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The Role Of Physical Activity, Sedentary Behavior And Body Composition In Disease Risk Of University Employees In Costa Rica.

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PURPOSE: To determine the role of physical activity, sedentary behavior, body composition, and energy balance in non-communicative disease risk of university employees in Costa Rica.
METHODS: 75 university employees [34 men (age=40±8.5), 41 women (age=40±7.1),] were recruited and participated in the study. All participants were assessed for body composition (WC, BMI, fat mass, fat excess, lean mass), total energy expenditure and the relative disease risk for diabetes, stroke, and heart disease by the Body Metrix System, ultrasound body composition assessment. The ActivPAL4 device by PAL Technologies measured sedentary behavior (time sitting, driving, resting, sleeping) and physical activity levels (light, moderate, and vigorous). Food intake was assessed through the ASA24 software by the National Institutes of Health.
RESULTS: Demographic results for men and women were: BMI=26.7±4.05 & 25.6±3.87 Kg/m^2, waist circumference= 91.7±9.4 & 84.6 ± 9.95 cm, fat mass % = 23.45±6.1 & 33 ± 3.4 %, fat mass excess = 3.96±5.8 & 1.6 ± 2.3 Kg and muscle mass = 20.7±1.7 & 18.1 ± 0.9 %. The average percentage of sedentary behavior per day was 49.6±6.28 &44.7±8.2%. In terms of physical activity, 18.3±5.1 & 21.8±6.6% were spent in light activity and 3.4±2 &4.2±1.5% of the day was spent in MVPA. Other results showed time in bed = 28.6±3.2 &29.3±3.4%, daily steps = 7006±4351 & 8703±3110 steps, total energy expenditure = 2163.9±308 & 1660.3±191.9 kcal, and total energy intake= 2310.8±657.2 & 2117.2± 660.8 Kcal. Using a predictive model carrying the variables of age, fat excess, fat percentage, and sedentary behavior, we found an adjusted R^2= 0.941 (F=6.35, p=0.014) for coronary disease risk, an adjusted R^2= 0.947 (F=6.4, p=0.014) for stroke risk, and an adjusted R^2= 0.944 (F=4.43, p=0.039) for diabetes risk.
CONCLUSION: According to the results, energy unbalance, levels of obesity, sedentary behavior and physical activity contribute to increase coronary heart disease, stroke and diabetes risk factors in a university employee sample in Costa Rica, and is a major concern that should be used to promote PA and health interventions to ameliorate non-communicative disease risk.

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Sedentary Behavior And Risk Of Cardiovascular Disease And All-cause Mortality In Us Adults With Hypertension

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BACKGROUND: Hypertension affects more than one billion adults worldwide. Despite advancements in treatment and control, disease burden and mortality risk for hypertensive adults remain high. Contrary to national physical activity guidelines, guidelines intended for hypertension management and prevention do not currently endorse reductions in sedentary behavior (SB). This may be in part due to a paucity of evidence demonstrating that SB confers morbidity and mortality risk in individuals with hypertension.
PURPOSE: To examine the association between device-measured SB and risk of cardiovascular mortality and all-cause mortality in US hypertensive adults.
METHODS: Data for this analysis come from the 2003-2006 National Health and Nutrition Examination Survey, a nationally representative survey of US adults. SB (expressed as hours/d) and moderate to vigorous physical activity (MVPA) were assessed with an ActiGraph 7164 accelerometer. Hypertension was classified as blood pressure ≥140/≥90 mmHg or anti-hypertensive medication use.
RESULTS: Median follow-up was 14.5 years. After adjusting for sociodemographics, lifestyle behaviors, cardiovascular disease risk factors, and MVPA, greater time spent in SB was associated with an increased risk of cardiovascular mortality [Quartile 1: REF, Quartile 2: HR=1.42 (95% CI= 0.84, 2.40), Quartile 3: HR=1.28 (95% CI: 0.83-1.99), Quartile 4: HR=2.27 (95% CI: 1.50, 3.43); p-trend<0.001]. Greater SB was also associated with an increased risk of all-cause mortality [Quartile 1: REF: Quartile 2: HR= 1.13 (95% CI: 0.83, 1.52), Quartile 3: HR=1.33 (95% CI: 1.00, 1.78), Quartile 4: HR=2.06 (95% CI: 1.60, 2.64); p-trend<0.001]. MVPA moderated the association of SB on cardiovascular mortality and all-cause mortality such that increased time spent in SB was not associated with greater risk of cardiovascular mortality [Quartile 4 vs. Quartile 1: HR=1.21; 95% CI: 0.52, 0.80; p-trend<0.001] and all-cause mortality [SB Quartile 4 vs. Quartile 1: HR=1.27; 95% CI: 0.80, 2.02; p-trend<0.001)] among those with high MVPA levels.
CONCLUSION: Greater SB is associated with increased risk of cardiovascular mortality and all-cause mortality among US adults with hypertension. These findings suggest reductions in SB should be considered to reduce mortality risk in hypertensive adults.

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In-person Vs Online/hybrid Course Format On Sedentary Time In College Students

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PURPOSE: Throughout the COVID-19 pandemic, college students faced changes regarding structure of the classroom and social interaction. This likely led to negative effects on overall health and activity levels, including increased sedentary time (ST) due to hybrid/online course formats. The purpose of this study was to investigate differences in college students ST between a hybrid/online and in-person academic semester.
METHODS: A survey was compiled and emailed to 1,575 students at a small Midwestern private college during the COVID-19 influenced Spring 2021 semester, and then in Fall 2021 when courses were in-person. The survey included self-reporting hours per day of ST on both weekdays (WD) and weekend days (WE), how ST was accumulated (doing homework, watching TV, etc.), and additional questions regarding the influence of the pandemic on activity levels.
RESULTS: A total of 184 students completed the survey in Spring 2021, and 217 in Fall 2021. The total sample (n=401) consisted of predominantly white (83%) female (64%) college students with an average age of 20.7 ± 3.6 and BMI of 25.0 ± 5.1. To examine differences in WD and WE ST, a t-test was conducted. To investigate differences in ST between semesters, course format, and BMI, one-way ANOVAs were run. Results show a significant difference in ST for WD and WE (15.8 ± 6.8 vs 12.7 ± 5.9; $p < 0.05$; $d = 0.49$), but no significant differences between the semesters and course formats ($p > 0.05$). However, WD ST was higher in