

PhD Opportunity

The INDICO-II Study – Effects of body composition and dietary improvement on cell membrane dynamics and their relationship with the aetiology of type II diabetes

Supervisory team

Dr Allain Bueno, Dr Emma Edwards, Dr Matthew Cook, International collaborators from Spain and Brazil will also be involved in the research.

Director of Studies:

Dr Allain Bueno, Worcester Biomedical Research Group, School of Science and the Environment, University of Worcester

Supervisors:

Dr Emma Edwards Worcester Biomedical Research Group, School of Science and the Environment, University of Worcester

Dr Matt Cook, Worcester Biomedical Research Group, School of Sport and Exercise Science, University of Worcester

Research Group: [Worcester Biomedical Research Group \(WBRG\)](#)

The PhD Opportunity

The InDiCo Study (Inflammation, Diets, body Composition) is a pre-clinical study conducted at the University of Worcester. The InDiCo Study is currently unravelling links between diets that favour a pro-inflammatory environment with biomarkers of cell function and body composition. Details about the InDiCo Study can be found here: [The InDiCo Study](#)

The InDiCo-II study is a progression of the InDiCo study and will focus more specifically on how the onset of type II diabetes is influenced by diet and by body composition.

One in ten people over 40 years old in the UK are now living with a diagnosis of type II diabetes [1]. Diabetes is metabolically damaging, affects quality of life and shortens life expectancy [2-5]. Poor diet represents a significant burden to the UK, costing the NHS £10bn and wider society £27bn, with dietary risks remaining one of the largest factors that can increase risk of developing a non-communicable disease [6]. In England, the highest modifiable risk factor for metabolic disease is high Body Mass Index, and more than half of the top 20 risks to health relate to diet [7].

Diabetes UK recommends a substantial weight loss as quickly as possible for remission [8]. Even though diabetes remission can be achieved in individuals fully committed to weight loss and positive lifestyle changes, this occurs mostly in patients who have recently been diagnosed, around 1 year after diagnosis [9,10]. Our research aims to unravel metabolic manifestations associated with dietary improvement in individuals at risk of type II diabetes who wish to improve their diets and lose weight.

This project incorporates a pre-clinical element, in which the PHD student will interact with healthy adults at risk of developing type II diabetes. The PhD student will obtain body composition biomarkers and blood samples from the consenting participants. Training will be provided. Applications from nutritionists, dietitians, clinical biochemists or biomedical scientists are encouraged.

Additional costs

Given that this is a laboratory-based project, there are some additional costs for the procurement of material essential to delivering the research objectives. This will include consumables for the handling and processing of blood samples. It is expected that these extra costs will not exceed £1,500 per annum.

References

1. [Number of people with diabetes reaches 4.7 million | Diabetes UK](#)
2. [Lower extremity muscle strength is reduced in people with type 2 diabetes, with and without polyneuropathy, and is associated with impaired mobility and reduced quality of life - PubMed \(nih.gov\)](#)
3. [Association between reduced quality of life and depression in patients with type 2 diabetes mellitus: a cohort study in a Mexican population - PubMed \(nih.gov\)](#)
4. [Type 2 diabetes, socioeconomic status and life expectancy in Scotland \(2012-2014\): a population-based observational study - PubMed \(nih.gov\)](#)
5. [Associations between multimorbidity, all-cause mortality and glycaemia in people with type 2 diabetes: A systematic review - PubMed \(nih.gov\)](#)
6. [The Lancet: Global Burden of Disease](#)
7. [Health profile for England: 2017 - GOV.UK \(www.gov.uk\)](#)
8. [What is diabetes remission and how does it work? | Diabetes UK](#)
9. [Remission of recently diagnosed type 2 diabetes mellitus with weight loss and exercise - PubMed \(nih.gov\)](#)
10. [Quantifying Remission Probability in Type 2 Diabetes Mellitus - PubMed \(nih.gov\)](#)

Application Process

To begin the application process please go to <https://www.worcester.ac.uk/courses/human-biology-mphilphd> and click on 'How to Apply' in the top menu. This PhD could be carried out on a part time or full-time basis so please select the relevant application link. On the application form, please make it clear that you are applying for one of our advertised projects so we can direct it straight to the relevant people.

The Interview

All successful applicants will be offered an interview with the proposed Supervisory Team. You will be contacted by a member of the Research School Team to find a suitable date. Interviews can be conducted in person or over Microsoft Teams.

Funding your PhD

For information about Doctoral Loans please visit: <https://www.worc.ac.uk/study/fees-and-finance/doctoral-loans.aspx>

During your PhD you can access the Research Student Support Scheme to support dissemination costs associated with your research, up to £500 a year.

Research at the University of Worcester

Research is central to the University's mission to make a difference in everything that we do. We are committed to delivering excellent research which extends the boundaries of human knowledge but which also improves people's lives by enabling better health outcomes, improving food security, developing environmentally sustainable solutions for crop production and socially sustainable solutions to our ageing population, enhancing public knowledge and understanding of the past and present.

The University hence focuses its research around five high-level challenges facing society, locally, nationally and globally:

- [Human Health and Wellbeing](#)
- [Sustainable Futures](#)
- [Digital Innovation](#)
- [Culture, Identity and Social Exclusion](#)
- [Professional Education](#)

The success of our research is reflected in our continuous improvement in external research assessment processes. In the most recent Research Excellence Framework, REF 2021, the University saw a near 50% increase in the scale of its research and 12% increase in quality, building on its performance in REF 2014 when it was the UK's most improved university in terms of Research Power, a combination of scale and quality.

Research Degrees at Worcester

Our research students are central to our overall mission for research. They are working at the cutting edge of their disciplines and driving forward the quality of our research whilst enriching our research culture. We are looking to increase our research student numbers as a strategic imperative.

Our commitment to our students is reflected in the results of the Postgraduate Research Experience Survey 2023 in which we ranked 3rd for overall research student satisfaction nationally. Key to our success in this area is the Research School, a focal point for all our research students.

It provides:

- day-to-day support for our students, both administrative and practical, through our dedicated team
- a Research Student Study Space with both PCs and laptop docking station
- a comprehensive Researcher Development Programme for students and their supervisors
- a programme of student-led conferences and seminars

Worcester Biomedical Research Group

The Worcester Biomedical Research Group (WBRG) aims to promote multidisciplinary Biomedical Science research at the University of Worcester and fosters collaborations between staff (cross-institute), students and local health / industrial organisations.

Building sustainable societies through research into disease prevention, medical treatment and diagnostics, lies at the heart of the WBRG research ethos. We aim to achieve this goal through basic and translational Biomedical Research with particular focus on cancer, cardiovascular disease and neurodegeneration.

Widening Participation:

As part of its mission statement the University is committed to widening participation for its higher degrees. Although most candidates will have an undergraduate and/or a Masters degree, the University is happy to accept applications from candidates with relevant professional qualifications and work related experience.

For further information or an informal discussion on this project, please contact Dr Allain Bueno (Director of Studies) via email at a.bueno@worc.ac.uk