

A NOVEL TEST TO ASSESS CHANGE OF DIRECTION: DEVELOPMENT, RELIABILITY, AND REHABILITATION CONSIDERATIONS

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ABSTRACT

Background: Several researchers have investigated functional testing with regard to return to sport decision making. Change of direction activities play a role in the advancement of rehabilitation as an athlete progresses towards return to sport. Few studies have assessed tests that measure change of direction tasks.

Purpose: The primary purpose of this study was to establish test-retest and intra- and inter-rater reliability of performing the Change of Lateral Direction (COLD) test. The second purpose was to provide normative data for healthy college aged subjects performing the COLD test. The final purpose of this study was to assess the role of fatigue while performing lateral change of direction tasks.

Study Design: Cross-sectional, descriptive reliability study

Methods: Thirty-three female and 18 male healthy college students (mean age = 25.5) were tested on two occasions, one week apart. Subjects started out standing on a standard 4" step and rapidly altered stepping to tape markers on either side of the step as many times as possible for 30 seconds. The total number of steps achieved in 30 seconds was video recorded and watched later to count steps in order to determine reliability. The effect of fatigue was assessed by subdividing the 30 second trial into three increments: 0-10 seconds (T_{0-10}), 11-20 seconds (T_{11-20}), and 21-30 seconds (T_{21-30}).

Results: Normative data for session 1 and session 2 were 76.0 (± 10.9) and 80.1 (± 11.2) steps respectively. Inter-rater (ICC: 0.994-0.996) and intra-rater (ICC: 0.930-0.984) reliability was excellent. Test-retest reliability demonstrated a strong correlation ($r = 0.88$) between session 1 and session 2. A significant decline ($p < 0.001$) in total number of steps was demonstrated between T_{0-10} and T_{21-30} , as well as T_{11-20} and T_{21-30} during both session 1 and session 2.

Conclusions: The COLD test demonstrated excellent inter-rater and intra-rater reliability. A possible fatigue effect occurred at T_{21-30} . Because of the ease of administration, minimal equipment required, and excellent intra and inter-rater reliability, the COLD test provides an excellent functional change of direction test. This test could be used for serial reassessment during pre-season screening, rehabilitation, or return to sport.

Level of Evidence: 2c

Key words: functional testing, lower extremity lateral agility testing, performance testing

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