









**Abstract**

**The impact of indoor and outdoor exercise programs on anthropometric, body composition, metabolic status, cardiovascular response, and neuromuscular capacity in individuals with Intellectual Developmental Disabilities**

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The increase in overweight and obesity among individuals with Intellectual and Developmental Disabilities (IDD) also increases the deterioration of functionality and the risk of developing chronic diseases. Physical exercise has been identified as an effective strategy for reducing overweight and obesity and promoting health. The aim of this study was to investigate the effects of an indoor and outdoor exercise programme on individuals with IDD. Were split by convenience into three groups twenty-one adults with IDD (43.04

± 11.18 years): i) an indoor training group (IG; N=7; 24-week machine-based gym intervention), ii) an outdoor training group (OG; N=7; 24-week outdoor intervention with low-content materials), and iii) a control group (CG; N=7). Various variables were assessed, including indicators of health and neuromuscular capacity. The *Shapiro-Wilk* ( $n < 50$ ) and Levene tests were used to verify data normality and homoscedasticity. A *Kruskal-Wallis* test was performed to understand if there were differences between the groups. The *Wilcoxon* signed-rank test and the *Friedman* test were used to understand if there were differences between moments. The effect size was calculated, and the significance level was defined at 0.05. There was a difference in fat mass in OG (pré ≠ intermediate; *Bonferroni* corrected:  $t=2.405$ ;  $p=0.048$ ;  $W=0.08$  and pré ≠ post moments; *Bonferroni* corrected:  $t=2.405$ ;  $p=0.048$ ;  $W=0.08$ ). Indoor intervention programs seem to be more effective than outdoor intervention programs for reducing heart rate rest ( $t=-2.912$ ;  $p=0.011$ ;  $W=-0.104$ ) when compared with CG. A low-cost outdoor exercise program intervention in contact with nature seems more effective in reducing fat mass. An indoor exercise program intervention using weight machines appears to be a suitable method for promoting neuromuscular capacity.

**Keywords:** cardiovascular training, health indicators, indoor, outdoor, strength capacity, strength training.