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ASSOCIATIONS BETWEEN SEDENTARY BEHAVIOUR AND CARDIOVASCULAR, HAEMOSTATIC AND DIABETIC MARKERS IN MID-ADULT LIFE (45 YEARS)

SM Pinto Pereira,* M Ki, T Poulou, C Power *Centre for Paediatric Epidemiology and Biostatistics, University College London, Institute of Child Health, London, UK*

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Background Recent studies show TV-viewing time being related to mortality independent to physical activity (PA). However, the mechanism behind this association is unclear.

Aim We investigate cross-sectional associations between sedentary behaviour and preclinical variations in markers for cardiovascular disease (CVD) and diabetes.

Methods Using data from the 1958 British birth cohort, we analysed associations between (1) television (TV)-viewing and (2) sitting at work with blood pressure (BP), total cholesterol, triglycerides, high-density lipoprotein (HDL), low-density lipoprotein (LDL), glycated haemoglobin (HbA1c), C-reactive protein (CRP), fibrinogen, tissue plasminogen activator (tPA), D-dimer and von Willebrand factor (vWF) at 45 years. TV-viewing was measured in six categories from none to >4 h/day. Sitting at work was measured as a continuous variable. Analysis adjusted for confounding factors (birth-weight, long-term illness, smoking, drinking, diet, social class and concurrent moderate/vigorous leisure-time PA). We assessed whether associations were mediated by body mass index (BMI). Inverse probability weights were used to account for attrition. Analysis was separate for males (n=4632) and females (n=4665).

Results Men had higher total cholesterol, LDL, triglycerides, BP, HbA1c, tPA and vWF compared to women. Both genders

had similar TV-viewing patterns, but men spent more time sitting at work. Preliminary analysis suggests that TV-viewing was consistently associated with adverse biomarker levels, usually with a stronger trend in women than men. For example increasing by a category of TV-viewing was linked to an unadjusted 11.0% (95% CI: 6.9% to 15.1%) increase in CRP in men and a 22.3% (95% CI: 18.0% to 26.6%) increase in women. Adjustment attenuated the relationships slightly to a 5.5% (95% CI: 1.3% to 9.8%) increase in men and a 18.1% (95% CI: 13.6% to 22.6%) increase in women. Associations with sitting were less consistent. After adjustment, sitting at work for 1–2, 2–3 and >3 h/day compared to <1 h/day, was linked to CRP increasing by -3.1% (95% CI: -19.7% to 13.6%), -6.8% (-22.9% to 9.3%) and 5.5% (95% CI: -6.3% to 17.3%) respectively for men and by -20.7% (95% CI: -40.4% to -1.0%), 1.3% (-16.7% to 19.3%) and 7.9% (-8.1% to 23.8%) respectively for women. Results, particularly for TV-viewing in women, were not wholly mediated by BMI.

Conclusions Two indicators of sedentary behaviour show inconsistent associations with CVD biomarkers: TV-viewing shows strong trends, whereas trends for sitting at work are less consistent. The contrast between the two markers of sedentary behaviour brings into question the role of sedentary behaviour and its measurement in relation to CVD risk.