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Title: Repeatability of the endurance shuttle walk test in COPD

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Body: The aim was to evaluate the repeatability of the endurance shuttle walk test (ESWT) measured within the same day, within the same week and a week apart. Methods: Individuals diagnosed with COPD were recruited. Participants were asked to perform two incremental shuttle walk tests (ISWT) for predicting the walking intensity for the ESWT. ESWT 1 (E_1) and ESWT 2 (E_2) were performed on the same day, 30 minutes apart. ESWT 3 (E_3) was performed within a week from E_2 and ESWT 4 (E_4) was performed one week after E_3 . Heart rate (HR) (Polar RS800CX, Polar, Finland) and dyspnoea (Borg scale 0-10) were measured before and after each ESWT. Duration walked in each ESWT was measured and the corresponding walking distance was calculated. The repeatability of the four ESWTs was analyzed using repeated measures ANOVA. Results: Twenty-two participants (mean \pm SD age 71 ± 6 years; FEV₁% predicted $54 \pm 24\%$; TLC $122 \pm 21\%$) completed the study. The mean durations of E_1 to E_4 were 368 ± 203 s, 371 ± 182 s, 386 ± 213 s and 367 ± 223 s respectively, with no time effect ($F=0.18$, $p=0.79$). The corresponding distances walked in E_1 to E_4 were 474 ± 300 m, 478 ± 267 m, 511 ± 349 m, 487 ± 358 m respectively, with no time effect ($F=0.36$, $p=0.65$). The percentage predicted HR_{max} at the end of E_1 to E_4 were $79 \pm 9\%$, $80 \pm 11\%$, $82 \pm 9\%$, $80 \pm 9\%$ respectively, with no significant time effect ($F=1.94$, $p=0.13$). Conclusion: There was no evidence of a learning effect when an ESWT was repeated within one day, within one week or a week apart, showing that the ESWT is repeatable in people with moderate COPD.