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Regular exercise mitigates the genetic likelihood of obesity by forty per cent

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Genetic predisposition to obesity can be offset by around 40 per cent with regular physical activity, according to new research from the Medical Research Council (MRC). The findings challenge the popular myth that obesity is unavoidable if it runs in the family and could guide future treatments to combat the obesity crisis.

Researchers from the MRC Epidemiology Unit in Cambridge studied over 20,000 men and women aged 39-79, who had taken part in the EPIC-Norfolk study, given DNA samples and completed questionnaires about their physical activity levels at work and during leisure time.

Those who had a physically active lifestyle dramatically reduced the impact of their obesity genes by an average of 40 per cent compared to those who were sedentary. The scientists believe these findings could bring them a step closer to targeting therapies for people who are genetically prone to becoming obese, and may be more effective than current approaches that target the whole population.

The researchers analysed the genes of physically active and inactive volunteers, looking for one or more of 12 genetic markers known to increase BMI and risk of obesity. They calculated each participant's overall genetic susceptibility by converting the number of obesity genes into a 'genetic predisposition score'. The researchers then examined whether a higher 'score' was associated with a higher BMI and obesity risk (the point where related illnesses such as diabetes and heart disease are more likely).

Dr Ruth Loos from the Medical Research Council and lead author of study said:

"Our research proves that even those who have the highest risk of obesity from their genes can improve their health by taking some form of daily physical activity. People don't have to run marathons to make a difference either - walking the dog or working in the garden all counts. It goes to show we're not complete slaves to our genetic make-up and really can make a big difference to our future health by changing our behaviour."

Professor Stephen Holgate chair of the MRC's Population and Systems Medicine Board said:

"Obesity is one of the most challenging health issues facing our society and therefore a central target for the MRC's research. By investigating the basis of obesity, genetic or otherwise, we can use sound science to inform public health messages that give people the power to take control of their weight and health."

The paper '*Physical activity attenuates the Genetic Predisposition to Obesity in 20,000 Men and Women from EPIC-Norfolk Prospective Population Study*' is published in *PLoS Medicine* today.

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For more information or to arrange an interview with one of the scientists, please contact the MRC Press Office on 0207 637 6011 or email pressoffice@headoffice.mrc.ac.uk

Notes to Editors:

1. For almost 100 years the Medical Research Council has improved the health of people in the UK and around the world by supporting the highest quality science. The MRC invests in world-class scientists. It has produced 29 Nobel Prize winners and sustains a flourishing environment for internationally recognised research. The MRC focuses on making an impact and provides the financial muscle and scientific expertise behind medical breakthroughs, including one of the first antibiotics penicillin, the structure of DNA and the lethal link between smoking and cancer. Today MRC funded scientists tackle research into the major health challenges of the 21st century. www.mrc.ac.uk

2. The European Prospective Investigation of Cancer (EPIC)-Norfolk Study is funded by Cancer Research UK, the Medical Research Council, the British Heart Foundation, the Food Standards Agency, the Department of Health, and the Academy of Medical Sciences.

