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PHYSICAL FITNESS COMPARISON BETWEEN PROFESSIONAL SOCCER PLAYERS AND U17 ELITE YOUTH

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INTRODUCTION:

According to the literature, the success rate of a youth footballer, already at the highest youth level, becoming a professional soccer player is minimal. However, general athleticism is undeniably a major factor in a successful transition to senior soccer. Therefore, comparing these youth athletes athleticism to those already at the highest standards would provide an inside into the fitness parameters needed.

METHODS:

Fifty-two professional male football players (pro) (age = 27.37 ± 5.57 years) and forty-four youth players (age = 16.20 ± 0.80 years) performed a series of laboratory tests to assess anthropometry, lower body strength, cardiovascular endurance, lactate curve profiling and leaping ability.

RESULTS:

Independent t-tests demonstrated that the pros were significantly taller 179.77 ± 6.72 cm and heavier 77.11 ± 6.54 kg than the youth 175.97 ± 5.84 cm and 66.98 ± 6.19 kg, respectively. The 7-site skinfold method demonstrated no significant difference in body fat percentage (BF%) (10.5 ± 3.28 pro vs 9.83 ± 3.01 youth). The remaining sites were not significantly different. Pros demonstrated greater leaping ability on both the squat jump (39.62 ± 3.83 vs 33.68 ± 4.73 cm) and the countermovement jump (42.52 ± 3.84 vs 36.86 ± 4.73 cm). The quadriceps and hamstrings strength measured on the isokinetic device at a speed of 60 degrees /sec demonstrated that both muscle groups were significantly higher in pros. The pro group ran significantly longer on the incremental running test (18.08 ± 1.83 vs 17.19 ± 1.86 min). Mixed design ANOVA was used to evaluate the aerobic fitness characteristics within the pro and youth groups and between them at each of the increments. The Greenhouse-Geisser analysis demonstrated that there was a significant effect of within-group lactate values ($F(5, 125) = 723.3$, $p < 0.001$, $\eta^2 = 0.92$) and a significant interaction of playing standards ($F(5, 125) = 3.30$, $p < 0.05$, $\eta^2 = 0.05$). The pairwise comparison demonstrated that after the first running increment, the youth experienced significantly greater production of lactates in all the remaining increments. Similarly the VO₂ values had a significant within group VO₂ values ($F(5, 125) = 722.59$, $p < 0.001$, $\eta^2 = 0.91$) and a significant interaction of playing standards ($F(5, 125) = 3.23$, $p < 0.05$, $\eta^2 = 0.04$). The pairwise comparison demonstrated that the youth experienced significantly greater VO₂ values in all the remaining increments. Thus, the VO₂ max of the youth was significantly higher, 61.12 ± 5.57 ml/kg/min, than the pros, 55.32 ± 6.76 ml/kg/min.

CONCLUSION:

The findings of this study demonstrated the superiority of pro footballers compared to youth U17 in all laboratory fitness parameters. The results indicated that cardiovascular fitness depended mainly on lactate kinetics rather than the VO₂ max when comparing the two groups. Furthermore, the most notable difference is lower body strength. Practitioners could use the results in developing targeted programs that would enhance the chances of a successful transition to senior soccer.

Topic: Training and Testing

Presentation E-poster

