

第100回スポーツサイエンス研究会

グローバルCOEプログラム「アクティヴ・ライフを創出するスポーツ科学」

日時 2012年2月2日(木) 15:00より

場所 早稲田大学 所沢キャンパス フロンティアリサーチセンター115室

演題

A series of investigations related to softball and baseball performance:

- 1. Implications for the importance of force application for pitching velocity and strength development to improve base running and change of direction ability**
- 2. Monitoring neuromuscular and perceptual fatigue during a baseball tournament**

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Muscular strength, power, speed and change of direction performance are critical components of many athletic pursuits. Improvements in strength and power have been shown to have both significant and non-significant relationships with improvements in performance measures such as speed and change of direction performance and therefore many researchers continue to investigate this relationship. It is believed that the relationship between these variables is modified by the sport played by the athlete, gender, training history and training phase and should therefore be studied longitudinally in the athletes of interest. This research was specifically interested in high-level softball players and of additional interest in this population is pitching velocity. Small increases in the velocity of a pitched ball can decrease the reaction time afforded to a batter and has been shown to greatly modify the offensive capability of softball athletes. Therefore, investigating if force production and pitch velocity have a relationship during the windmill pitching motion could provide insight into mechanisms for improving pitch velocity. Finally, the ability for teams (in both baseball and softball) to perform at their highest level repeatedly over a tournament is crucial for winning championships during most semi-professional and professional competitions. Therefore, identifying a method to easily monitor fatigue (especially neuromuscular fatigue) is important for ensuring optimal performance of each player. All of the aforementioned variables combine to be a large part of what contributes to athletic performance capabilities in both softball and baseball; therefore it was the purpose of a series of investigations to:

1. Investigate the cross-sectional relationship of strength, power, and performance variables in trained female athletes and determine if these relationships change over time (longitudinal).
2. Examine the relationship between percentage change in muscle architecture variables and percentage change in strength, speed and agility performance.
3. Determine the relationship between ground reaction forces and pitch velocity in elite fastpitch softball pitchers.
4. Determine if a relationship exists between a physiological measure of neuromuscular fatigue and perceptual fatigue.
5. Monitor and describe perceptual fatigue experienced by players during a national baseball tournament.



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