Acute Effects of Different Static Stretching Duration on Choice Reaction Time

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Introduction

A well-designed warm-up can assist the athlete in mentally focusing on the upcoming task and to bring about various physiological changes to optimize performance[1]. Different intensity and duration of warm-up ensure different physiological-biochemical and psychological changes in the body [6].

Traditionally, athletes perform static stretching after initial jogging during warm up because it was easy, safe and believed to be less likely to strain the muscle than other types of stretching [2]. Static stretches, such as a standing forward bend, are performed slowly until the muscle cannot be stretched any further and then held for approximately 30 seconds [15]. However recent studies has shown that static stretching decrease acute explosive and high speed motor capacity such as power, strength, vertical jump, velocity and reaction time [4, 5, 7, 8, 10, 11].

Reaction time (RT) is the elapsed time between the presentation of a sensory stimulus and the subsequent behavioral response [12]. Reaction time was quickest for young adults and gradually slows down with age [13]. Furthermore, it can be improved with practice, up to a point, and it declines under conditions of fatigue and distraction [13].

According to study by Alpkaya et al [3], the results demonstrated that 3 sets of 15 second duration of the static stretching do not have a positive or negative effect on reaction time. In previous study shown that moderate stretching protocols and more performance based measures tend to report no significant effects of stretching on performance [3]. Static stretching for periods of 45 seconds has been shown to decrease balance, increase reaction time, and increase movement time [5]. By comparison, a shorter protocol with 3 repetitions of 15 second stretching does not have any positive or negative effect on reaction time [9]. There have been no studies reporting on the effects of an acute bout of stretching on balance, proprioception or reaction time [5].

Objectives

1. To measure the choice reaction time of UM athletes after 15 second of Static Stretching and after 30 second Static Stretching.
2. To compare the significant level of choice reaction time between 15 second Static Stretching group and 30 second Static Stretching group.

Methods

Participants

A total of 30 UM athletes were recruited from Sports Centre, University of Malaya there were 15 male and 15 female. The mean age of the participants was 21.3 years of age (±1.18). They were randomly divided into 30 second of static stretching group and 15 second of static stretching group.
Effects of Standard Autogenic Training on Psychophysiological Responses in Elite Bowlers Prior to Competition

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Introduction

Sports and athletics create special opportunities for the study of the feelings of the athletes in various sporting events [3, 5, 22]. Anxiety is a negative emotion that affects perceptions in sport competitions, and this leads to majority of athletes to consider anxiety to be debilitating towards performance, which may result in decreases in performance [18]. Components of anxiety include fear, anger, increased heart and perspiration rate, trembling, and being mentally off balance, which may result in decreases in performance directly involved with the autonomic nervous system creating arousal [27].

Increased recognition of the detrimental effects excessive anxiety can have on athletic performance has prompted the development of a number of anxiety management packages. Autogenic Training is based on passive concentration of bodily perceptions (e.g. heaviness and warmth of arms, legs, and abdomen, rhythm of breath; and heartbeat) and increased feelings of well-being [12]. The Standard Autogenic Training technique, developed by Johannes Schultz [13] consists of six standard exercises:

1. The first exercise aims at muscular relaxation by repetition of a verbal formula, 'my right arm is heavy', emphasizing heaviness.
2. Subsequent passive concentration is focused on feeling warm, initiated by the instruction 'My right arm is warm'.
3. Followed by cardiac activity using the formula 'My heartbeat is calm and regular'.
4. Then follows passive concentration on the respiratory mechanism with the formula 'It breathes me'.
5. Then on warmth in the abdominal region with 'My solar plexus is warm' and
6. Finally on coolness in the cranial region with 'My forehead is cool'.

It usually takes 8 weeks to learn the technique, and home practice of the exercises at least three times daily is encouraged [13].

Autogenic Training is frequently applied in group settings. Clinical evidence and evidence from many other controlled studies demonstrates that the group setting is as well appropriate [21]. The effectiveness of Autogenic Training on the stress response is two-fold: Autogenic Training produces a switch from sympathetic (fight/flight) dominance to parasympathetic dominance with increased activity of the rest/digest, relaxation/restorative system [5]. Once the excesses of stress are removed, whatever the cause, the individual is better equipped to address other aspects of themselves.
Effects of Interval Training on Cardiorespiratory Endurance Level in Varsity Kayakers

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Introduction

Cardiorespiratory endurance is the ability to perform whole-body activities and continued movement for extended periods without undue fatigue [9]. According to Prentice [9], it is the basic life-support system of the body. Everyone needs some degree of cardiorespiratory endurance to carry out normal daily activities. Development of a minimal level of cardiovascular fitness may be required for all sports [4]. Obviously, some sports have greater reliance on aerobic energy sources supported by cardiovascular mechanisms.

Regular endurance training induces numerous physiological adaptations that facilitate improved exercise capacity, i.e. the ability to sustain a given sub-maximal workload for a longer period of time or achieve a higher average power output over a fixed distance or time [3, 6].

Interval training is a type of training that consists of alternating periods of relatively intense work with periods of active recovery. This kind of training mixes high and low intensity work during one session to keep our body working at a high level. It permits us to perform much more work at a more intense workload over a longer period than we could if we were working continuously. The interval training is a method that can be used to improve the cardiorespiratory endurance [9]. Flat-water kayaking is an Olympic sport that combines different types of boats (canoe and kayak) and distances (500 m for female and 500 m and 1000 m for male competition). The contribution of aerobic metabolism in individual races has been established between 60 and 80% for 500 m and 1000 m, respectively [11].

The purpose of this study was to investigate the effect of interval training on cardiorespiratory endurance level of the varsity kayakers. According to Prentice [9], interval training is a method that can be used to improve the cardiorespiratory endurance. Interval training permits the athletes to train at intensities close to \( \text{VO}_2\text{max} \) for a greater amount of time than could be accomplished in a single exercise session at a continuous high intensity [1].