

BACKGROUND: Explosiveness of lower limbs is an important skill as to be a quality soccer player. A few studies have been performed to investigate explosiveness using male soccer players; however, it is not well studied in females, especially during their growth process and different jump types.

PURPOSE: To compare explosiveness of lower limbs in three different age categories of national level female soccer players in three types of jumps.

METHODS: A total of 49 female national level soccer players of three age categories (U15 = players under 15 years N = 17, U17 = players under 17 years N = 16, U19 = players under 19 years N = 16) were tested using a two force platforms in three types of jumps: countermovement jump free arms (CMJFA), countermovement jump (CMJ), squat jump (SJ). The following parameters were evaluated: jump height (JH), maximum take-off force (F_{max}) and force difference between preferred and non-preferred leg (F_{diff}). All parameters were processed using MANOVA and Bonferroni post-hoc test, effect size (η^2).

RESULTS: Players achieved the following values: (U15: CMJFA = 32.58±3.25 cm, CMJ = 28.19±3.81 cm, SJ = 25.38±3.33, U17: CMJFA = 34.26±4.22 cm, CMJ = 29.64±3.34 cm, SJ = 28.05±3.19 cm, U19: CMJFA = 37.20±5.80 cm, CMJ = 31.89±5.47 cm, SJ = 29.98±5.17). Bonferroni's post hoc test revealed significant differences in explosiveness between U15 and U17 as well as U15 and U19 ($p < .05$). The MANOVA analysis revealed a significant age effect on JH ($F_{2,147} = 12.61$; $p < .01$, $\eta^2 = 0.16$) and F_{max} ($F_{2,147} = 4.19$; $p < .05$, $\eta^2 = 0.06$). Also, significant effect was detected by different type of jump on JH ($F_{2,147} = 33.28$; $p < .01$, $\eta^2 = 0.33$) and F_{max} ($F_{2,147} = 24.2$; $p < .01$, $\eta^2 = 0.26$). We also found significant effect of jump types on F_{diff} ($F_{2,147} = 6.49$; $p < .01$, $\eta^2 = 0.09$). Players achieved significantly higher F_{diff} in CMJ = 9.59 ± 6.79 % compare to SJ = 5.56 ± 3.89 cm ($p < .01$). Thirteen players (26.5 %) had a F_{diff} higher than 10% during take-off.

CONCLUSION: Explosiveness is different by ages in youth elite female soccer players. Jump types influence jump height and maximum take-off force as well as force difference between preferred and non-preferred leg. The study revealed significant differences F_{diff} with respect to the type of jump. More than 25% of female soccer players had F_{diff} greater than 10%.

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The Lower Extremity Strength, Bilateral And Ipsilateral Strength Assymetries In Elite Female Soccer Players

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BACKGROUND: Soccer frequently involves one-sided activities such as kicking, tackling and passing, which may lead to strength asymmetries (SA), and effect of the age is not well studied.

PURPOSE: The aim was to investigate effect of limb-dominance and ages through relative strength measures of knee extensors (KE), knee flexors (KF), bilateral strength ratio (QQ, HH), and ipsilateral strength ratio (HQ) in youth elite female soccer players.

METHODS: National level female soccer players of three age categories (Under 16 years =17, Under 17 years =16, Under 18 years =16 players) performed isokinetic strength testing for KE, KF at three velocities (60, 180, 300 °.s⁻¹) for the dominant (DL) and non-dominant leg (NL). Mean peak torque of extensors (PTE) and flexors (PTF) values were calculated in Newton-meters relatively to body weight (N·m·kg⁻¹) and strength ratios were derived from peak torques. Three-way Mixed-design ANOVA with two between subject effect (age, limb dominance) and one within subject effect (angular velocity) were used. Bonferroni's *post-hoc* test was employed due to the multiple comparisons. Effect size was assessed using the η_p^2 coefficient.

