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BRIEF NOTE

Assessment of repeated reactive agility performance in amateur soccer players

Évaluation des prestations de joueurs de football non-professionnels dans les courses d'agilité réactive

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KEYWORDS

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Summary

Objectives. – The purpose of the study was to assess the effects of fatigue on repeated reactive agility performance, explosive strength and movement frequency in amateur soccer players.

Methods. – Fifteen amateur soccer players (mean age = 23.5 ± 2.5 years; mean weight = 71.2 ± 5.8 kg; mean height = 178.7 ± 6 cm) completed a repeated reactive agility test in which they had to run short routes with changes of direction while reacting to a series of light stimuli. The test consisted of five blocks, and each block comprised five short (≈ 5 s) running tests. Counter-movement jump height and maximal foot tapping count (completed in 3 s) were measured after each reactive agility block.

Results. – There were significant differences between test times in the reactive agility blocks and tapping counts measured after the five reactive agility blocks ($P < 0.05$), but the results did not show a clear trend among these variables. Non-significant differences were found between counter-movement jump heights measured after the five reactive agility blocks. Non-significant correlations were also observed between counter-movement jump height, foot tapping count and variables measured in the repeated reactive agility test.

Conclusion. – The findings of this study emphasize the complexity of reactive agility and the role of cognitive factors in reactive agility performance. The study also highlights the difficulties of assessing repeated reactive agility performance and provides suggestions for future repeated reactive agility testing.

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MOTS CLÉS

Football ;
L'agilité réactive
répétée ;
Testing

Résumé

Objectifs. – Le but de l'étude était d'évaluer les effets de fatigue sur la prestation de l'agilité réactive répétée, la force explosive et la fréquence de mouvements dans les joueurs de football non-professionnels.

Méthode. – Quinze joueurs de football non-professionnels (âge moyenne = $23,5 \pm 2,5$ ans; poids moyen = $71,2 \pm 5,8$ kg; hauteur moyenne = $178,7 \pm 6$ cm) devaient compléter un test d'agilité réactive répétée consistant à courir de courtes distances avec changements de direction en réagissant à une série de stimuli faibles. La course comprenait cinq étapes et chaque étape comprenait de sprints brefs (≈ 5 s). La hauteur de saut en flexion et le compte de frappes de pied maximal (complétée en 3 secondes) étaient mesurées après chaque étape d'agilité réactive parcourue.

Résultats. – On pouvait mesurer d'importantes différences entre les résultats pour chaque course d'agilité réactive et les comptes de frappes de pied prises après les cinq étapes ($p < 0,05$), mais les résultats ne démontraient pas une tendance nette entre ces variables. Des différences non-significatives étaient observées entre les distances des sauts en flexion prises après les cinq courses d'agilité réactive. Des corrélations non-significatives étaient en plus observées entre hauteurs de saut en flexion, comptes de frappes de pied et les variables mesurées dans le test d'agilité réactive répétée.

Conclusion. – Les résultats de cette étude mettent l'accent sur la complexité de l'agilité réactive et le rôle de facteurs cognitifs dans la performance de l'agilité réactive. L'étude montre aussi les difficultés rencontrées lors de l'évaluation de la prestation de l'agilité réactive répétée et offre des suggestions pour les tests futurs.

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1. Introduction

Soccer and other field sports involve numerous dynamic movements, including acceleration, deceleration, and changing direction while running. The ability to efficiently perform whole-body movements with changes in speed or direction in response to a stimulus is known as agility. The two main components of agility are Change-Of-Direction Speed (CODS) and perceptual and decision-making factors [1]. Traditional agility tests focus on CODS, but recent studies investigating agility have employed running tests assessing both CODS and perceptual and decision-making factors. In these studies, authors use the term "reactive agility" to describe situations where participants have to change the direction of running while reacting to visual stimuli [2].

Several studies emphasize that the ability to repeatedly perform high-intensity exercise is one of the most important physical qualities in field sports. Studies investigating repeated sprint performance without reaction to visual stimuli show that fatigue impairs sprinting performance, which is manifested in increased sprint times in subsequent runs [3]. One question arising from the above described is whether the repeated reactive agility test results in a similar effect.

To the best of our knowledge, no studies have investigated the effects of repeated reactive agility test on physical performance. Therefore, we aimed to assess the

effects of fatigue on repeated reactive agility performance, explosive strength and movement frequency.

2. Methods

2.1. Participants

Fifteen amateur male outfield soccer players (mean age = 23.5 ± 2.5 years; mean weight = 71.2 ± 5.8 kg; mean height = 178.7 ± 6 cm) participated in the study. Players were recruited from Hungarian third and fourth division soccer teams. Participants had at least 10 years of soccer playing experience and were free of injury before and during testing. Informed consent was obtained from all participants after verbal explanation of the experimental design. The study was approved by the University Ethics Committee and was conducted in accordance with the Declaration of Helsinki.

2.2. Procedures

After standardized warm-up subjects performed the repeated reactive agility test, Counter-Movement Jump (CMJ) tests, and Foot Tapping Tests (FFT) on the Speed-Court system (Globalspeed GmbH, Hemsbach, Germany). The device consists of nine square mats with touch sensor,

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