PhD Project Advertisement

Project No/title: FBS2026 49 Methven rq / *GLP-1 Agonists and the Consumer: what is the impact of appetite suppressors on long term sensory perception, food choice, nutrition and health*

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Project Details

Gut hormone equivalents, particularly GLP-1 receptor agonists (GLP-1RAs) are now common therapies for type 2 diabetes (T2D) and obesity. They suppress appetite and food intake, leading to weight loss. However, long-term effects of GLP1-RAs remain unknown. Tackling obesity merely through pharmacology does not address the multitude of factors that influence obesity. Evidence suggest this can lead to weight regain after discontinuing GLP-1RAs.

Aroma and taste stimulate appetite. Both odour and taste receptors are found in the gut, and molecules stimulating these receptors impact gut hormone regulation. Moreover, GLP-1 receptors are also located in the brain and hedonic reward from taste may be influenced by these receptors.

Few studies have investigated the impact of GLP-1RAs on human taste and smell perception, on taste liking and hedonic reward mechanisms over time, and on food consumer choice behaviour. However, one US study has demonstrated that GLP-1RAs significantly impaired taste function.

Research aims: This research will investigate the impact of GLP-1RAs on taste and aroma sensitivity, food reward conceptualisation, and food choice behaviour. We hypothesise that this understanding will enable the development of long-term healthy and rewarding diets with, and for, GLP-1RA users.

What you will do: There are four main research activities:

1. To determine the extent to which taste and smell sensitivity and sweet taste preference differ between users and nonusers of GLP-1RA medication, in age and BMI matched groups; and secondly to compare food preference, food conceptualisation and dietary intake data between these groups. This study will first involve an ethics application and applying to the NIHR research delivery network (RDN) for study adoption, followed by volunteer recruitment.
2. To carry out participatory research with focus groups of GLP-1RA users to investigate perception of diet and food choice and co-design tools for long term healthy and rewarding diets.
3. To carry out a longitudinal study with participants recruited prior to GLP-1RA treatment, using tests outlines in A1.
4. To use the results of activities 1 to 3 to design and test nutritional and food choice advice and support for GLP-1RA users.

References:

1. https://doi.org/10.1098/rstb.2006.1856; https://doi.org/10.1530/JOE-20-0119;
2. https://doi.org/10.3399/bjgp24X738465; https://doi:10.1111/dom.14725;
3. https://doi.org/10.1152/ajpendo.00077.2011; https://doi.org/10.1080/10408398.2023.2177610;
4. https://doi.org/10.1016/j.physbeh.2024.114793; https://doi.org/10.1111/j.1471-4159.2008.05397.x

Student profile

Essential for project: A background in one or more of the following: food science, nutrition, dietetics or sensory science.
Desirable for project: This study involves working with volunteers throughout the research, hence it would be preferable for candidates to have prior experience of working with people.
Minimum requirements 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: Professor Lisa Methven and Dr Ezgi Ozen (University of Reading) will provide training on all aspects of research ethics, good clinical practise, study design, sensory science methodologies, participatory research methods, dietary evaluation methods, anthropometric measurements (including bioelectrical impedance analysis) and statistics. Dr O'Hara (Queens University Belfast) will provide training on research within clinical practise, effective delivery of comprehensive dietary guidance within the NHS, and understanding of regional differences within the UK. The British Nutrition Foundation will support the student with supervision and expert advice around nutrition information communication and resources, and dissemination of research findings. Professor Jane Parker co-leads the Global Consortium on Chemosensory Research, and her expertise will ensure experimental design that translates global research, enabling the student to establish a global network in this field of research.

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. 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

The student will meet weekly with their primary supervisor, and have monthly meetings with the wider supervisory team. As a team of five supervisors we need to ensure this has no unintended negative consequences, such as the student feeling they are driven in different directions, or that we are duplicating supervisor time. Our strategies to avoid this include the student circulating brief notes and actions points from each meeting to keep the team on-board, having an agenda for the monthly meetings and discussing with the primary supervisor what scientific input is needed at each monthly meeting to make best use of everyone's time. The benefits of the larger supervisory team are in the breadth of skills they will support the student with. Monthly meeting will be documented to assess progress, solve problems, address training requirements and forthcoming events.The student will additionally contribute to the sensory science group's monthly meetings.

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 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 who also meet academic eligibility criteria and the student profile essential for the project.

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.

Costs that must be found from other sources or met by the individual student include:

The difference between international and Home/ROI fees at University of Reading, visa fees, healthcare surcharge, relocation costs and guarantor services.

Information about fees is available at https://www.reading.ac.uk/doctoral-researcher-college/funding/fees/fees-new-students

For up to date information on funding eligibility, studentship rates and part-time registration, please visit the FoodBioSystems website.