RESULTS: Significant age effect was observed in PTE and PTF (PTE: $F_{2,91} = 4.60$, $p = 0.013$, $\eta_p^2 = 0.09$, PTF: $F_{2,91} = 11.31$, $p = 0.001$, $\eta_p^2 = 0.20$). Conversely, age did not indicate significantly effect on bilateral strength ratio (QQ, HH) ($F_{2,91} = 2.00$, $p = 0.141$, $\eta^2 = 0.04$) a HQ (HQ: $F_{2,90} = 1.03$, $p = 0.361$, $\eta^2 = 0.02$). Significant limb dominance effect was not identified in PTE, PTF and HQ (PTE: $F_{1,91} = 0.06$, $p = 0.810$, $\eta^2 = 0.01$, PTF: $F_{2,91} = 0.30$, $p = 0.587$, $\eta_p^2 = 0.00$, HQ: $F_{2,91} = 3.50$, $p = 0.065$, $\eta^2 = 0.04$). We found significantly higher strength asymmetries in KF compare to KE ($F_{1,91} = 15.89$, $p = 0.000$, $\eta^2 = 0.15$). Post-hoc analysis showed a significant difference in PTE between U15 vs. U19 and in PTF between U16 vs. older age category (U17, U19). The higher bilateral strength differences (QQ > 10%) we found in following age categories (U16 = 53%, U17 = 50%, U19 = 56%). Moreover in knee flexors (HQ > 10%) were even higher strength asymmetries (U16 = 71%, U17 = 75%, U19 = 79%).

CONCLUSIONS: The current results indicated effect of age on PTE, PTF but not in limb dominance. More attention should be paid to knee flexors where higher occurrence of strength asymmetries were found.

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Multicomponent Training Distress Scale (MTDS) Questionnaire to Detect Training Distress in Collegiate Soccer Players

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It may be helpful for coaches and trainers to understand risk factors that predict training distress in collegiate athletes. Recognizing who is at risk can assist in the detection of early symptoms so that training adjustments can be made and overtraining avoided. Subjective measurements of subjects' psychological state can be collected with simple questionnaires and are useful for determining training distress.

PURPOSE: To utilize the Multicomponent Training Distress Scale (MTDS) questionnaire to examine athletes' mood and physical states for determination of training distress risk. Gender, season duration, and grade in school were considered variables of interest for predicting training distress.

METHODS: 17 male and 26 female collegiate soccer players were enrolled in the study. The MTDS was administered at four time points throughout the season (at the beginning, twice during the season, and once during post-season play). Questionnaires were given to all athletes at the end of their training sessions. Multivariate analyses were performed with the dependent variables of the MTDS across time, grade in school and gender. Only the composite MTDS score is reported in this abstract.

RESULTS: The overall multivariate was significant ($p < 0.05$); the main effects for gender, time, and year in school were also significant ($p < 0.05$). Overall, female scores were higher than males. Males exhibited less training distress throughout the season while females had increasing scores throughout the season, then declined at the end ($p = 0.042$). Post-hoc analysis for year in school showed that freshman and sophomores had higher training distress scores compared with juniors and seniors ($p = 0.001$).

CONCLUSIONS: MTDS identified gender and year in school as possible variables that could serve as indicators for risk of training distress. College coaches and trainers should consider applying different training loads to men and women as well as underclassmen and upperclassmen.

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Stress and Mood Affect Sleep Quality and Quantity in College Female Soccer Players

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Despite a growing number of studies indicating that reduced sleep duration and quality have a negative influence on recovery and performance in many sports, data regarding the sleep habits of collegiate athletes is lacking. Highlighting factors that have a negative influence on sleep in collegiate athletes could lead to interventions that may increase sleep duration and quality, which could lead to increased performance and reduced injuries. College level athletes balance many physical and mental stressors, in order to be successful as student-athletes, and given the close relationship between mental states and sleep, these stressors may interfere with their sleep.

PURPOSE: To explore associations between stress, mood, sleep quality, and sleep duration in a college female soccer team across an entire season.