CIRCUIT TRAINING AND WEIGHT TRAINING EFFECTS ON SCHOOLBOYS OF VARIOUS BLOOD TYPES' ATHLETIC PERFORMANCE

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ABSTRACT

Football is a popular sport that calls for a variety of physical, physiological, and performance abilities, such as strength, endurance, agility, speed, power, and accuracy. Football players also need to have good accuracy. Football players engage in a variety of training methods, such as circuit training and resistance training, in order to improve the aforementioned qualities.The objective of the study is to determine whether or not football players would experience any major physical, physiological The following conclusion was reached after taking into account the findings that were gathered, as well as the constraints and limits that were placed on this particular investigation.

Keywords:Circuit Training, Weight Training

INTRODUCTION

Football is a popular sport that calls for a variety of physical, physiological, and performance abilities, such as strength, endurance, agility, speed, power, and accuracy. Football players also need to have good accuracy. Football players engage in a variety of training methods, such as circuit training and resistance training, in order to improve the aforementioned qualities. In circuit training, you do a sequence of exercises that target different muscle groups in a circuit arrangement, with very little rest in between each exercise. On the other hand, resistance training entails doing things like lifting weights or utilising equipment that provides resistance in order to build physical strength and endurance.

Although it has been established that both circuit training and resistance training are helpful in enhancing the physical and physiological factors of football players, it is not yet known what effect the combination of these two training methods would have. Previous research has looked primarily at the benefits of either circuit training or resistance training on their own, but very

little attention has been paid to how the two types of training complement one other for football players.

Therefore, the goal of this study is to explore the combined effect of circuit training and resistance training on the physical, physiological, and performance variables of football players. Specifically, the researchers are interested in the effects of these two types of training on the players' speed and agility. This study intends to provide insight into the training methods that are most successful for enhancing the performance of football players. The findings of this study can have ramifications for the establishment of training programmes for various sports and demographics.

These days, physical fitness is often regarded as one of the most crucial indicators of overall health in children. (Ortega et al., 2008). As a consequence of this, throughout the course of the past several decades, a number of nations have been working, in their own unique ways, to encourage improvements in the level of physical fitness among young people. (Department of Health and Human Services, 1990). In many instances, schools have been seen as the finest environment in which children with inadequate levels of physical fitness can be diagnosed, and a healthy way of life can be encouraged. (Ortega et al., 2008). Because of this, one of the primary measures that the Spanish government implemented was centred on changing the laws governing schools in order to provide health education a more prominent place in the educational system (Ministerio de Educación y Ciencia, 2006). According to the Ministry of Education and Science (2006), the primary focus of educational institutions is on boosting students' levels of physical fitness through the implementation of programmes like physical education (PE), with the ultimate goal of improving students' overall health. According to the findings, health promotion policies and physical activity programmes should be tailored to improve participants' physical fitness, with muscular strength and cardiovascular endurance being the most essential health-related aspects of physical fitness. (Ortega et al., 2008)

WEIGHT TRAINING

Both circuit weight training and intermittent exercise are popular training methods for maximising time efficiency. According to proponents of these forms of exercise, they give higher physiological advantages in a less amount of time than more conventional forms of workout.

Incorporating intervals into a circuit weight-training programme can potentially maximise the advantages of circuit weight training by increasing the demands placed on the cardiovascular system during the workout. (Skidmore, et al. 2012).

Our athletes will have a competitive advantage if they understand the principles and physics of strength training and if we incorporate those ideas into our training programme. (Bompa, 1999). Individuals who exercise for the purpose of improving their health should include resistance training as an essential component of their overall fitness routine. Athletes in sports unavoidably require strength and power in order to do activities such as weight lifting, bodybuilding, and sprinting, which can be accomplished through resistance training. However, strength training is beneficial for a large number of other athletes as well, particularly those who participate in sports that demand a high level of physical endurance. (Vinod Kumar, 2004).

Strength training, often known as weight training, is a type of exercise training that involves performing exercises with the assistance of barbell apparatus. Increasing one's strength and power through a variety of different exercises is the goal of general weight training. The goal of developing specific strength with specialist weight training is to prepare for a particular competition or sport. Alterations are made to both the volume and intensity of weight training depending on the time of year. Increasing one's strength and power through the use of weight training is by far the most common and well-liked strategy.

The benefits of these programmes include an increase in muscular strength as well as local power and endurance of the muscles, a reduction in injuries sustained during sporting and recreational activities, an improvement in performance during sporting and recreational activities, muscle hypertrophy, a favourable improvement in body composition, a reduction in blood lipids, a reduction in blood pressure, and an improvement in cardiorespiratory performance. (Ebrahim &Koozechian, 2006 &Baechle, 1994).

