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Change of direction skills in elite football players in relation to speed qualities and competitive level

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INTRODUCTION:

It is well-established that football players during the course of a game perform intermittent exercise with changes in activity every 3–5 seconds. Due to multiple brief intense actions involving jumps, turns, tackles, high-speed runs, and sprints, the game of football is physically demanding (Bangsbo, 1994), and requires a highly complex hybrid of physical fitness abilities, including speed, agility, and quickness. As such, change of direction (COD) skills of the individual player can be considered an important sub-component of overall physical performance capacity.

The ability to change direction multiple times at high speed is believed to be an independent measure of performance, and improvement in straight-line sprinting speed does not appear to transfer to COD performance (Young et al., 2001). With some few exceptions (e.g., the T-test), the vast majority of COD tests are comprised of a forward directed movement pattern. Therefore, there is a need for a multi-directional COD-test which makes it possible to evaluate COD skills including the discrete movement pattern transition from fast forward to fast backwards running.

PURPOSE:

To develop and evaluate a COD-test involving multiple transitions from forward to backward high-speed movements in elite football players. Furthermore, to examine whether the COD-test can differentiate players competing at different performance levels.

METHODS:

Fifteen youth elite (YE) football players (age: 18.2±0.2 yr) and 16 adult elite (AE) football players (24.0±1.3 yrs) completed three attempts on a COD-test consisting of multiple stopping maneuvers, transitions from forwards to backward running, and acceleration over short distances (< 5 m). This test replicates a series of movements often to be found during match play, and can be considered a football specific COD test.

Also, the players carried out three straight 30-m sprints separated by 2 min of passive rest. Infrared light sensors were used to determine COD-test performance, and running time after 5, 10, and 30 m. On a separate occasion the reproducibility of the COD-test was evaluated in the YE group (N=10). Coefficient of Variation (CV) was calculated as the standard deviation of repeated measures divided by the mean times 100.

RESULTS:

Adult elite players showed superior COD test performance (+4.2%) compared to youth elite players (p<0.05) (fig.3). Test results in the 5, 10, and 30 m sprint test showed no difference when the two levels of players were compared (AE vs. YE players, p>0.05) (tab.1). COD test performance was not related to the sprinting performance measures in either group of players (p>0.05) (tab. 1). COD test-retest performance in the YE group was not different and the CV was 1.1% (fig.4).

CONCLUSION/DISCUSSION:

The lack of relationship between COD and straight-line sprinting performance suggest that COD ability is an independent measure of performance, and that it should be tested accordingly. The COD test can reveal a difference between two levels of elite football players, and due to its high level of reproducibility, the COD test may serve as a valuable tool in the selection process of talented football players in the transition from youth to adult level elite football.

REFERENCES:


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