Soccer demands different than other sports

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Increased levels of competition coincide with the growing popularity of soccer in the United States. Competition at any level demands the very best from all participants: players, coaches and officials.

The pillars of soccer – technical, tactical, psychological and physical – must be re-assessed in an effort to enhance the performance of the coach and players. One factor in improving performance levels is fitness training and testing. Fitness training and testing systematically evaluates the physical performance of players. The game itself is the ultimate test of overall fitness.

The execution of decisions under pressure, the vision to take advantage of space and the ability to take opponents on with the dribble can truly be tested in the confines of the game. However, the physical performance of a player can be standardized and isolated. The level of fitness and physical performance correlate to the demands of the game. The demands of soccer are different from other sports. Although aerobically-based, soccer also sees bursts of anaerobic effort.

During a game, top-level players cover approximately 9-12km with over 1000 discrete actions involved. These actions change every five to six seconds with a pause of three seconds every two minutes. The ratio of low intensity work (walking, jogging, etc.) to high intensity work (sprints) is 7: 1. Sprints average 15 meters and occur nearly every 90 seconds. Therefore, specific and varied training needs to be implemented for maximum results.

Hank Bias, Fairmont High School boy's soccer coach, employs both aerobic and anaerobic training with his athletes. "They weight train approximately twice per week for size and strength during the off-season from December through August," Bias said. "During this time, they are encouraged to practice their skills as often as possible, including organized sessions at least twice per week." He said that creates a nice mix of sport-specific activities as well as lessening the chance of burnout. This strategy obviously works, because in the last four years of utilizing an off-season training program, his teams have compiled a 54-14-6 record, including impressive tournament victories this year.

Soccer involves a predominant level of aerobic endurance as well; however, sharp and quick executions of movements with or without the ball are crucial. Bursts of speed to challenge or maintain possession are important. What becomes central to the fitness of a soccer player is his/ her ability to recover after short bouts of high energy. Sideways, backward and jumping movements exert more energy than "normal" movement. Even dribbling expends more energy then normal movement.

Over a 90-minute game, the demands can vary. The purpose behind the game can determine and/or dictate the level of intensity, for example, a World Cup final versus an away game played mid-season. The outcome becomes an important factor in the style of play. The "direct" method of play, fashionable with England, Ireland and Norway, demands that players cover 1km more of space versus the "possession" method of play in South America. Weather conditions and geographical location also play a role in determining the method of play. Warm weather at 5,000 feet above sea level can alter the demands of the players. Teams may need to adjust their methods of play to meet environmental conditions. European and North American teams have acclimatized their physiological levels and methods of play in an effort to improve their performance and outcome.

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Levels of performance and activity are distinguished by player positions. Centerbacks and strikers jump to

head the ball 20 times more a game in comparison to their counterparts. Tackles are greatest among defenders. As play advances toward goal, the level of pressure and the demands are greater. This is evident by the lower success rate in passing and tackling in the opponents final- third of the field. Midfielders generally run at a greater speed than defenders and forwards before reaching their respective aerobic capacity/maximum oxygen uptake. Maximum oxygen uptake is the amount of oxygen the body consumes before the level of performance begins to plateau. Fullbacks and midfielders score higher on maximum oxygen uptake tests than their counterparts.

Physical performance can be evaluated properly with respect to the demands of the game. For fitness testing to be an evaluation process of physical performance, testing must replicate the activities involved in the game. Tests that involve the random physical activities of soccer – intermittent accelerations, decelerations, jumps, turns and stops – are the most beneficial in gaining a true indication of soccer fitness. Fitness testing and training should be soccer-related to be valid in the eyes of the game. Then, the results are many: rehabilitation progress, team progress and player progress.

*(*Contributed by Bryan Thorp. Research obtained from "The Physiological Demands of Football," "Worldwide Report on Science and Football Research," and "Performance Testing in Soccer.")

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