**BBSRC MIBTP Studentship Project**

**September 2023**

|  |  |
| --- | --- |
| **First Supervisor** | Dr Emma Redman |
| **School/Department** | Health Sciences |
| **Email** | [emma.redman@leicester.ac.uk](mailto:emma.redman@leicester.ac.uk) |

|  |  |
| --- | --- |
| **Second Supervisor** | Prof Tom Yates |
| **School/Department** | Health Sciences |
| **Email** | [ty20@leicester.ac.uk](mailto:ty20@leicester.ac.uk) |

|  |  |
| --- | --- |
| **Additional Supervisor** | N/A |

|  |  |
| --- | --- |
| **Project Title** | Tackling the lack of diversity in research: Exploring weight loss approaches to reduce health inequalities in an ageing South Asian population |
| **Project Summary** | |
| In South Asian communities, a substantially lower body mass index (BMI) and waist circumference confer equivalent health risk factor profiles to white Europeans (WE), potentially because of a more centralised distribution of body fat (Patel et al. 2017; Paul et al. 2017).  While the mechanisms underpinning this increased risk are diverse, complex, and not fully understood, greater insulin resistance appears to constitute a prominent contributing factor (Sattar and Gill 2015; Angelantonio et al. 2016).  Added to this, aging in adults is associated with weight gain and changes in body composition, with body fat increasing by an average of 1% per year in both men and women from the age of 40 years (Palmer and Jensen 2022). South Asian populations have also been noted to engage in less physical activity and have different physical function/capability (measured via simple to measure behaviours such as walking pace), and lower cardiorespiratory fitness (Ghouri et al. 2013).    Together, south Asians compared to WE at a similar BMI are placed at a significant disadvantage and potentially accelerated impacts of body composition ageing (Wulan, Westerterp, and Plasqui 2010; Kuk et al. 2009). This observation is particularly clear when considering sarcopenia, where there are unambiguous ethnic differences for both south Asian men and women (Dorhout et al. 2022). In order to better understand and target inequalities related to accelerated ageing and adverse body compositions in South Asian populations, we want to explore how to optimise dietary and weight loss interventions in this population.    The work will focus on two distinct research questions and methodologies;   * How do differences in dietary pattern, composition or quality e.g. macro- and micro-nutrients, and associated biomarkers, explain differences in body composition between South Asian and White Europeans across different age groups (observational research)? * How can dietary intake and physical activity be optimised to reverse accelerated body composition aging in South Asian individuals, with and without concurrent weight loss (interventional research)?     Good practice guidance for increasing participation of ethnic minority populations in health research will underpin this studentship (Routen et al. 2022).  While the PhD student works to ensure high quality evidence is produced to answer critical questions in bioscience for health, they will develop the skills to ensure research is carried out to reduce rather than increase the inequalities observed for ethnic minority populations, including south Asian communities. Training and mini-projects will include cultural competency, best practice for public engagement and recruitment strategies in ethnic communities.  Techniques that will be undertaken during the project:  Body composition imaging – use of Dual-energy X-ray absorptiometry (DEXA) (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5659281/)  Nutritional and physical activity assessments – use of digital technologies and 24 hour monitoring e.g accelerometers.  Cultural competency – adaptation and management of research to ensure accessibility and cultural appropriateness.  BBSRC Strategic Research Priority: Integrated Understanding of Health – Ageing, Diet and Health | |
| **References** | |
|  | |