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Objectively Measured Physical Activity And Sedentary Time In Adults With Autism Spectrum Disorder

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PURPOSE: Adults with autism spectrum disorder (ASD) are purportedly inactive, but this conclusion is inferred from data on children and youth, and parent proxy reports. Objective assessment using activity monitors is needed to better understand physical activity (PA) and sedentary behavior in this population segment. The purpose of this study was to examine the general levels of PA and sedentary time in adults with ASD using accelerometry.
METHODS: Eleven adults aged 18-55 (6 females; mean = 31.9, SD = 12.5) and diagnosed with ASD were included in the study. Participants wore a GT3X+ accelerometer on their right hip for 7 days during waking hours except water-based activities, and accelerometers were programmed to collect data in 60-second epochs. ≥ 10 hours of device wear was defined as a valid day and ≥ 3 valid days was required for each participant to be included in the analyses. Activity intensities were determined using the following cutoffs (counts/min): sedentary <100, low 100-499, light 500-2019, moderate 2020-5999, and vigorous >5999 (Tudor-Locke et al., 2010), and non-wear period was determined by a minimum length of 90 min of consecutive 0-counts by Choi algorithm (Choi et al., 2011). Descriptive statistics were calculated for moderate to vigorous PA, light- and low-intensity PA, sedentary time, and walking steps.
RESULTS: The average total monitored length was 761.5 min/day (SD = 76.4). Results of the PA measures are as follows: moderate to vigorous PA - 42.8 min/day (SD = 30.5); light PA - 109.9 min/day (SD = 32.4); low PA - 97.9 min/day (SD = 33.9); and sedentary time - 511 min/day (SD = 84.6). The daily average percentage of time spent in moderate to vigorous PA was 5.8% (SD = 4.4), and the average step counts were 3799.7 steps/day (SD = 2953.9). 81.8% of the participants met the recommended PA guidelines of 150 min of moderate to vigorous PA per week.
CONCLUSION: Although the majority of adults with ASD in this study met the PA guidelines, they were also extremely sedentary. More research is needed to determine if sedentary time, rather than PA, should be targeted to improve preventive health in adults with ASD.

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Feasibility Of The Assessment Of The H-reflex In Adult Dancers And Non-dancers With And Without Down Syndrome: A Pilot Study.

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PURPOSE: The analysis of monosynaptic Hoffman's reflex (H-reflex) involves recording the response to electrical stimulation of Ia-afferent fibers from the muscle spindle. The H-reflex can be used as a probe to study spinal neuronal pathways and mechanisms at rest and during movement in humans. The purpose of this study was to analyze the feasibility of the assessment of the H-reflex in people with Down syndrome (DS), and to compare it between adult dancers and non-dancers with and without DS.
METHODS: Twenty-five participants were included and divided into four groups (6 non-dancers and 6 dancers with DS and, 7 non-dancers and 6 dancers without DS). The H-reflex was recorded at the level of the soleusmuscle in its central area. We analyzed the H response in three different conditions: decubitus prone, static standing position with open eyes and closed eyes.
RESULTS: . Non-dancers with DS showed a faster H-reflex latency than both groups without DS (all p < .005). In the present study, we provide evidence of the feasibility of eliciting the H-reflex in adults with DS. Interestingly, the H-reflex was present in decubitus position but not in standing position in most non-dancers with DS and dancers without DS.
CONCLUSIONS: The data from this study can help to perform future research in adults with DS and the development of full-scale studies to analyze this variable in adults with intellectual disability with and without DS.

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Heart Rate Variability Response Following Two Physical Activity Programs In Senior With Intellectual Disability

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INTRODUCTION: Improvements on heart rate variability (HRV) in healthy persons were found following exercise programs. There are gaps in our knowledge about the response of the HRV in seniors with intellectual disability (ID) without Down Syndrome (DS).
PURPOSE: To compare the HRV response before, during and after 6-minutes walking test (6MWT) in seniors with ID without DS after two different exercise programs.
METHODS: Fifteen seniors with mild to moderate ID without DS participated in this study. Participants were randomly divided into 3 randomized groups: sprint interval training group (SITG), combined-aerobic exercise group (AEG) and control group (CG). Participants from the SITG and AEG performed exercise 3 times/wk, 1.5 hs, during 24 wks. The 6MWT was performed before and after the programs. The intervals between R waves (RRi) were registered at rest (10 min), during the 6MWT and during the recovery (10 min) with a Polar RS800CX. HRV was analyzed by linear measures (variance) and nonlinear measure (symbolic analysis - 0V% and 2UV%). 0%V indicates sympathetic and 2UV% parasympathetic modulation.
RESULTS: Distance walked on 6MWT, variance and 0%V values do not present effect of group, moment or interaction. Better values on mean (p < .001) and 2UV% (p < .01) were founded in post-intervention in comparison with pre-intervention, but neither group effect nor interactions were observed.
CONCLUSION: Despite there is a tendency showing better HRV response values after physical activity programs, it cannot be concluded that exercise promotes beneficial changes on HRV responses. We believe that future studies with larger sample size are necessary to get across the changes on autonomic cardiac function and exercise in seniors with ID without DS.
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