*Proceedings of the Nutrition Society* (2017), **76 (OCE1)**, E18 doi:10.1017/S0029665117000180

*Winter Meeting, 6–7 December 2016, Diet, Nutrition and Mental Health and Wellbeing*

# An investigation into gender variations in the risk factors for cardiovascular disease amongst 'desk-based' professional workers aged 30–65 years old

Y. Jin and T. Birchall
*School of Health Sciences, Liverpool Hope University, Liverpool*

Evidence shows that sedentary behaviour including excessive sitting in adults is independently associated with CVD and other metabolic complications, regardless of whether individuals' meeting the physical activity guidelines for adults[1]. The aim of the study was to investigate gender differences in CVD risk factors amongst a group of 'desk-based' professional workers residing in the North West of England.

35 self-reported 'desk-based' professional workers (M 13, F 22) aged 30–65 years old were recruited via random selection and word of mouth from Liverpool and its surrounding areas. Information on occupation and working hours per day was collected using a sociodemographic questionnaire. Laboratory and anthropometric measures of CVD risk were assessed including blood pressure, measures of central obesity and biomarkers of fasting capillary blood glucose and lipid profile. Energy and nutrient intakes were recorded using a validated 3-day diet diary and analysed using a dietary assessment software Microdiet (v3·0). Variation in CVD risk factors between male and female groups was assessed using an Independent-Samples T-test. Statistical analyses were conducted using SPSS 22 with statistical significance set at 0·05.

The occupations of participants comprised manager, director, psychologist, academics, counsellor, librarian and office workers. Their average working time was 7 h per day (SD 1·68). Significant variations were found within the gender group in a few CVD risk factors including blood pressure, measures of central obesity, blood glucose and lipid profiles. The male group had a noticeably increased CVD risk as indicated from the comparison of their levels of BMI, waist circumference, waist-hip ratio (WHR), whole blood glucose and lipid profiles with the corresponding reference values set by WHO[2] and National Heart, Lung and Blood Institute[3] respectively. Some dietary variations between the two gender groups were also identified. The only statistically significant variations are shown in the Table below.

| Parameters | Reference values* | Male | | Female | | *P* value |
|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | |
| Systolic blood pressure (mmHg) | ≥140 (hypertension)[4] | 129·85 | 14·80 | 118·14 | 25·45 | 0·045 |
| BMI (kg/m$^2$) | 25·0–29·9 (overweight)[2] | **25·94** | 1·80 | 23·38 | 3·76 | 0·011 |
| Waist Circumference (cm) | ≥94 (Male); ≥80 (Female)[2] | **95·43** | 8·80 | 77·16 | 13·33 | <0·001 |
| Waist-Hip Ratio (WHR) | ≥0·9 (Male); ≥0·8 (Female)[2] | **0·92** | 0·06 | 0·76 | 0·08 | <0·001 |
| Whole Blood Glucose (mmol/L) | 5·0–6·2 (prediabetes) (equivalent to 5·6–6·9 as plasma glucose)[3] | **5·53** | 0·55 | 5·04 | 0·58 | 0·018 |
| Whole Blood Total Cholesterol (mmol/L) | 5·18–6·19 (Borderline high)[3] | **5·25** | 0·77 | 4·51 | 1·13 | 0·028 |
| Whole blood Total LDL Cholesterol (mmol/L) | 3·36–4·11 (Borderline high)[3] | **3·47** | 0·77 | 2·10 | 1·33 | 0·001 |
| Whole blood Total HDL Cholesterol (mmol/L) | <1·03 (Low); ≥1·55 (desirably high)[3] | 1·15 | 0·30 | **1·63** | 0·53 | 0·002 |
| Whole blood Ratio of Total Cholesterol to HDL | >4·5 (at risk); ≥6·0 (high risk)[3] | **4·80** | 1·22 | 3·01 | 1·1 | <0·001 |
| Dietary vitamin C (mg/day) | NA | **81·87** | 18·23 | 193·87 | 29·69 | 0·03 |
| Dietary β-carotene (μg/day) | NA | **868·78** | 152·12 | 1429·69 | 381·41 | 0·009 |

Key: bold values indicate that the levels of the risk factors exceed their corresponding reference values.
*References values above which, there is an increased risk of CVD and other metabolic complications, except the reference value of 1·55 mmol/L set for total HDL cholesterol, levels above which are considered as desirably high.

In conclusion, significant gender variations were identified in the CVD risk factors amongst a group of 'desk-based' professional workers with a higher risk predisposed to the male group.

1. Owen N, Sugiyama T, Eakin EE *et al.* (2011) *Am J Pre Med* **41**, 189–196.
2. WHO (2011) *Waist Circumference and Waist-Hip Ratio. Report of a WHO Expert Consultation.*
3. National Heart, Lung and Blood Institute (2001) *JAMA* **285**, 2486–97.
4. NICE (2011) *Hypertension in Adults: Diagnosis and Management.*