In recent years, there has been a rise in the number of people participating in resistance training. Not only is resistance training utilized to boost muscular strength, power, endurance, and hypertrophy in athletes, but the modifications to resistance training have been shown to benefit all people as well as clinical populations (i.e., those individuals with cardiovascular ailments, neuromuscular disease, etc.). Not only is resistance training used to improve muscular strength,

power, endurance, and hypertrophy in athletes, but it has also been shown to benefit the general population. (Kraemer et al., 2002)

In addition to the obvious objective of becoming stronger, people often participate in strength-training programmes with the hopes of improving their athletic performance, lowering their risk of injury, speeding up their recovery from injury, and/or improving their overall health. Strength training, much like other forms of physical activity, has been found to have a positive impact on a variety of health indices, including cardiovascular fitness, body composition, bone mineral density, lipid levels, and mental health. (Faigenbaum, 2000). Recent research has demonstrated that children with cerebral palsy can benefit from greater strength, overall function, and mental well-being. (Blundell, 2003). Children who are overweight often benefit from participating in weight-control programmes that include resistance training since it can speed up their metabolism without putting undue stress on their bodies. Strength training in young people may, like in older people, accelerate bone mineralization and have a beneficial effect on bone density. This finding is supported by research on older people. (Morris 1997). Multiple studies have demonstrated that strength training, when performed with the appropriate form and under the guidance of an experienced coach, can increase the strength of pre-teens and teenagers. (Falk 1996) A properly organisedprogramme will have elements that include frequency, mode (the sort of resistance being used), intensity, and length.

Athletes are not solely produced; they also come into the world already formed. The muscle fibres in human bodies are made up of a combination of two primary varieties: fast twitch and slow twitch. Fibers that twitch quickly have a stronger anaerobic capacity, which allows them to generate greater forces and make contact more quickly. It is the contrary in the case of slow twitch fibers, which means that they have a higher aerobic capacity. The genes that are already present in our bodies determine the patterns of muscle fibre distribution. It's possible that runners who compete in shorter distances have faster twitch fibers, whereas those who compete over longer distances have slower twitch fibres.

Strength, power, and endurance in the muscles can all be improved by resistance exercise. The primary benefit of resistance exercise is an increase in muscle fibre size. During these workouts, the amount of protein in the muscle quickly increases, which triggers a chain reaction of

metabolic events. (Power &Howly, 2003). It is possible for strength training to result in hypertrophy of the muscle, which is characterised by an increase in the size of the muscle fibres. In addition, resistance training with a high load might modify the fibre type distribution towards faster-twitch fibers, which is an advantage for athletes. It seems that training speeds are directly related to an improvement in muscle strength achieved by the performance of single actions. It was well documented that engaging in resistance training can increase the force production capacities of an older adult by either increasing muscle mass or enhancing muscle quality (that is, the capacity of individual muscle fibres to generate force). (Trappe et al. 2000). For this kind of exercise, choosing the appropriate apparatus is essential, and you have to get in shape before you start lifting weights. It is possible to engage in resistance training without making use of any devices. (Loftice, et al. 2004).

The significance of resistance training has been extensively studied, and new evidence suggests that engaging in this type of physical activity should be high on people's priority lists. Building a home, going on hunts, working the land, and doing the myriad other activities that were essential to prehistoric peoples' means of subsistence all provided their muscles with a good workout. In this contemporary setting, we have designed inactivity into our lives through the employment of labour-saving gadgets, which results in the muscles in our bodies being used very infrequently. These days, very few people engage in tasks that were once commonplace, such as mowing the lawn, climbing stairs, washing clothes, playing games, and participating in recreational activities. Because of this, the person's muscle strength decreases, and they experience a general feeling of sickness.

OBJECTIVE OF THE STUDY

1. Assess the impact of an eight-week intervention consisting of circuit training, resistance training, or combined circuit and resistance training on physical variables such as body composition, muscular strength, muscular endurance, and agility.

2. Assess the impact of the intervention on physiological variables such as heart rate, blood pressure, and oxygen consumption during a maximal effort graded exercise test on a treadmill.

For the purpose of preventing injuries, aiding in rehabilitation, and improving performance,

muscle strengthening is of the utmost significance. The capacity of the body to endure the application of force is what we refer to as strength. Working out with a variety of weights, modalities, speeds, angles, and frequencies is essential to the development of muscular strength. The outcome of the resistance training course is entirely determined by the interaction of these several elements.

CIRCUIT TRAINING

A programme of physical activity known as circuit training is effective at improving general fitness. Circuit training, when done on a regular basis, improves muscular strength and endurance, cardiovascular fitness, and flexibility simultaneously. (Stan Reents 2015).

When it comes to enhancing all aspects of one's physical fitness, circuit training is an efficient organisational method that can be used to perform physical workouts. The initial and final assessments, which included measuring factors such as speed, agility, power, coordination, static balance, and dynamic balance, were carried out on both the experimental and control groups both before and after they had participated in the programme. Training in a circuit format was performed every other day for a period of eight weeks. According to the findings of the study, college men's football players who participated in circuit training saw significant improvements in their skill-related fitness components such as speed, agility, coordination, power, static balance, and dynamic balance. These benefits were achieved as a result of the training. The greatest amount of progress that could be made after twelve weeks of training. The issue has, in many instances, been the method of weight training or circuit training that was utilized, as well as the concerns over the potential adverse effects of strength training on aspects such as speed, endurance, flexibility, and so on. The highly regarded sports industry has recently adopted a novel approach to conditioning known as circuit training. It is a strategy for improving one's physical condition that makes use of both resistance training and cardiovascular workouts. Circuit training, a novel approach to athletic preparation, was originally developed in England and brought to the rest of the world by that country. The strengthening of one's cardiovascular system is the primary focus of this programme. It is based on very thorough research and study that was conducted by the department of sports and physical conditioning.

