SEQUENCE OF EXERCISE ORDER ON QUALITY OF MUSCLE AMONG SOCCER PLAYERS

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ABSTRACT

The experiment was performed to determine the adaptive response of two sequence of training; strength prior to endurance training (SE) and endurance prior to strength training (ES) that positively influence the muscle quality of soccer players. Pre and post-test for muscle quality was being measured before and after the 4 weeks of intervention. 16 elite soccer players (1.63 ± .500 years, 173.94 ± 4.669 kg, and 69.2750 ± 7.42469 cm) volunteered for this study. The participants was asked to adjust the training by performing soccer specific endurance (E) training either prior to or after strength (S) training twice per week (SE, n = 8, ES, n = 8). Data was analysed by using the Statistical Package for Social Science (SPSS) version 22.0. One-way analysis of covariance (ANCOVA) was utilised to compare the treatment given between SE and ES on quality of muscle among elite soccer players. There was significant difference ($p < .05$) when comparing SE and ES on muscle mass and muscle strength but surprisingly for muscle power there was no significant difference ($p > .05$). Results suggest that sequence of training may be able to give significant changes in physical performance parameters associated with match-play. Practitioners who prescribe same day concurrent-training with sequence protocol may have practical implication.

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Athletes nowadays especially those who are professional athletes used to combine both maximal muscle but the result is not fixed and is known as interference phenomenon (Leveritt & Abernethy, 2003; Gergley, 2009; Wilson, 2012). Other than that, the concurrent training resulted in declining the muscle strength's performance and might cause injury if training beyond the duration recommended for one session. Training above 45 minutes caused decline in eccentric hamstring torque (Small, McNaughton, Greig, Lovell, 2010; Cohen, 2015). Muscular strength will be decrease if the muscle is getting longer (Cohen, 2015) as the effect of endurance training.

1.1 BACKGROUND OF STUDY

The results of concurrent training got attention of the researcher to further studies about the effect of this training sequence. According to Chtaha (2008), the training resulted in blunted response because it was disturbed by factors such as duration of training and sequence/order of training. The responses of physiological towards the factors are important for some sporting environments. Sports that need both strength and endurance training as their top components of training have a limited time to separate these two training on different days for example, instead of doing strength training on

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter is divided into ten (10) topics presented under the following topics: (1) Strength Training and Soccer, (2) Endurance Training and Soccer, (3) Sequence of Exercise on Muscle Quality. The end of the literature review presents a brief summary of this chapter.

2.1 STRENGTH TRAINING AND SOCCER

Masieri (2017) had investigated the relationship between strength training towards soccer players' body composition. During his studies, he stated that soccer was a sport which requires strength to perform movement such as sprinting, jumping, high intensity running rather than tackle and this complexity requires the training benefits from strength training especially for their lower body (Morgans, Orme, Anderson and Drust, 2014). Strength training has the aim to develop the muscle power; usually using free weight, machines or your own body weight (Mosby's Medical Dictionary, 2009). He did the research for 13 weeks duration which focusing on strength training program to develop muscle morphology, strength and also power. He used a 13 weeks strength training program with combination of nutritional plan to make sure the outcomes of their body composition is being controlled. The 13 weeks intervention of strength training shows positive acceleration towards