



CRUK Cambridge Centre MRes rotation project

Rotation Project Title	Body composition and endometrial cancer risk
Head of Laboratory (PI) Name	Deborah Thompson
Second supervisor if applicable	
Programme	Quantitative Breast Gynae
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Laboratory Location	Strangeways Research Laboratories

Project Outline	<p>Obesity, as captured by BMI, is a well-established risk factor for endometrial cancer. However, it is not clear whether the level of risk depends on how fat is distributed within the body.</p> <p>The UK Biobank dataset includes body composition profiles for the first 6,000 participants in the imaging substudy. This includes MRI-derived measures of liver fat and of visceral and abdominal subcutaneous adipose tissue, as well as measures obtained from whole-body DXA scans.</p> <p>The aim of this project is to assess the association between different body composition measures and endometrial cancer risk.</p>
Experimental plan	<p>After basic data checking, the student will assess the associations between the MRI and DXA body composition measures and incident endometrial cancer using univariate and multivariate logistic regressions, with and without adjustment for BMI and waist:hip ratio.</p> <p>Common genetic variants which have been reported as being associated with the body composition measures will be used to conduct Mendelian randomisation analyses to assess the causality of these measures.</p>
Main Techniques	<ul style="list-style-type: none"> • The student will need to have some basic familiarity with R and/or Stata. • Multivariate logistic regression. • Mendelian randomisation methods
Key References	<p>"Body Composition Profiling in the UK Biobank Imaging Study", Linge <i>et al</i>, Obesity 2018.</p> <p>"Genome-wide association study of body fat distribution identifies novel loci and sex-specific effects", Rask-Andersen <i>et al</i> bioRxiv:207498, 2017.</p> <p>"Genetic Risk Score Mendelian Randomization Shows that Obesity Measured as Body Mass Index, but not Waist:Hip Ratio, Is Causal for Endometrial Cancer", Painter <i>et al</i>, Cancer Epidemiology, Biomarkers and Prevention, 2016.</p>