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EDITORIAL

Current Issues in Strength and Conditioning

The primary emphasis of this special issue is to focus on review and original scientific investigations, which concentrate on methods leading to improved sport performance and athlete health. Topics include such popular training techniques as eccentric training, complex training, and whole body vibration. Further, topics related to performance assessment, and neuromuscular adaptations to resistance exercise are included. The practical applications of key findings and their potential contributions to evidence-based practice from the perspective of program design and implementation are emphasized in order to provide readers with applied training recommendations.

The first article by Jagim, Wright, Kisiolek, Jones and Oliver entitled *Position Specific Changes in Body Composition, Hydration Status, and Metabolism During Preseason Training Camp and Nutritional Habits of Division III Football Players*, examined changes in body composition, dietary habits and metabolism in American football players by position. Interestingly, although preseason training was very intense, body fat % increased in all players while non-linemen consumed more total calories than large linemen, especially protein. This may have led to decreases in muscle mass and should therefore be monitored closely.

The second article by Lehnert, Stastny, Tufano and Stolfa entitled *Isokinetic Strength in Elite Adolescent Soccer Players*, observed eccentric training induced changes in knee strength and ratios. Following 10 weeks the functional ratio increased in favor of eccentric hamstrings, which is of high practical relevance given the hamstrings purpose of deceleration and injury risk reduction in high speed kicking, and change of direction movements.

Ciccone, Deckert, Herda, Gallagher and Weir entitled the third article as *Methodological Differences in the Interpretation of Fatigue Data from Repeated Maximal Effort Knee Extensions*, in which they investigated a unique form of leg fatigue analysis by examining different reps schemes and ranges of motion. Their results clearly demonstrate that full range of motion, or work, while omitting early repetitions best represents fatigue.

In another fatigue investigation, the fourth article by Marqués-Jiménez, Calleja-González, Arratibel, Delextrat and Terrados entitled *Fatigue and Recovery in Soccer: Evidence and Challenges*, reviews the current evidence relative to fatigue and recovery. They conclude that inter-individual differences between players calls for analysis on an individual basis in order to allow for optimal recovery and subsequent performance.

The fifth article by Tran, Lundgren, Secomb, Farley, Haff, Nimphius, Newton, Brown and Sheppard entitled *Effect of Four Weeks Detraining on Strength, Power, and Sensorimotor Ability of Adolescent Surfers*, demonstrating performance decrements with a cessation of resistance training while maintaining sport training. Thus, it is clear that sport training alone is insufficient to maintain peak levels of strength and power.

A sixth article by Ferrari, Kothe, Bottaro, Cadore and Kruegel entitled *Muscle Mass and Training Status do not Affect the Maximum Number of Repetitions in Different Upper-Body Resistance Exercises*, investigated relative muscle performance related to mass, joint, exercise and intensity. Their results show that regardless of joint or mass, it is load or intensity that directly influences total repetitions performed across exercises. This has clear relevance for resistance training exercise prescription.

In another recovery study, the seventh article by Cheng, Lu, Huang, Hsu, Kuo and Lee entitled *Effects of Low-Frequency Vibration on Physiological Recovery from Exhaustive Exercise*, examined physiological markers following high intensity cycling. They show that vibration, coupled with rest, can reduce metabolic by-products after exhaustive exercise, which may lead to a faster return to play as well as greater performance.

The eighth article by Lockie, Lazar, Risso, Giuliano, Liu, Stage, Birmingham-Babauta, Stokes, Davis, Moreno and Orjalo entitled *Limited Post-activation Potentiation Effects Provided by the Walking Lunge on Sprint Acceleration: A Preliminary Analysis*, experimented with sprint postactivation potentiation *via* a lunge exercise. They found little evidence of increased performance in top speed running but demonstrated promising results in acceleration. This lends credence to proper pre-competition warm-up and readiness protocols.

We believe these eight unique articles representing seven different countries provide practical applications of current resistance training and recovery practices for those interested in maximizing performance. We hope readers gain knowledge and insight into proper exercise protocols and these papers also stimulate further investigation into optimal physiological training.

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