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MY FIRST SPORTS SCIENCE PRESENTATION

BY RICHARD BUCCIARELLI

On May 14-16, 2008, in Liverpool, England, I (representing Soccer Fitness Inc.) and other representatives from both the ANB Futbol Academy and the University of Toronto Human Physiology Performance Lab attended and presented at the First World Conference on Science and Soccer. The world's first ever research conference devoted entirely to the sport of soccer, this was a big event that featured keynote speeches from former Head of the Scottish FA, Craig Brown, as well as former Danish National Team, and Juventus FC Fitness Coach, Jens Bangsbo, among others. As a young sports scientist, to me this Conference represented my very first opportunity to present research and receive feedback (as well as criticism) from some of the best and most accomplished individuals in the industry.

I spent my first two days attending as many presentations as I could, listening and fervently taking notes. Day three was poster presentation day – the day where I had to stand in a room full of students and researchers from all over the world and present my team's poster and the findings from our study. I was definitely feeling the pressure when one of the Conference delegates approached me, introduced himself, and asked some questions about why I chose to use the 10-metre distance, and five total repetitions, for our repeated sprint tests. Without taking the time to read the business card he handed me, I proceeded to answer his question, simultaneously being as thorough as possible while also maintaining a rapid pace – I probably did not stop talking for two to three minutes! We ended up having



Richard Bucciarelli at his first World Conference on Science and Soccer in 2008.

a nice discussion about repeated sprint assessments, and he explained to me why, where he worked, they preferred to use a longer distance (25 or 30 metres) with more repetitions (8 to 10) for their tests. It was only later on, when I reached back into my pocket and looked at his card, that I realized who I had been talking to: Dr. Martin Buchheit, the Lead Exercise Physiologist at the Aspire Academy, one of the world's largest and most advanced sports science research institutes, located in Qatar.

This revelation had a very positive impact on my career as a soccer-specific fitness coach. Having thoughtful conversations with people like Dr. Buchheit at the conference in Liverpool encouraged me to get much more involved in my own research, eventually leading to my partnering with Paolo Pacione (former Head of Sports Science at the Ontario Soccer Association and currently Fitness Coach for the Montreal Impact in MLS) and Robert Rufp (PhD student at the University of Toronto, and Exercise Physiologist at the

Canadian Sports Centre Ontario) on several new research projects, some of which are still on-going today. I was also fortunate to attend and present some of this research at other large and internationally recognized soccer-specific conferences, including the Second World Conference on Science and Soccer in Port Elizabeth, South Africa (2010), and the 7th World Congress on Science and Football in Nagoya, Japan (2011).

Looking back on this experience five years later, I have to express my sincere gratitude to all the Delegates at the First World Conference on Science and Soccer. They made me feel welcome and part of a great community of sports scientists, academics, doctors, rehabilitation specialists, fitness coaches, and a host of other individuals whose primary interest is the same as my own: to further our knowledge, understanding, and practical expertise in the science of sport as it relates to improving, maximizing and sustaining high performance in soccer.

OUR PRESENTATION:

DETERMINING A RECOMMENDED AGE OF USING REPEATED SPRINT TESTS ON CANADIAN YOUTH SOCCER PLAYERS:

1. OUR RESEARCH:

Our research was conducted at the Country Day School in January, 2008. Richard Bucciarelli, soccer specific strength and conditioning coach, and ANB Futbol Academy staff coach, conducted fitness tests on all ANB Academy players from the U-12 to U-18 age group, with a total of 90 players' test scores used for this project.

Players were evaluated on a number of performance measures, including: sit-and-reach (flexibility) standing broad jump (power) 10-metre sprint (starting speed) 5 x 10-metre sprint (speed endurance) and the beep test (aerobic endurance).

Once the testing was completed, the results were taken to the University of Toronto Human Physiology Performance Lab, where Robert Rupf, Master's student in Exercise Physiology at U of T, analyzed the data from the tests. The findings from this analysis were displayed on our poster and were presented to delegates on Day 1 of the Conference.

2. OUR FINDINGS:

A typical score or result of a repeated sprint test for an adult professional player would be as follows: very fast first sprint (indicative of good starting speed), slower second - fifth sprints (indicating incomplete recovery from the explosive first sprint), similar times for the second - fifth sprints (indicating good anaerobic recovery between sprints).

This is because we know that adult professional players have a high capacity for explosive starting speed, and in addition they are well trained to be able to recover between short sprints, so they should be able to sustain a good short sprint performance over multiple repetitions. When examining the results from players in the ANB U-16 and U-18 age groups, we found that they were very similar to the expected results listed above (fast first sprint, and slightly slower second - fifth sprints, that did not get markedly slower from second - fifth sprint). Thus, we found that repeated sprint tests are a useful tool to measure performance of elite youth players from the ages of 16-18 years.

However, when we looked at players from the ANB U-12 to U-14 age groups, they showed no significant difference in their sprint times in the 5 x 10-metre repeated sprint test. This means that in many cases, these players were actually faster on the fifth sprint than on their first one. What this finding indicated is that repeated sprint testing is not useful for players under the age of 14, as it is not a good indicator of physical ability or performance in this age category. The most probable reason for this is that young players have not yet



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developed their anaerobic (speed and power) systems to be able to perform and recover from repeated short sprints.

3. IMPLICATIONS / RECOMMENDATIONS FOR YOUTH COACHES IN CANADA:

Our research has demonstrated that repeated sprint tests are not a useful tool to evaluate the physical abilities of players from the ages of 10-14. Coaches working with athletes in the 10-14 year old age groups should develop a program of fitness tests that focuses on assessing speed, power, and aerobic endurance, and they should not spend time testing anaerobic or speed endurance. We know from previous research studies that players who perform well in soccer-specific

endurance tests (such as beep tests) are able to do more high intensity work during games. Through our study, we determined that players who performed well on our repeated sprint tests also performed well on the beep test. This means that players who are able to perform repeated short sprints at a high speed during training, as well as recover well between those short sprints, will be able to perform more high intensity work during games. Repeated sprint training, which involves performing repeated short sprints without full recovery, is a recommended method of training to improve players' physical performance during games. Coaches should develop fitness training exercises that incorporate short sprints, with and without the ball, in realistic game situations.

