Title: Therapeutic Fasting as a Feasible Intervention for Long Covid Syndrome: Results from the FASTCOV-P Pilot Study

First author (1), Charlotte Leonie Gebhard a. (2), Raquel Gómez Bravo (3), Marta Sanchez (4), Gilbert Massar (5), Maria Angeliki PAVLOU (6) Charles Benoy (7), Jochen Schneider
1)Rehaklinik, Centre Hospitalier Neuro-Psyquiatrique, Ettelbruck, Luxembourg
2)Department of Life Sciences and Medicine, University of Luxembourg, Belvaux, Luxembourg

Background:

Long Covid Syndrome (LCS) is marked by persistent fatigue, psychological symptoms, and immune-metabolic changes. Dysregulation of the complement system, inflammatory mediators, and serotonin pathways may contribute to symptom persistence. Therapeutic fasting has been proposed as a strategy to influence inflammation, metabolism, and neurotransmission. The FASTCOV-P pilot study was developed to test the feasibility and preliminary effects of a caloric restriction (CR) intervention in LCS.

Materials and Methods:

Twenty participants with LCS underwent a 7-day ambulatory CR program following the Buchinger-Wilhelmi method, with subsequent gradual dietary reintroduction. Nineteen completed the study; one discontinued during CR, and two stopped on day six but were included in analyses. Blood and urine samples were collected at baseline (V2), post-CR (V3), and three weeks later (V4). Biomarkers assessed included complement proteins (C3, C4), CRP, glucose, total cholesterol, triglycerides, renal indices, and urinary serotonin. Validated questionnaires (FAS, GAD-7, PHQ-9, WHODAS, WHOQOL-BREF) were administered at each timepoint, and biochemical–clinical associations were explored.

Results:

The intervention proved feasible and well tolerated, with no serious adverse events. CR was associated with reductions in C3, C4, and CRP, which correlated with improved fatigue, anxiety, and depression scores. WHODAS results showed functional gains, while WHOQOL-BREF indicated enhanced quality of life. Metabolic improvements included lower glucose, cholesterol, triglycerides, and better renal markers. Increased urinary serotonin was linked to greater improvements in psychological and quality-of-life measures.

Conclusions:

Therapeutic fasting may beneficially modulate immune, metabolic, and neurotransmitter pathways in LCS. Larger controlled trials are warranted.

BIOSKETCH

NAME, SURNAME: Gebhardt, Charlotte Leonie

TITLE: B.Sc. Psychology

ORCID ID: 0009-0004-6663-699X

CURRENT AND PAST POSITIONS:

- 04/2023 – 06/2023: Research Assistant, University of Luxembourg (LUCET)
- 11/2023 – 07/2024: Research Assistant, University of Luxembourg (DSOC)
- 06/2025 – Present: Research Assistant, University of Luxembourg (DLSM)

EDUCATION:

- M.Sc. in Psychology – Psychological Intervention, University of Luxembourg — expected February 2026

- B.Sc. in Psychology, University of Luxembourg — awarded June, 2018 (grade: very good)

AWARDS AND HONORS:

- Co-contributor to a presentation at the WONCA World Conference 2025.

OTHER RELEVANT PROFESSIONAL ACTIVITIES AND ACCOMPLISHMENTS:

Publications

- Gómez Bravo, R., Gebhardt, C. L., Infanti, A., Billieux, J., Ritzen, M., Moritz, S., Benoy, C., & Vögele, C. (2025). Cognitive Performance and Mental Health in Long COVID Patients: A Cross-Sectional Study. Verhaltenstherapie, 110. https://doi.org/10.1159/000547365

- Aho, V., Gebhardt, C., Leist, A., Klee, M., Pavelka, L., Wilmes, P. (2024). Behind the paper: Gut microbes and mild cognitive impairment in Parkinson's disease is there a connection? ORBilu-University of Luxembourg. https://orbilu.uni.lu/handle/10993/61627. https://hdl.handle.net/10993/61627

Projects in Progress

- FASTCOV Study: Study on the potential benefits of fasting for long Covid treatment. Website: https://www.uni.lu/lcsb-en/research-projects/fastcov/

- Sexual Function and Satisfaction among Long COVID Haulers: A cross-sectional online survey.

- Scoping Review on Obesity: Barriers and enablers in obesity management.