The development of general or fundamental fitness, which is required for participation in every

sport, is the focus of circuit training. It is intended to help the body's muscular as well as circulatory and respiratory systems develop, which is why it has been created the way that it is. The method of progressive loading serves as the foundation for its guiding principle. The term "circuit training" refers to a type of workout that can be utilised for both general fitness and as a means of conditioning for a variety of physically demanding sports. A circuit is a series of workouts that can include or exclude the use of specific pieces of fitness equipment. It seeks to foster growth in every aspect. The intensity levels of each workout are divided up into separate stations that are spread out over the gym or track. During each circuit, it is ensured that the same muscle area will not receive two exercises in a row that are consecutively performed. An individual should work each area of their body in the following order using a circuit that has been made out for them: total body, upper body, lower body, core and trunk, and so on.

The format of circuit training consists of a set of six to ten different strength exercises that are performed one after the other in sequential order. Before going on to the next activity in the circuit, one completes the previous exercise for a predetermined amount of time or for a predetermined number of repetitions. The workout consists of a series of circuits, each of which is followed by a longer rest period than the previous one. The activities that make up each circuit are spaced out with brief, scheduled rest intervals. It is possible for the total number of circuits completed during a training session to range anywhere from two to six, and this is determined by the training level of the individual (beginning, intermediate, or advanced), the time of training (preparation or competition), and the training objective.

First, one should make it their goal to decrease the amount of time spent on each exercise; secondly, as one's fitness level increases, the number of repetitions can be raised, and finally, the amount of weight lifted at each station can be increased. It is possible to provide lodging for a sizable number of guests at the same time. The individual works at his own pace within his own capabilities, and the goals are both immediately reachable and easily evaluated when they are reached at the target time. One of the most effective ways to spur participants on is to challenge them to see how quickly they can finish the course under timed conditions.

The stations in circuit training are typically planned in such a way that they rotate between different muscle groups. This allows for appropriate recovery between sets. The recommended

amount of rest time between stations is anywhere from 30 to 90 seconds, and anywhere from 1 to 3 minutes between circuits. The presence of multiple strength training machines and workstations in a typical fitness centre makes it possible to create a variety of different workout circuits. The participant's abilities are put to the test, and they are kept interested from one session to the next thanks to the benefit of diversity. A significant number of professional athletes base a significant portion of their off-season activities on circuit training. It is an effective method for maintaining general fitness while avoiding the strenuous physical demands of playing a sport while it is in season. Exercises that target multiple muscle groups in addition to the core muscles serve as the foundation of these circuits. Before beginning any kind of exercise regimen, a person should always check in with their primary care provider. Conditioning through the use of circuit training is an effective and rigorous kind of exercise. Strength training, endurance training (aerobic and anaerobic), flexibility training, and coordination training all benefit from its use. Because of its adaptability, it is well-liked by both the general population and professional athletes. It is possible for athletes of both sexes to make use of it during the offseason and the early stages of preseason in order to assist build a strong foundation of fitness and get the body ready for the more strenuous training that will follow.

Any sport that is played at a high level is going to have imbalances, and one way to help fix those imbalances is with a well-designed circuit. Additionally, it has the potential to be one of the most effective forms of exercise for enhancing muscularity. In addition to being an excellent time saver, it can be a welcome and enjoyable diversion from the more routine forms of physical activity.

Interval exercise (Burgomaster et al., 2005; FernandezFernandez et al., 2012; Gibala et al., 2006) and traditional circuit weight training (TRAD) (Kaikkonen et al.,2000; Paoli et al., 2010;) are two popular forms of exercise that can maximise time efficiency while addressing multiple aspects of fitness. The potential of TRAD to improve not just skeletal muscle strength and endurance but also cardiorespiratory fitness within the course of a single workout contributes to the modality's widespread popularity. (Simonson, 2010). Following participation in a TRAD program, a number of people have reported enhanced strength despite very slight to moderate gains in their maximum aerobic capacity. (Gotshalk et al., 2004; Harber et al., 2004; Paoli et al., 2010; Waller et al., 2011). It has been demonstrated that participating in various kinds of TRAD

programmes can raise both the blood lactate (BLA) concentrations and the heart rate (HR) values.

CONCLUSION

When compared to the control group, football players in the experimental groups who participated in circuit training (Experimental Group I), resistance training (Experimental Group II), and combined training (circuit training and resistance training) (Experimental Group III) saw significant improvements in their physical variable speed after 12 weeks of training. The control group did not receive any training. In terms of improvement, the combination training group performed much better than the circuit training group and the resistance training group.

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