

a weak positive correlation for the trunk extensor muscles in swimming athletes.

Implications: The study suggests that endurance does not influence pelvic tilt during the lumbopelvic stability test in swimming athletes, and therefore, it is important to investigate and evaluate other factors that may actually influence instability in this region.

Keywords: Kinetic chain, risk factors, athletes

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RELIABILITY, STANDARD ERROR OF MEASUREMENT, AND MINIMAL DETECTABLE CHANGE OF THE UPPER QUARTER Y TEST IN SWIMMING ATHLETES

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Background: Physical performance tests are commonly applied in sports injury prevention and rehabilitation to measure abilities linked to athletic demands, including muscle strength, explosive power, and agility. These assessments offer insight into an athlete's functional capacity. The Upper Quarter Y Test (UQYBT) has been widely used for assessment of athletes. However, there is limited information on its reliability in swimmers.

Objectives: To assess the reliability, standard error of measurement (SEM), and minimal detectable change (MDC) of the UQYBT in swimmers.

Methods: This is a cross-sectional study. This study was approved by Ethics Research Committee. Swimmers of both sexes, aged 12 to 60 years, with at least one year of competitive experience and a minimum of two training sessions per week were eligible. Two assessments were conducted with an average interval of 10.37 ± 3.15 days between them. Three ground lines were marked: medial, superolateral, and inferolateral. With one hand on the center mark, the individual reached with the free limb three times per direction. The mean, normalized by limb length, and the composite score were analyzed. The reliability of the UQYBT was assessed using the Intraclass Correlation Coefficient (ICC 3.3), Standard Error of Measurement, and 95% Minimal Detectable Change. The ICC was classified as excellent ($ICC > 0.90$), good (0.75-0.90), moderate (0.50-0.75) and poor ($ICC < 0.50$). Data analysis was performed using the Statistical Package for the Social Sciences, version 23.0 (SPSS Inc, Chicago, IL).

Results: A total of 51 athletes participated in the study. The non-normalized UQYBT for the dominant side demonstrated good reliability across all three directions, with ICC values ranging from 0.80 to 0.84. The SEM ranged from 4.11 to 6.28, while the MDC ranged from 11.41 to 17.42. For the normalized scores, reliability ranged from moderate to good, with ICC values of 0.68 for medial ($SEM = 6.12$, $MDC = 16.97$), 0.82 for superolateral ($SEM = 4.80$, $MDC = 13.31$), and 0.72 for inferolateral ($SEM = 7.43$, $MDC = 20.61$). The composite score for the dominant side also showed good reliability ($ICC = 0.82$, $SEM = 3.73$, $MDC = 10.34$). On the non-dominant side, the non-normalized score of all three directions demonstrated good reliability, with ICC values ranging from 0.86 to 0.89, SEM from

3.66 to 5.65, and MDC from 10.17 to 12.76. For the normalized scores, reliability ranged from moderate to good, with ICC values of 0.70 for medial ($SEM = 5.65$, $MDC = 15.66$), 0.87 for superolateral ($SEM = 4.43$, $MDC = 12.30$), and 0.80 for inferolateral ($SEM = 6.06$, $MDC = 16.80$). The composite score for the non-dominant side demonstrated good reliability ($ICC = 0.86$, $SEM = 3.61$, $MDC = 10.02$).

Conclusion: The UQYBT demonstrated moderate to good reliability for assessing swimmers. The SEM and MDC values were provided to help clinicians interpret the test results.

Implications: Clinicians can use the UQYBT for assessing swimmers, considering the moderate to good reliability. In addition, clinicians should consider the SEM and MDC for interpreting the results of UQYBT.

Keywords: Physical Performance Test, Functional Test, Measurement Properties

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INCIDENCE OF INJURIES IN RECREATIONAL BEACH TENNIS PLAYERS AND ITS ASSOCIATION WITH TRAINING VOLUME

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Background: Beach tennis (BT) is a sport that has become popular in Brazil, and its unrestricted and unsupervised practice has often been associated with the occurrence of injuries. However, this belief is based on empirical knowledge, without any scientific basis.

Therefore, the lack of evidence regarding the incidence of injuries in BT, as well as its relationship with training volume, can hinder decision-making regarding injury prevention strategies in this sport.

Objectives: To analyze the incidence of injuries in BT practitioners and its association with training volume.

Methods: This is a cross-sectional study that included 120 individuals who practiced BT regularly and recreationally in the last six months, with a minimum frequency of once a week. Recreational practitioners were considered those who were non-competitors or who competed only in local competitions. The dependent variable of this study was the incidence of injuries, defined as the rate of injuries per 1,000 hours of BT practice. The independent variables included the weekly frequency and number of hours per day of training, in addition to pre-training warm-ups and practice of other sports. Participants were recruited through invitations via social media and direct contact with potential participants at sports clubs. Data collection was based on an online survey that contained data on personal information, occurrence of injuries, and characteristics of BT practice. Injury incidence was calculated using the following formula: (Number of injuries/Number of hours of exposure) x 1000. The association between injury occurrence and variables related to training volume was analyzed using the Chi-square test. All analyses considered a 95% confidence interval and a significance level of 5%.

