


CANADA'S PREMIER SOCCER MAGAZINE | WWW.INSIDESOCCER.CA

ISSUE #98 | OCTOBER/NOVEMBER 2012 | \$5.95

INSIDESOCCER

Informing and Entertaining the Canadian Soccer Community Since 1992

Magazine



OH...
CANADA!

OUR WOMEN ROCK THE NATION!

THE 2012 GUIDE
TO INDOOR
SOCCER

IN THIS ISSUE:

CANADA'S GOLDEN MOMENT:
WINNING THE BRONZE

2012 FIFA FUTSAL
WORLD CUP PREVIEW

OLYMPIC SOCCER
IS DIFFERENT





SOCCER WITH HEART

BY RICHARD BUCCIARELLI

A common challenge among fitness coaches working with soccer players is the ability to accurately monitor and quantify the intensity of their workouts.

Heart rate monitors, which record the heart rate in beats per minute (BPM – the number of times the heart beats in one minute), are an efficient and accurate way for these measurements to be taken. This article will discuss the rationale for using heart rate monitoring, as well as feature some popular and common methods of heart rate monitoring and how they are applicable to soccer.

Why Measure Heart Rate in Soccer?

So that working muscles may continue to contract and move when exercising, one's heart rate must increase in order for the heart muscle to supply enough oxygenated blood to those working muscles. During an intermittent sport like soccer, players will perform several hundred different actions over the course of a 90-minute game, with a change in activity – and intensity – happening every 3-5 seconds. These short, intermittent bursts of activity affect the heart rate by

continuously raising and lowering it in response to the raised/lowered energy demands of each activity. The resulting heart rate may be very high (≥ 200 BPM) at times, and very low (≤ 100 BPM) at others. In a recent study by Helgerud et al (2008) the average heart rates of 26 players playing in both the English Premier League and the UEFA Champion's League was 180-190 BPM during games. Players in this study covered an average of 8-12 kilometers at approximately 80-90 percent of their maximum heart rates throughout the games they played.

Monitoring players' heart rates during training is important in order for fitness coaches to ensure that the intensity of training is high enough to match or exceed the intensities experienced during competitive matches, as described above. If players' heart rates are too low during training, they will never achieve the improvements in aerobic endurance necessary to be able to compete at higher levels of play. Conversely, consistently high heart rates during training, specifically during

interval training, may indicate that the recovery periods between intervals are not long enough to facilitate adequate recovery, which can also compromise results and performance.

Several different methods of monitoring heart rate are currently being used by fitness coaches and sports scientists working with athletes. Three in particular have garnered acceptance from athletes, including soccer players, in training and competition:

1. Heart rate monitor with chest strap sensor
2. Wrist watch heart rate monitor with finger sensor
3. Wrist watch heart rate monitor with built-in sensor *

Below is a brief summary of each method of heart rate monitoring, including advantages and disadvantages of their use in soccer.

1. Heart rate monitor with chest strap sensor

This is the most conventional and traditional method of monitoring heart rate during exercise. There are several different models of heart rate monitors that use straps wrapped around the athlete's chest, which record heart rate and send the information either to a wrist watch and/or to software programs for analysis. Polar and Suunto, two companies based out of Finland, sell sets of 10-20 straps, plus software programs that are in use by several professional and college teams throughout North America and Europe.

ADVANTAGES

- the chest straps provide very accurate heart rate measurements
- the software programs provide coaches and athletes with detailed summaries and analysis of the heart rate data recorded.

DISADVANTAGES

- chest strap can be uncomfortable to put-on/take-off, and wear
- straps are time-consuming to use with a full team
- straps require cleaning and sanitizing after every use

2. Wrist Watch with Finger Sensor

Using a relatively new technology, these watches provide accurate heart rate measurements without the use of chest straps. The original watch with finger-sensor technology, developed by Canadian inventor Liz Dickinson and marketed through her company, Mio, has been on the market for more than five years now. Athletes wearing the watch can check their heart rate by holding their fingers to the small sensors on the watch face for 4-6 seconds to get a reading.

ADVANTAGES

- the finger sensor technology provides an accurate and (relatively) quick heart rate reading
- the watch is used without chest strap, so it is easier to use, and requires much less cleaning/maintenance

DISADVANTAGES

- sensors only provide a reading when they are touched/held, so it is not possible to get continuous heart rate recordings with this watch
- it takes 4-6 seconds to get a reading, making it difficult to obtain any instantaneous measurements of exercise intensity

3. Wrist Watch with Built-In Sensor

This revolutionary new product, called the Alpha, combines the best features of both the chest strap (continuous monitoring) and finger sensor (convenience and ease of use) methods described above. Also invented

A new feature of the training protocols at the Centre during the Fall 2012 season will be the Alpha strapless heart rate watch.



by Liz Dickenson, this product uses revolutionary electro-optical technology that shines a light through the skin in the wrist and measures the impedance – or interruption – of that light in order to read athletes' heart rates. This extraordinarily unique technology has been proven to be ECG (electrocardiogram) accurate at running speeds up to 12-20 mph.

The Alpha watch impressed us so much at Soccer Fitness that we have decided to include it in our Treadmill and Plyometric training sessions at the Soccer Fitness Training Centre. Its functionality and ease of use mean that we can now continuously and accurately measure our athletes' exercising heart rates throughout their treadmill, plyometric and strength training workouts. Among the many useful measurements the Alpha watch allows us to take are:

- heart rate response during warm-ups
- average heart rates during high speed, high incline treadmill workouts
- peak heart rate during maximal speed treadmill running
- heart rate recovery during breaks between treadmill/plyometric intervals
- heart rate recovery post-exercise during cool-downs

Richard Bucciarelli is the Owner and Director of the Soccer Fitness Training Centre, located on the 2nd floor of Trio Sportsplex at 601 Cityview Blvd. in Vaughan. A new feature of the training protocols at the Centre during the Fall 2012 season will be the Alpha strapless heart rate watch. For more information, please visit www.soccerfitness.ca.



Science-Based, Soccer-Specific Training Including:

- High-Speed Treadmill Training
- Plyometric Training
- Soccer-Specific Running & Kicking Cords
- Soccer-Specific Fitness Assessments

CANADIAN AND AMERICAN UNIVERSITY ATHLETES WHO HAVE BEEN THROUGH OUR PROGRAM:

 Matthew Zaikos Goalkeeper, Urbana University West Virginia, USA 2011-Present	 Neel Kawale Defender, Queen's University Kingston, Ontario 2012-Present	 Sydney Houreau Midfielder, IPFW University Indiana, USA 2011-Present
 Neil McLoughlin Defender, Guelph University Guelph, Ontario 2010-Present	 Kyle Macaulay Defender, Robert Morris University, Pennsylvania, USA 2010-Present	 Olivia Ferreira Midfielder, Lawrence Tech University, Detroit, USA 2011-Present

Contact Information
 Soccer Fitness Training Centre
 Trio Sportsplex, 2nd Floor
 601 Cityview Boulevard
 Vaughan, ON, L4H 0T1
 Office: (905) 417-4110
 Cell: (647) 829-4360
 Email: info@soccerfitness.ca

Richard Bucciarelli,
President
 BKINE, CSEP-CEP,
 CSCS, CK
 OSA "B" License
 USSF "A" License

Find Out More at www.soccerfitness.ca