

multiple linear regression analysis, identifying NSAID use ($P < 0.05$) as a negative predictive factor. Ankle joint angles were in a more dorsiflexed position on a stiff (103.5 ± 1.1 degree) than on a soft floor (117.0 ± 4.1 degree, $P < 0.05$).

CONCLUSION: Our data suggest that NSAIDs prevent ATRs, potentially through lessening chronic tendinitis. Our data also demonstrates that the mechanical properties of the gymnastics floor equipment at least partly determine Achilles tendon strain. These outcomes provide a strong rationale for future studies investigating which gymnasts may benefit from prophylactic NSAID use. Furthermore, preventing softening of training floors by better maintenance and service, may condition the musculoskeletal system of gymnasts during training for the tendon strain experienced on well-serviced competition floors.

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The Analysis Of Plantar Pressure Asymmetric Of Children Aged 7-15 Years

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(No relevant relationships reported)

The rate of foot abnormalities in primary and secondary school students is as high as 80 %, and bilateral asymmetry in plantar pressure distribution is very prevalent and appears to be at an early age.

PURPOSE: To analyze the pattern of plantar pressure asymmetry in children aged 7-15 years based on age factors and to accumulate data on adolescent plantar kinetics. To provide a reference basis for the study of children's foot health problems and the prevention of foot abnormalities.

METHOD: In this study, peak plantar pressures in 10 regions of the bilateral plantar foot were collected from 575 children (298 males and 277 females) aged 7-15 years using the Footscan Plantar Pressure Distribution Gait Analysis System from a Belgian company. The index of symmetry of peak bilateral plantar pressures in children of different ages was statistically analyzed to compare the asymmetry of bilateral plantar pressures between different ages.

RESULT: The symmetry index of peak pressure in the third metatarsal region was lower in the boys aged 12 years in contrast to the boys aged 7 years (63.31 ± 61.02 vs. 21.24 ± 20.05 , $p = 0.023$); The symmetry index of peak pressure in the midfoot region was lower in the boys aged 12 years in contrast to the boys aged 9 years (54.05 ± 56.30 vs. 24.84 ± 22.08 , $p = 0.045$); The symmetry index of peak pressure in the heel lateral region was lower in the boys aged 11-15 years in contrast to the boys aged 8 years (8 Y/O. vs. 11 Y/O. : 69.78 ± 68.87 vs. 27.07 ± 31.61 , $p = 0.023$; 8 Y/O. vs. 12 Y/O. : 69.78 ± 68.87 vs. 34.78 ± 35.71 , $p = 0.067$; 8 Y/O. vs. 13 Y/O. : 69.78 ± 68.87 vs. 33.65 ± 28.19 , $p = 0.026$; 8 Y/O. vs. 14 Y/O. : 69.78 ± 68.87 vs. 31.55 ± 38.18 , $p = 0.028$; 8 Y/O. vs. 15 Y/O. : 69.78 ± 68.87 vs. 29.00 ± 29.05 , $p = 0.009$). Symmetry index of plantar pressure in different zones was not observed in girls aged 7-15 years.

CONCLUSIONS: Peak pressures in 10 regions of the plantar foot in children aged 7-15 years tended to become progressively more symmetrical with age. The shift from asymmetry to symmetry in plantar pressure was more significant in the third metatarsal region, midfoot region, and lateral heel region in boys.

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Kinematic Adaptations Of The Triceps Brachii Following Novel Bilateral Isotonic Training Among Males

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Power and acceleration of the triceps brachii are important in various sport contexts. The rate of improvement may differ depending on exercise characteristics.

PURPOSE: To measure adaptations in power and acceleration of the triceps brachii among males performing bilateral concentric-only triceps extensions with 3D isotonic resistance.

METHODS: We enrolled 37 males to perform a minimum of 5 exercise sessions on separate days involving bilateral triceps extensions. Exercise was performed using a Proteus device, which produces 3D electromagnetic resistance. We tracked the subjects through 10 exercise sessions; 14 subjects were retained through session 10. During each set, we recorded average peak power across all repetitions (mean power), highest power achieved in any repetition (peak power), average peak acceleration across all repetitions (mean acceleration), and highest acceleration achieved in any repetition (peak acceleration). We performed paired samples *t*-tests to compare values at days 1 and 5 ($n=37$) and values at days 5 and 10 ($n=14$). Linear regressions estimated the effect of exercise session (1 through 5) on power and acceleration holding age constant.

RESULTS: Subjects were 36.5 ± 21.3 years of age, 69.8 ± 3.8 inches in height, and weighed 178.3 ± 32.0 lbs. At intake, mean power was 108.5 ± 74.2 W, peak power was 122.6 ± 80.1 W, mean acceleration was 6.8 ± 5.3 m/s², and peak acceleration was 9.8 ± 8.4 m/s². Between sessions 1 and 5, subjects improved 49.5% in mean power ($p < 0.001$), 48.0% in peak power ($p = 0.003$), 62.0% in mean acceleration ($p < 0.001$), and 52.4% in peak acceleration ($p < 0.001$). Between sessions 5 and 10, subjects improved 25.3% in mean power ($p < 0.001$) and 29.0% in peak power ($p < 0.001$). There were no changes in mean acceleration ($p = 0.432$) or peak acceleration ($p = 0.394$). Holding age constant, each additional exercise session (1-5) predicted an increase of 12.9 W in mean power ($p = 0.003$; 95% CI: 4.57, 21.31), 14.3 W peak power ($p = 0.002$; 95% CI: 5.25, 23.41), 1.0 m/s² mean acceleration ($p = 0.009$; 95% CI: 0.26, 1.78), and 1.3 m/s² peak acceleration ($p = 0.217$; 95% CI: -0.76, 3.33).

CONCLUSION: Males experienced significant improvements in triceps brachii power and acceleration within 5 workouts. Power continued to improve through 10 sessions while improvements in acceleration tapered after 5 sessions.

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Ankle Stability And Single-leg Balance Control In Collegiate Female Soccer Players Versus Non-soccer Players

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(No relevant relationships reported)

PURPOSE: Ankle sprains are very common in female soccer players. After ankle injuries, compromised proprioception and neuromuscular control may lead to chronic ankle instability and balance control deficits in female soccer players. This study aimed to examine if female collegiate soccer players exhibited worse ankle stability and static/dynamic single-leg balance than female non-soccer players, and whether there was a correlation between ankle stability and static/dynamic single-leg balance in those participants.

METHODS: Eighteen female collegiate soccer players (aged 18-21 years) and 22 female non-soccer players (aged 19-27 years) participated in the study. The Cumberland Ankle Instability Tool (CAIT) was used to evaluate ankle stability. The Athletic Single Leg Stability Test (ASLST) of the Biodex Balance System was used to examine static single-leg balance, and the Y-Balance Test (YBT) was used to examine dynamic single-leg balance.