Medical Research Council media release

Date TBC

Study finds 'social jetlag' is associated with obesity-related disease

A new study has discovered an association between social jetlag[1], obesity and obesity-related disease including metabolic disorder, inflammation and diabetes.

The study of nearly 1,000 people from the Dunedin Longitudinal Study[2], published today in the *International Journal of Obesity*[3], found that individuals with a greater difference in sleep between free days and work days are more likely to be obese and suffer from obesity-related disease, than those with little to no difference between these timings.

Unlike travel jetlag, which can cause temporary problems with metabolism, social jetlag can occur chronically throughout an individual's working life so is more likely to induce more serious, chronic consequences for metabolism.

Dr Michael Parsons, lead author of the study, from the Mammalian Genetics Unit at Medical Research Council Harwell, said: "Social jetlag is an under researched but potentially key contributor behind the impact 'living against our internal clock' is having on our health.

"Our research confirms findings from a previous study that connected people with more severe social jetlag to increases in self-reported body mass index (BMI), but this is the first study to suggest this difference in sleeping times can also increase the risk for obesity-related disease."

This study assessed the height, weight and waist circumference of participants in the clinic, as well as measuring C-reactive protein (hsCRP) and glycated haemoglobin in blood, biomarkers for inflammation and diabetes respectively. It then compared these findings with results from a questionnaire which assessed participants sleep duration and chronotype - their preference in sleep timing.

The researchers found that just a two hour difference in sleep patterns at the weekend can increase the risk of an elevated BMI and biomarkers for inflammation and diabetes.

The reasons for these increases are unknown, but a possibility is that social jetlag disrupts healthy habits such as diet and exercise in a way that may compromise health.

Dr Terrie Moffitt, co-author of the paper, added: "The findings of our study help us start to actually understand the physiology of social jetlag and how it impacts upon obesity and obesity-related disease.

"Further research that determines this association could help inform obesity prevention by influencing policies and practices that contribute to social jetlag, such as work schedules and daylight savings."

Professor David Lomas, Population and Systems Medicine Board Chair at the Medical Research Council, said: "This study adds further evidence to previous research that living against our body clock, even if just on a small scale, may be part of the problem behind rising obesity and related disease.

"It could allow for exploration of how changes to our diary as well as diet, could help to reduce this upwards trend and improve public health."

The research was funded by the US National Institute of Aging and the UK Medical Research Council[4].

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Notes to editors:

For further information or to request an interview with a researcher, please contact the MRC press office on 0207 395 2345 or email press.office@headoffice.mrc.ac.uk

1. The term 'social jetlag' was first coined in 2006 by Dr Till Roenneberg, a professor at the Institute of Medical Psychology at the University of Munich, who used it to describe the difference between midsleep on free days and midsleep on work days. Roenneberg claims that 87% of the population of Central Europe suffers from social jet lag to some degree.

2. Participants are members of the Dunedin Multidisciplinary Health and Development Study, a longitudinal investigation of health and behaviour in a complete birth cohort. Study members were all born between April 1972 and March 1973 in Dunedin, New Zealand and followed from aged 3 to 38, when 95% of the 1,007 study members still alive took part.

3. The paper, entitled 'Social Jetlag, Obesity and Metabolic Disorder: Investigation in a Cohort Study, by Parsons et al, is published in the *International Journal of Obesity*: INSERT LINK HERE.

4. The **Medical Research Council** has been at the forefront of scientific discovery to improve human health. Founded in 1913 to tackle tuberculosis, the MRC now invests taxpayers' money in some of the best medical research in the world across every area of health. Twenty-nine MRC-funded researchers have won Nobel prizes in a wide range of disciplines, and MRC scientists have been behind such diverse discoveries as vitamins, the structure of DNA and the link between smoking and cancer, as well as achievements such as pioneering the use of randomised controlled trials, the invention of MRI scanning, and the development of a group of antibodies used in the making of some of the most successful drugs ever developed. Today, MRC-funded scientists tackle some of the greatest health problems facing humanity in the 21st century, from the rising tide of chronic diseases associated with ageing to the threats posed by rapidly mutating micro-organisms. www.mrc.ac.uk