

大学生における足趾把持力の実態と意義 -体力テストを用いた検討-

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【目的】

本研究は、大学生を対象に新体力テストならびにロコモ度テストと足趾把持力の関係を明らかにすることを目的とする。

【方法】

スポーツ系の学部には所属しない大学生94名(男子63名、女子31名)を対象とし、足趾把持力と新体力テストおよびロコモ度テストとの関係性を調査した。足趾把持力(kg)は、座位と立位の2条件で測定し、新体力テストは、文部科学省の実施要項に基づき、握力(kg)、長座体前屈(cm)、立ち幅跳び(cm)、上体起こし(回)に、閉眼片足立ち(秒)と垂直跳び(cm)を追加した6項目を実施し、ロコモ度テストは2ステップテストおよび立ち上がりテストの2項目を実施した。分析は、性別ごとにPearsonの相関係数を用い、有意水準は全て5%未満とした。

【結果】

座位の足趾把持力と相関がみられた項目は、新体力テストでは男子の握力、長座体前屈、上体起こし、閉眼片足立ちの4項目、女子の6項目全てであり、相関係数0.392～0.664の有意な相関がみられた。ロコモ度テストでは、男子は2ステップ値と相関がみられ、女子は2ステップ値と立ち上がりテストの両方に相関がみられた。

握力と相関がみられた項目は、新体力テストでは男子の反復横跳びを除く長座体前屈、立ち幅跳び、上体起こしの3項、女子は4項全てであった。ロコモ度テストでは、女子の立ち上がりテストのみ相関がみられた。

【結論】

座位の足趾把持力と新体力テストおよびロコモ度テストの間には、男子に弱い相関、女子に相関がみられたことから、大学生の座位の足趾把持力を測定することは、身体能力の評価やロコモティブシンドロームの早期発見に繋がる可能性が示唆された。

Toe grip strength in university students: An examination using physical fitness tests

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[Purpose]

This study aimed to elucidate the relationship between new physical fitness tests, locomotive function tests, and toe grip strength among university students.

[Methods]

This study was conducted on 94 university students (63 male and 31 female) who were unaffiliated with any sports-related department. We investigated the relationship between toe grip strength and the New Physical Fitness Test and the Locomotive Syndrome Test. Toe grip strength (measured in kg) was assessed under two conditions: sitting and standing. The New Physical Fitness Test, based on the guidelines of the Ministry of Education, Culture, Sports, Science and Technology, included the following six parameters: handgrip strength (kg), sitting trunk flexion (cm), standing long jump (cm), sit-ups (repetitions), single-leg balance with eyes closed (seconds), and vertical jump (cm). The Locomotive Syndrome Test consisted of two components: the two-step test and the stand-up test. The analyses were conducted using Pearson's correlation coefficient, with a significance level set at <5%, stratified by sex.

[Results]

Significant correlations were observed between seated toe grip strength and the different parameters in the New Physical Fitness Test, with correlation coefficients ranging from 0.392 to 0.664. For men, significant correlations were observed with handgrip strength, sitting trunk flexion, sit-ups, and single-leg balance with eyes closed. For women, significant correlations were observed with all six parameters in the test. In the Locomotive Syndrome Test, men exhibited a correlation with the two-step test, while women exhibited a correlation with both the two-step test and the stand-up test.

Regarding handgrip strength, correlations were observed with specific items in the New Physical Fitness Test. For men, excluding repetitive lateral jumping, correlations were observed with sitting trunk flexion, standing long jump, and sit-ups. For women, correlations were observed with five components, excluding single-leg balance with eyes closed. In the Locomotive Syndrome Test, only the stand-up test exhibited a correlation in women.

[Conclusion]

The assessment of seated toe grip strength in university students could potentially enable the assessment of physical ability and the early detection of Locomotive Syndrome, given the observed weak correlation in men and correlation in women between seated toe grip strength and both the New Physical Fitness Test and the Locomotive Syndrome Test.