Abstract
We investigated the criterion-related validity and the reliability of the 1/4 mile run-walk test (MRWT) in children and adolescents. A total of 86 children (n=42 girls) completed a maximal graded treadmill test using a gas analyzer and the 1/4MRW test. We investigated the test-retest reliability of the 1/4MRWT in a different group of children and adolescents (n=995, n=418 girls). The 1/4MRWT time, sex, and BMI significantly contributed to predict measured VO2peak (R2= 0.32). There was no systematic bias in the cross-validation group (P>0.1). The root mean sum of squared errors (RMSE) and the percentage error were 6.9 ml/kg/min and 17.7%, respectively, and the accurate prediction (i.e. the percentage of estimations within ±4.5 ml/kg/min of VO2peak) was 48.8%. The reliability analysis showed that the mean inter-trial difference ranged from 0.6 seconds in children aged 6-11 years to 1.3 seconds in adolescents aged 12-17 years (all P<0.001). In conclusion, the present study shows that the criterion-related validity of the 1/4MRW test is relatively low in the sample of children and adolescents studied. Beside the statistical significance, the reliability of the 1/4MRWT was considered acceptable, i.e. mean difference between tests ranged from half second to one second.

Keywords
1/4 mile run-walk test, Cardiorespiratory fitness. Validity, Reliability, Children, Adolescents.