

INTRA-TEST RELIABILITY AND COMPARISON OF TREADMILL AND OVER GROUND SIX-MINUTE WALK TESTS. Puthoff ML, Fern BJ, Mongar RB, Niggemeyer ET, Peters SM, Willer JW, Darter BJ, Nielsen DH. Graduate Program in Physical Therapy and Rehabilitation Science, University of Iowa, Iowa City, IA.

Hypothesis

The Six Minute Walk Test (SMWT) has been used extensively to test functional ability and measure progress in the elderly and individuals with pulmonary or cardiac disorders. The SMWT is typically performed over a 100-foot long hallway, but in an effort to make the test easier to administer, some clinics perform the SMWT on a treadmill (TM). The reliability and validity of this modification is questionable. The purpose of this study was to examine the intra-test reliability of the SMWT performed overground (OG) and on a TM and to compare the distance transversed under each situation.

Subjects

A convenience sample of twenty healthy men and women college students (mean age 23.3 ± 2.8 years) served as subjects.

Materials/Methods

Subjects performed the OG SMWT following the American Thoracic Society's protocol twice in one day. On a separate day, a TM pretest was performed to determine appropriate starting velocity and then the TM SMWT was performed twice in one day. Outcome measures included total distance achieved and averaged heart rate (HR) as measured by ECG radio-telemetry.

Results

Both TM and OG protocols demonstrated high intra-test reliability (TM ICC = 0.981, OG ICC = 0.988). A statistically significant difference was found between the mean distances for the TM (2424 ± 205 feet) and OG (2349 ± 41 feet) SMWT ($p=0.02$). Average HR values for the TM (133.7 ± 46.8 bpm) and OG (135.7 ± 15.8 bpm) were not statistically different ($p=0.26$).

Conclusions

The SMWT performed on both the TM and OG demonstrated high reliability. The differences in distance between TM and OG was statistically significant but was of negligible clinical importance as the average difference was 76 feet or a 3% change. Heart rate responses demonstrate a similar physiological response between the two protocols. These results substantiate the interchangeability of the TM and OG SMWT protocols when used with healthy subjects.

Clinical relevance

The results of this study need to be replicated with patient subgroups to confirm reliability of the TM SMWT and the clinical interchangeability between the protocols.