

The Remote Diet Intervention to REduce long Covid symptoms Trial (ReDIRECT) – dietary profile of the study participants at baseline

L. Haag¹, J. Richardson², C. Haig³, Y. Cunningham⁴, H. Fraser⁵, N. Brosnahan⁶, T. Ibbotson⁴, J. Ormerod⁷, C. White⁷, E. McIntosh⁵, C. A. O'Donnell⁴, N. Sattar², A. McConnachie³, M. E. J. Lean¹, D. N. Blane⁴ and E. Combet¹

¹Human Nutrition, School of Medicine, Dentistry & Nursing, University of Glasgow, Glasgow, UK,

²School of Cardiovascular and Metabolic Health, University of Glasgow, Glasgow, UK,

³Robertson Centre for Biostatistics, University of Glasgow, Glasgow, UK,

⁴General Practice & Primary Care, School of Health and Wellbeing, University of Glasgow, Glasgow, UK,

⁵Health Economics and Health Technology Assessment, School of Health and Wellbeing, University of Glasgow, Glasgow, UK,

⁶Counterweight Ltd, London, UK and

⁷Long Covid Scotland, UK.

To describe the dietary status and changes implemented since COVID in a group of people living with Long COVID (LC) and overweight, as part of the ReDIRECT study⁽¹⁾.

LC describes the long-term effects of a COVID-19 infection, with symptoms such as fatigue, breathlessness, and cognitive dysfunction persisting for ≥ 3 months. Overweight/obesity is associated with increased risk of LC⁽²⁾, however the pathophysiology remains unclear. One proposed mechanism is persistent inflammation following the initial infection. Pre-pandemic findings have shown that weight loss can improve inflammatory status, however, dietary strategies to manage LC lack a solid evidence-base. ReDIRECT assesses whether a remotely delivered, evidence-based weight-management programme alleviates LC symptoms in people living with overweight/obesity.

ReDIRECT is a non-blinded, wait-list controlled intervention randomising 240 UK participants (BMI > 27 kg/m²) at baseline to i) a professionally supported weight management programme (Counterweight-Plus, treatment) or ii) usual care with delayed entry to the programme after 6 months. Weight management involves total diet replacement for 12 weeks, followed by food reintroduction and long-term weight maintenance. The primary outcome, assessed at 6 months, is the main symptom nominated by each participant at baseline.

To maximise reach, the study is delivered remotely, including recruitment, intervention, data collection using bespoke online questionnaires. Strategies were developed to support recruitment specifically in underserved groups. Socio-economic, dietary data, weight management history, and medical history were collected at baseline.

Participants were recruited from England (63%), Scotland (31%), Wales (5%) and Northern Ireland (1%) between December 2021 and July 2022. Most participants were women (84%) of white ethnicity (90%) with at least an undergraduate degree (61%). Those living in the 20% most deprived areas were slightly underrepresented (13%). The mean age was 46 years (SD 10).

The median BMI at baseline was 35 kg/m² (IQR 32 - 40). Since contracting COVID-19, most participants gained weight (91%). Median weight change was +11.9 kg (IQR 7–19). The majority (82%) had pre-LC experience with commercial weight loss programmes.

Since COVID and prior to joining the study, $n = 102$ (43%) had modified their diet. The most frequent change was caloric restriction ($n = 74$, 32%), followed by low-carbohydrate diets ($n = 55$, 23%), cutting dairy ($n = 45$, 19%), following a low-histamine ($n = 28$, 12%), anti-inflammatory ($n = 28$, 12%) or vegan diet ($n = 21$, 9%). At baseline, $n = 132$ (56%) were taking supplements and $n = 65$ (28%) had stopped drinking alcohol. The number who regularly exercised (≥ 3 times a week) decreased from 49% to 1%.

With high weight gain post-COVID, implementation of a broad range of dietary management approaches, often without support, was common. ReDIRECT tests the efficacy of a professionally supported approach to address LC symptoms, for which no treatment is available yet. Results from the 6-month outcomes are expected in Summer 2023.

Acknowledgments

This study (COV-LT2-0059) is funded by the NIHR in response to the COVID-19 pandemic. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care. The authors would like to thank the NHS sponsor representatives, project management unit staff, Robertson Centre for Biostatistics and members of the ReDIRECT Trial Steering Committee for their support. We are also grateful to Long COVID Scotland, and patient representatives in the PPI group for constructive discussions around the protocol.

References

1. Haag L, Richardson J, Cunningham Y *et al.* (2022) *NIHR Open Res* 2(57).
2. Subramanian A, Nirantharakumar K, Hughes S *et al.* (2022) *Nat Med* 28, 1706–1714.