case Presentation

Patient Characteristics

Sex: Female

Age: 51 years

HIV diagnosis: Prior to 2011

Treatment: Continuous antiretroviral therapy

Weight before fasting: 76 kg

Weight after fasting: 66 kg

Pre-Intervention Clinical History

Before adopting the fasting regimen the patient experienced chronic constipation, abdominal bloating, gastric acidity, nausea, frequent burping, and recurrent headaches.

Imaging studies had identified gallbladder stones and fatty liver changes.

The patient had cervical spondylosis involving C4–C6 and required use of a neck support band in 2021 during a period of increased body weight.

Fasting Intervention

Beginning in June 2025, the patient adopted a one-meal-per-day time-restricted eating regimen resulting in prolonged daily fasting periods.

Antiretroviral therapy was continued throughout the observation period.

Clinical Timeline

2011 – Detectable viral load; CD4 \approx 326 cells/ μ L

2019–2022 – Imaging showed fatty liver and gallstones

2021 – Cervical spondylosis symptoms requiring neck support

2023 – Viral load undetectable; CD4 \approx 961 cells/ μ L

June 2025 – Initiation of one-meal-per-day fasting

Feb 2026 – CD4 \approx 988 cells/ μ L; viral load <40 copies/mL

Laboratory Findings – Immune Markers

2011 – CD4 326 cells/ μ L, CD4% 20, Viral load 1085 copies/mL

2023 – CD4 961 cells/ μ L, CD4% \sim 40, Viral load undetectable

2026 – CD4 988–989 cells/ μ L, CD4% 44, Viral load <40 copies/mL

These findings demonstrate long-term immune recovery and sustained viral suppression.

Laboratory Findings – Glycemic Markers

HbA1c: 5.3% \rightarrow 5.0%

Random glucose: \sim 94 mg/dL \rightarrow 93 mg/dL

Insulin: 3.5 μ IU/mL

Laboratory Findings – Lipid Profile

Total cholesterol: 194 mg/dL \rightarrow 159 mg/dL

LDL cholesterol: 109 mg/dL \rightarrow 86 mg/dL

HDL cholesterol: 50 mg/dL \rightarrow 63 mg/dL

Triglycerides: 173 mg/dL \rightarrow 51 mg/dL

Clinical Improvements Observed During the Fasting Period

Weight Reduction

Body weight decreased from 76 kg to 66 kg (10 kg reduction).

Gastrointestinal Improvements

The patient reported resolution of nausea, abdominal bloating, gastric acidity, and frequent burping.

Musculoskeletal Changes

Improvement in cervical discomfort associated with cervical spondylosis was reported following weight reduction and fasting.

Neurological Symptoms

Recurrent headaches previously experienced by the patient resolved during the fasting period.

Discussion

This case describes a patient with long-standing HIV infection who adopted a one-meal-per-day time-restricted eating regimen while continuing antiretroviral therapy.

During the fasting period improvements were observed in body weight, lipid profile, glycemic markers, gastrointestinal symptoms, cervical discomfort, and headaches.

Importantly immune markers remained strong with CD4 counts approaching 1000 cells/ μ L and sustained viral suppression.

Limitations

This report describes a single patient observation and cannot establish causal relationships.

Conclusion

One-meal-per-day time-restricted eating was associated with improved metabolic markers, weight reduction, and symptom improvement while immune stability and viral suppression were maintained.

Further research is required to evaluate fasting-based dietary strategies in individuals living with HIV.

References

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