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EFFECTS OF SADDLE HEIGHT ON POWER PERFORMANCE AMONG NATIONAL JUNIOR CYCLISTS

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ABSTRACT

The study was performed in order to determine the effect of power performance when saddle height position is set to preferred saddle height, a knee flexion of 25° to 35° specification, a 2% higher and lower to the 25° to 35° specification, since little is known on the effect of changing saddle height position towards power performance. Seven subjects (N=7) of age below 21 years old who are currently the national junior cyclists performed in the present study. Wingate test was conducted by using a "Wattbike Pro" and Holmes method was used to measure the 25°-35° knee angle specification. Post hoc test revealed a significant effect (p=.05) between PS and ISS on PPO but there were no significant effect on the other saddle height for both PPO and MPO.

Keywords: *cycling, mean power output, peak power output, saddle height*

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Cycling is a sport in which it involves races that runs from only few seconds to several hours (Moura, Moro, Rossato, & Lucas, 2017). It is an endurance sport in which economy may affects energy reserves and therefore performance outcome (Peveler & Green, 2011). The longer the race, the more important cycling economy becomes (Friel, 2011). Regardless of the duration, at some point in the race, cyclists will have to perform sprints at maximal power output (Moura et al., 2017).

When it comes to cycling economy, there are things that can be control and that there are things cannot be control. Maximal power output lies under the controllable cycling economy (Friel, 2011). Cycling performance can be predict through maximal power output or also known as anaerobic power (Peveler & Green, 2011). In cycling, the ability to produce high power during a short period of time is critical to success (Jeukendrup, 2000; Tanaka, 1993).

In competitive sports, athletes and coaches are constantly looking for ways to improve and optimize the performances to get the 'edge' on the competition. As outlined by Burke and Pruitt (2003), Gregor and Concini (2000) and Jeukendrup (2002), there are many factors determining the performance capabilities of cyclists including the set up of the equipment. although it is important to improve the body composition and physiological attributes of an athlete, it is also imperative for the athletes to learn how to set up the equipment effectively, so that it can be used most favorably to generate optimum

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

In this chapter, the researcher reviews on related previous study which has been conducted by other researchers. Therefore, it will be discussing on the literature of this field.

2.1 Power Output

Power output is one of the key determinants on performance in cycling, however it is not advisable to train solely with the intent of increasing maximum power output and muscle strength (Jeukendrup, 2002). The sport of cycling includes different type of sub-disciplines such as road racing, cross country, downhill, bmx, cyclo cross and even track events which all require a variety of specific fitness levels. In this present study, the main aim is to focus on peak power output (PPO) which, although relevant to all of the events, it would be most important for short, sprint events such as the pursuit in track events or for fast sprint starts in time trial downhill racing and time trial on roads.

Power is a product of force and time (Wilmore & Costill, 2004) so although it is necessary to achieve a high maximal power output, it is also helpful to train the cyclists in order to be able to maintain that peak power for as long as possible.

It is possible to train in order to decrease the rate of fatigue by performing muscular endurance exercises which include frequent sessions of multiple sets using weights around 50 to 70% of 1 repetition maximum (1RM) (Wilmore &