



Application number/Title: 3173 - A multi-level approach to better understand the association between physical activity and sedentary behaviour, and cancer risk

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Application Institution:

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Keywords provided by the Applicant PI to describe the research project:

Cancer, Physical activity, Sedentary behaviour, Biomarkers

Application Lay Summary:

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1a: Our aims are to investigate physical activity behaviour and sedentary behaviour, and cancer risk, including better estimations of the magnitude of risk by different cancer sites. Specifically, we aim:

- 1) To evaluate correlations between physical activity and sedentary behaviour data and relevant biomarkers related to physical activity/sedentary behaviour and cancer
- 2) To analyse the association between physical activity and sedentary behaviour data and relevant genetic variants identified within GWAS data and cancer risk.
- 3) To analyse factors related to the built environment, physical activity, sedentary behaviour, and cancer risk.

1b: The aim of UK Biobank is to improve the prevention, diagnosis and treatment of serious and life-threatening illnesses, including cancer. The proposed research will elucidate the role of physical activity and sedentary behaviour in cancer prevention. The study will provide insight into biological mechanisms by

which physical activity and sedentary behaviour may impact on different cancer sites, the role of individual modifiable and non-modifiable characteristics, and built environment factors in influencing the association between physical activity, sedentary behaviour, and cancer risk. Results will help inform the development of future physical activity/sedentary behaviour related interventions for cancer prevention.

1c: Linkage between UK Biobank and cancer registries provides information on cohort members who have been diagnosed with cancers. Using appropriate statistical techniques, we will compare physical activity and sedentary behaviour amongst cohort members who have developed cancer with those who have not developed these cancers, examining questionnaire and accelerometer (measure of physical activity/sedentary behaviour) data. We will also evaluate the associations with relevant biomarkers from the panel of blood/urinary markers and genetic analyses to be undertaken on all cohort members.

1d: The full cohort will be included in all analyses to be undertaken.