TACSM Abstract

Sex Moderates the Fitness Tests - Performance Index Relationship in Collegiate Basketball: A Case Study

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ABSTRACT

Performance indicators are used widely in sports, including basketball. Those total performance metrics are mathematical models that are used to determine the "best" athlete per game/week/season. Players with higher metrics get recruited more and/or get offered better contracts. During offseason, strength and conditioning coaches (SCCs) perform tests to determine the fitness levels of their players. Although those scores differ by sex, the fitness levels are associated with in-season sport performance and, therefore, performance indices. More insight in the fitness tests - performance index relationship in the collegiate basketball and the differential effects by sex would be valuable for all stakeholders (e.g., SCCs, sport coaches, sport agents). In the US, the Player Efficiency Rating (PER) and Efficiency (EFF) are the most commonly used basketball performance indices. **PURPOSE**: To investigate a) correlation between the uPER and EFF by sex and b) which fitness test most strongly correlates each index by sex. **METHODS**: Ten male and eight female basketball players (n = 18) from the same college participated. Several fitness tests (full court sprint, bench press, power clean, vertical jump, standing broad jump, and T drill) were performed in the off-season. Performance data, which were collected throughout the following season, were used to calculated unadjusted PER (uPER; equation not shown for space) and EFF (PTS + REB + AST + STL + BLK − Missed FG − Missed FT - TO) / GP). To examine the characteristics of fitness test distributions by sex, the means and standard deviations were generated for each sex. Pearson correlations were estimated as indicators for the relationship between the performance indices and also the relationships between each of the fitness tests and the performance indices by sex. **RESULTS**: Our results showed lower means and less variability of the fitness tests scores in women than men. The correlation between uPER and EFF in men was moderate (r = .359) and strong in women (r = .662). No strong correlation was found in men between any fitness test and EFF, while full court sprint was strongly correlated with uPER (r = .738). In women, strong correlations were detected between a) T drill and EFF (r = .574) and b) foul court sprint (r = .610), vertical jump (r = .662), and T drill (r = .659) and uPER. No statistical inferences were made due to the nature of the study. **CONCLUSION**: Our outcomes suggest that uPER and EFF reflect different amounts of information based on sex. Practical implications include that a) foul court drill scores may predict uPER more accurately in both men and women and b) T drill scores may predict both EFF and uPER more precisely in women. Future, larger-scale studies should replicate in other settings with larger samples. Limitations may include small sample size.

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