

## PhD Project Advertisement

**Project No/title:** FBS2026 02 Ahmadi sq / *The Paradoxical Impact of GLP-1 Agonists on Micronutrient Deficiency in Women of Childbearing Age*

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### Project details

Malnutrition is the world's largest public health threat, and it affects not only undernourished people but also those with obesity. Despite high calorie intake, many individuals with obesity lack key micronutrients such as vitamins A, C, D, B12, iron, and magnesium, increasing their risk of chronic disease.

By 2030, an estimated three billion adults will be overweight or obese. GLP-1 medications (e.g., semaglutide, liraglutide) are now widely used to treat obesity and diabetes by lowering blood sugar, reducing appetite, and promoting meaningful weight loss.

However, evidence suggests GLP-1s may worsen existing micronutrient deficiencies. Because these drugs suppress appetite, users—especially women of childbearing age—may consume fewer nutrients. Common side effects like nausea, vomiting, diarrhea, and constipation can further reduce nutrient absorption.

Our aim: Develop a protocol to identify and address micronutrient risks in overweight or obese women of childbearing age using GLP-1s.

**Research aims:** We aim to create a protocol to identify and manage micronutrient risks in overweight or obese women of child-bearing age using GLP-1 medications. This includes defining key micronutrients, describing symptoms linked to long-term GLP-1 use, evaluating current practices and knowledge, and comparing individualized versus population-level approaches.

**What you will do:** In the UK, over 3% of the population—mostly women—use or plan to use GLP-1s, and more than 4.2 million adults are interested in using them recreationally for weight loss. Yet no national pathway exists for assessing or managing micronutrient status before or after starting GLP-1 therapy. Many users receive prescriptions based only on BMI or photos, with little clinical or nutritional screening. To address this gap, you will:

1. Conduct a UK/EU systematic review, building on Almandoz et al. (2024), to identify high-risk micronutrients for WCBA on GLP-1s (e.g., iron, iodine, vitamins D, B12, C) and available biomarkers.
2. Examine the prevalence and nature of GLP-1-related symptoms in UK WCBA through surveys and interviews.
3. Run a pilot supplementation study testing iron/B12 prophylaxis effects on micronutrient status and symptoms.
4. Assess user knowledge and management of deficiencies.
5. Develop a prevention toolkit.
6. Perform a health-economic analysis of GLP-1 cost-effectiveness.

### References:

1. Jackson et al. 2025 (<https://www.medrxiv.org/content/10.1101/2025.06.06.25329114v1>)
2. Mariana Lenharo (<https://www.nature.com/articles/d41586-024-03074-1>)
3. Mozzafrian et al. 2025 (<https://www.sciencedirect.com/science/article/pii/S0002916525002400?via%3Dihub>)
4. Almandoz et al. 2024 (<https://pubmed.ncbi.nlm.nih.gov/38853526/>)

## Student profile

**Essential for project:** A background in biology/biochemistry, nutrition, public health epidemiology, psychology or a closely related subject. An interest in the cross-cut between diet, life-long health & biotechnology.

**Desirable for project:** Critical thinker. A passion for public, societal and diet & health aspects.

**Essential for all FoodBioSystems applicants:** An upper 2nd class degree (or equivalent) in a subject relevant to the project. Candidates with a lower class of Bachelors degree, but merit or above at Masters level will also be considered. Demonstrable skills in problem-solving, team-working, communication and time management.

## Training

**Project specific training opportunities:** You will receive interdisciplinary training through the supervisory team and tailored external courses spanning public health, nutrition, epidemiology, and applied bioscience.

- University-level training will include: PRISMA-guided systematic review, survey design, latent-profile and regression modelling, qualitative interviewing, thematic analysis, and dietary assessment. You will also build skills in public-health nutrition, science communication, and basic statistics, including NVivo for qualitative/mixed methods and statistical modelling using R and Jamovi.
- External and bespoke training will cover: statistics and epidemiology through completion of Module 1 of the SysMIC course.
- Additional training in nutrition and public-health communication includes: courses in behaviour and behaviour change from Coursera and UCL. Food policy and consumer behaviour training will involve material on risk perception and communication from the “Applied Psychology and Public Policy” MSc module. Health-economics training includes a 5-day course on choice modelling at Leeds and a Discrete Choice Analysis course at EPFL.

**FoodBioSystems training opportunities:** Throughout their studentship, all FoodBioSystems doctoral researchers participate in cohort training that covers four key themes: food systems, big data (data analytics and modelling), business, and research fundamentals. Depending on studentship type, all doctoral researchers complete a placement: either project-related with a non-academic (CASE) partner or unrelated to the project and outside the academic environment (PIPS). Details of training are available on the DTP website:

<https://research.reading.ac.uk/foodbiosystems/training/>

## Project supervision style

Supervision will follow University of Surrey Doctoral College guidance, with recorded meetings and a clear division of responsibilities. The student will meet weekly with KRA and regularly with AN and the wider supervision team to ensure integration across work packages and coherence between the different strands. At Queen’s University Belfast, the student will join Nutrition Group meetings for peer learning and exchange, with at least one in-person supervision meeting every 6 months in London.

The project brings together academia, clinical medicine, and industry to tackle a problem that will require a multidisciplinary approach. As a result, successful completion of the outlines aims/objectives will require (i) a collaborative and pragmatic approach to both supervision and completion of each work package; and (ii) open dialogue and clear lines of communication.

## Stipend (Salary)

FoodBioSystems DTP students receive an annual tax-free stipend (salary) that is paid in instalments throughout the year. For 2025/26 this is £20,780 (£22,780 at Brunel University) and it will increase slightly each year at rate set by UKRI.

## Equity Diversity and Inclusion

The FoodBioSystems DTP is committed to equity, diversity and inclusion (EDI), to building a doctoral researcher (DR) and staff body that reflects the diversity of society, and to encourage applications from under-represented and disadvantaged groups. Our actions to promote diversity and inclusion are detailed on the [FoodBioSystems DTP website](#) and include:

- Offering reasonable adjustments at interview for shortlisted candidates who have disclosed a disability or specific learning difference.
- [Guaranteed interview](#) and [applicant mentoring](#) schemes for applicants, with UK home fees status, from eligible under-represented ethnic groups **and** who meet the essential criteria in the student profile.

These are opt-in processes.

Our studentships can be offered to home students on a part-time basis, and studentship end date and stipend payments will be amended to reflect the part-time registration. The minimum registration for DTP funded part-time students is 0.5 FTE (studying an average of 20 hours per week over 8 years). We regret that part time registration is not available to international students due to complexities of visa restrictions.

## Funding note

We welcome applications from candidates with Home/ROI fees and international fees status. This studentship is funded by UKRI and covers stipend, fees at Home/ROI rate, and research costs. The host university will not charge UKRI funded international students the difference between Home/ROI fees and international fees.

**Costs that must be found from other sources or met by the individual student include:** visa fees, healthcare surcharge, relocation costs and guarantor services.

**For up to date information on funding eligibility, studentship rates and part-time registration, please visit the [FoodBioSystems website](#).**