Results: A total of 166 injuries were documented in 96 practitioners (80% of the sample), after 53,232 hours of play, which generated an injury incidence rate of 3.11 injuries per 1,000 hours of BT play. Bivariate analysis indicated that variables related to the volume of BT practice, such as weekly frequency ($p = 0.83$; effect size = 0.10) and daily hours of practice ($p = 0.99$; effect size = 0.10), warm-up

before practice ($p = 0.85$; effect size = 0.10) and participation in other sports ($p = 0.10$; effect size = 0.15) are not associated with the occurrence of injuries in recreational BT practitioners.

Conclusion: The incidence of injuries in BT practitioners is relatively low and is not associated with training volume.

Implications: The results may contribute to the understanding of injuries in BT practitioners and indicate variables that do not need to be the focus of attention in injury prevention protocols in this population.

Keywords: Athletic injuries, epidemiology, injury prevention

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MOBILITY, DYNAMIC POSTURAL BALANCE AND NEUROMUSCULAR CONTROL OF SOCCER PLAYERS WITH AND WITHOUT A HISTORY OF LATERAL ANKLE SPRAIN

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Background: Lateral ankle sprain (LAS) is one of the most common injuries in soccer and is associated with persistent functional deficits, affecting mobility, dynamic balance, and neuromuscular control. Despite its high prevalence, there is still a gap in understanding the long-term implications of LAS on the physical performance of young athletes. Assessing these parameters is crucial to optimizing rehabilitation strategies and injury prevention.

Objectives: To compare mobility, neuromuscular control, and dynamic balance in under-20 soccer players with and without a history of LAS.

Methods: This is an observational, descriptive, analytical, and cross-sectional study conducted with 75 under-20 athletes (46 with a history of LAS and 29 without). Data collection included anthropometric and functional assessments using the Cumberland Ankle Instability Tool (CAIT) and the Foot and Ankle Ability Measure (FAAM) questionnaires, as well as functional tests such as the Weight-Bearing Lunge Test (WBLT), Hop Test, and Y Balance Test (YBT).

Results: Athletes with a history of LAS showed significantly lower neuromuscular control and dynamic balance. The LAS group performed worse in the Triple Hop Test for the right lower limb (mean difference = -25.42 cm; 95% CI: -45.63 to -5.21; $p = 0.018$; Cohen's $d = 0.67$). In the Y Balance Test, the anterior reach of the right lower limb was lower in the LAS group (mean difference = -2.91 cm; 95% CI: -5.78 to -0.04; $p = 0.046$; Cohen's $d = 0.54$). Additionally, ankle mobility, assessed by the WBLT, was lower in the LAS group (mean difference = -2.37°; 95% CI: -4.53 to -0.21; $p = 0.031$; Cohen's $d = 0.49$). The Cumberland Ankle Instability Tool questionnaire indicated lower stability in the LAS group for the right lower limb (mean difference = -2.38 points; 95% CI: -3.95 to -0.81; $p = 0.003$; Cohen's $d = 0.74$) and for the left lower limb (mean difference = -1.78 points; 95% CI: -3.01 to -0.55; $p = 0.005$; Cohen's $d = 0.61$). The Foot and Ankle Ability Measure questionnaire indicated poorer functionality in daily and sports activities ($p < 0.05$).

Conclusion: The findings highlight persistent functional deficits in mobility, dynamic balance, and neuromuscular control among athletes with a history of LAS. These deficits may contribute to a higher risk of re-injury and impaired sports performance. Identifying these deficiencies allows for targeted interventions in rehabilitation, injury prevention, and performance optimization.

Implications: This study reinforces the importance of implementing preventive and rehabilitative strategies for young soccer players with a history of LAS. Addressing deficits in mobility, balance, and neuromuscular control may improve performance and reduce recurrence rates. Integrating these assessments into sports routines can enhance clinical decision-making in physiotherapy, supporting long-term athletic development and injury prevention programs.

Keywords: Ankle Injuries, Postural Balance, Motor Activity

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WOMEN WITH PATELLOFEMORAL PAIN SHOW FUNCTIONAL DEFICITS WHEN COMPARED TO ASYMPTOMATIC WOMEN

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Background: Patellofemoral pain (PFP) is characterized by pain in the anterior region or around the patella during weight-bearing activities, being more prevalent in women. Its high recurrence rate can compromise the performance of daily activities. Functional tests are simple and low-cost tools widely used to assess functional performance in patients with musculoskeletal disorders. However, the functional deficit identified through these tests is still underexplored in the PFP population. Therefore, investigating whether functional tests can detect performance differences compared to asymptomatic individuals may be relevant to improve assessments in clinical practice.

Objectives: Compare the performance in functional tests between women with and without PFP.

Methods: Sixty women, aged between 18 and 35 years, physically active, participated in this study, divided into two groups: PFP ($n = 30$) and control ($n = 30$). Initially, anamnesis was performed to obtain personal data and eligibility criteria. Functional assessment was conducted through three tests. The forward jump test, in which the participant had to stand on one leg, jump as far as possible, and land without losing balance. The test was performed three times, and the best performance was considered for data analysis. The one-legged chair rise test, in which the participant had to rise from a chair and then sit back down using only the assessed leg, performing as many repetitions as possible in 30 seconds. The step-down test, in which the participant was asked to touch the ground with the heel of the non-tested leg while keeping the tested leg on the step, then return to the initial position, performing as many repetitions as possible in 30 seconds. For data analysis, an independent samples t-test was applied, with a significance level of $p < 0.05$.

Results: Women with PFP showed a deficit in functional performance in the forward jump test ($p = 0.005$), step-down test ($p < 0.001$), and one-legged chair rise test ($p = 0.042$) compared to asymptomatic women.