EFFECT OF CLIMATE ON MAXIMUM OXYGEN CONSUMPTION AMONG ELITE FOOTBALL PLAYERS

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Abstract

The maximum oxygen consumption (VO2max) level has been indicated to influence the technical and tactical performance during the football game. There are many variables that are considered as the factors that influenced the VO2max level of the player. One of the major factors that often been studied is the climate. The purpose of current study was to determine effect of climate on maximum oxygen consumption among elite football players. Fifteen (n=15) elite male football (mean±SD aged, 21.3± 3.4 years old; height, 167.7± 10.6 cm and; weight, 59.4± 3.1 kg) players who represent university in Malaysian Premier Football League are willing to participate in this study. All subjects underwent the bleep test during morning (T: 29.7°C, H: 80%) and evening (T: 32.6°C, H: 63%) to measure their VO2max level in both conditions. Subjects also need to go for blood sampling immediately after the Bleep Test. The result from test tests showed that there are no significant differences of the VO2max level and the lactate production between the two climates conditions. Thus, it can be conclude that the tested climate has no significant effects on VO2max among elite football players.

Keywords: VO2max, Bleep test, Blood Lactate, Footballer, Climate.

Background of the study

The VO2 max uptake is the key factor for determining the performance of an athletes in endurance sport. In football, the maximum oxygen consumption (VO2max) level has been indicated to influence the technical and tactical performance during the game (Apor, 1988; Wisløff et al, 1998; Helgerud et al, 2005). Thus, it is essential to perform a study on VO2 max and football performance.

According to McMillan, Helgerud, Macdonald, Hoff (2004), football is classified as a high intensity intermittent team sport and elite players cover a distance of about 10–12 km at 70–80% of maximal oxygen uptake (VO2max). Therefore, it is a prerequisite in the modern game for the elite soccer player to have high aerobic endurance fitness.

There are many factors that influenced the VO2max level of the football player. One of the major factors that often been studied is the climate. Many sport scientists, researchers, and practitioners assume that hot climate will reduced the maximum oxygen intake of a player. However, the assumption alone is not enough without the present of research to support such a claim. Therefore, it is essential to conduct a research to investigate the effect of climate on VO2 max performance among football players.

Problem Statement

Soccer is a type of sport which involved dynamic, random and discontinuous which a certain extend are physically demanding (Bloomfield, Polman, and O'Donoghuem, 2007). Good football players are the player who has balance in physical attribute such as strength, power, cardiovascular fitness etc. Slight difference between athletes or teams can influenced the outcome or result in the game or tournament. Besides, environment factor such as climate play an important roles in influencing performance. Since tournament may be played throughout the day, it is important to investigate the effects of climate in athletes' performance especially in endurance sports like soccer. Thus, the purpose of this study is to determine whether the changes of climate have any affects on VO2max among elite football players.

Research Objectives

The research is design to determine the effects of climate on VO2max among elite football player. Thus, several objectives were set in advance to become the guideline for the researcher in conducting this research. The objectives of this research are as below:

1.4.1 To determine the effects of climate on VO2max among elite football players.

1.4.2 To differentiate the lactate clearance level in two different conditions (morning, evening).