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Nutritional Needs in Court Tennis Athletes

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Abstract
This study explores the specific nutritional needs of field tennis athletes, a sport discipline that demands strength, endurance, agility, and high concentration. The purpose of this study was to understand how proper dietary intake can support physical fitness, maximum performance, efficient recovery, and general health of athletes. The research methodology involved a detailed survey of a number of field tennis athletes, as well as an analysis of related scientific literature and several journals. The parameters considered include the necessary nutritional composition, caloric intake, proper meal timing, and other special aspects relating to the nutritional needs of court tennis athletes. The results showed that appropriate nutrient intake is a key element in maintaining and improving the performance of court tennis athletes. An understanding of the need for carbohydrates, proteins, healthy fats, vitamins, and minerals is important in maintaining energy, speeding recovery, and optimizing strength and endurance. In conclusion, field tennis athletes need a carefully planned diet to reach their full potential. This research provides useful guidance for athletes, coaches, and health professionals in designing nutrition strategies that fit the individual needs of athletes.
Keywords: *Nutrition, Diet, Court Tennis, Physical Fitness*

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INTRODUCTION

Court tennis is one of the very old sports. In 1500 BC tennis was played on the walls of a temple in Egypt and played during religious ceremonies(Amni et al., 2019). Court tennis is one of the sports referred to as "Top of Sport" because it has the characteristics of a fast game, high determination and requires making the right decisions in a short time (Budi D.R, 2021). Court tennis is a sport that can be played between 2 players (singles) and 2 pairs (doubles). Each player uses a racket to hit the ball, the goal of the game is to find a point by hitting the ball in all directions specified in the rules, so that the opponent is unable to reach the ball and a point occurs (Seff et al., 2017).

The success of court tennis athletes in achieving their best performance while competing depends largely on a number of factors, including intensive physical training, tactical intelligence, and strong mental preparation. The basic principle of playing tennis is to hit the ball directly and enter the opponent's court (Alim, 2015). Tennis has been favored by various groups and age levels from adolescence to adulthood.(Nugraha, 2022). An important component in the tennis court game is preparing athletes is a technical training program including grip techniques, punching techniques, and playing techniques, tactical training includes single and double playing tactics, while mental training by performing many sparring tests (Nurkadri et al., 2022).

Often, however, one important element that may be forgotten is proper diet and nutrition. Optimal nutrition is the foundation for an athlete's physical health, fitness, and performance during training and competition. Court tennis, as one of the sports that requires endurance, speed, strength, and agility, places special demands on the athlete's body. In games that often last for hours, an athlete's ability to maintain energy, mental focus, and physical endurance becomes very important. This is why it's important to understand how diet and proper nutrition can affect a court tennis athlete's performance. Previously, tennis was known only as a sport among the elite and the lack of regeneration of athletes, especially in Indonesia. But nowadays it is growing rapidly and is competed as a sport of achievement from junior, senior and even veteran levels (Sinulingga & Nova, 2021). Field tennis is no longer just looking for fitness or for recreation, but has also been used as a means to achieve achievements (Ngatman & Sulistyatna, 2017). Tennis is one form of sports that uses tools, namely rackets and balls. The International Tennis Federation as an independent organization seeks to introduce tennis to the world (Siahaan, 2017) .

This study aims to explore and analyze the impact of diet and nutrition on court tennis athletes in one of the tennis clubs. We will explore how a balanced intake of nutrients, which includes carbohydrates, proteins, fats, as well as vitamins and minerals, can contribute to increased endurance, reduced risk of injury, and faster recovery. In addition, we will examine how proper nutrition can play a role in supporting mental health, which is important in highly competitive situations.

METHOD

The methodology of the study involved a detailed survey of a number of field tennis athletes, as well as the analysis of related scientific literature. The parameters considered include the necessary nutritional composition, caloric intake, proper meal timing, and other special aspects relating to the nutritional needs of court tennis athletes.

RESULTS AND DISCUSSION

Results

The results we obtained are that in general athletes have a calorie requirement of 2,000 / kcal per day to meet their energy needs. As for athletes, this need is basically not enough with a relatively high level of activity. Here are the results we obtained from a live survey to ask some court tennis athletes about their diet and nutrition in 7 days

Table 1. Results of atlis diet and nutrition analysis in 7 days

Day	Nutrition and Diet
Monday	Eat 3 times with balanced nutrition, namely protein, carbohydrates, fats, minerals. with foods that contain a lot of calories
Tuesday	Eat 3 times with balanced nutrition, namely protein, carbohydrates, fats, minerals, plus drinking pudding. with foods that contain a lot of calories
Wednesday	Eat 3 times with balanced nutrition, namely protein, carbohydrates, fats, minerals, plus drinking pudding. with foods that contain a lot of calories
Thursday	Eat 3 times with balanced nutrition, namely protein, carbohydrates, fats, minerals, plus by drinking vitamins. with foods that contain a lot of calories
Friday	Eat 3 times with balanced nutrition namely protein, carbohydrates, fats, minerals, plus drinking milk at night.
Saturday	Eat 3 times with balanced nutrition namely protein, carbohydrates, fats, minerals, with foods that contain lots of calories
Sunday	Eat 3 times with balanced nutrition namely protein, carbohydrates, fats, minerals, with foods that contain lots of calories

A person's calorie needs will be influenced by several factors including age, gender, weight, exercise, activity level, activity duration, and overall health of the person Based on several references in this study, some literacy results regarding aspak that must be considered in meeting nutritional needs can be summarized as follows:

Athletes must consume enough energy, or calories, every day to meet their weight and body composition goals, whether it is to maintain weight, lose weight or gain weight. To maintain energy balance, intake of food, fluids, and supplements for energy expenditure. In order for athletes to meet their energy needs, they must consume enough calories. If energy needs are not met, fat and lean body tissues will be used as fuel by the body. This will lead to a loss of strength and endurance. Immune, endocrine, and musculoskeletal functions will be disrupted. Over time, low caloric intake can lead to a slower resting metabolic rate, and insufficient consumption of essential vitamins and minerals. There are several methods for calculating energy requirements for athletes. A simple method to calculate energy needs is to calculate the athlete's weight (in pounds) multiplied by 10 for a rough average of basal needs, or basic needs without any exercise. Then, add up the activity factor and the average calories burned for each minute of exercise For example:

Athletes weighing 220 kilograms can be calculated by body weight x 10 So 220 x 10 = 2,200 Calories (meaning a person's basic need is 2200 calories/day) For physical activity add 20%-30% of basic caloric needs. So 2,200 x 1.2 - 1.3 = 2,640 - 2,860 Calories. Finally, add exercise calories by adding 100 calories for every 10 minutes of vigorous exercise. In this example, if the athlete trains hard for an average of 1,800 calories. Total calorie needs = 2,640 – 2,860 calories + 1,800 calories = average 4,400 – 4,660 calories per day

Table 2. Calorie needs based on age and activity level in men

Age	Normal	Active	Very Active
12	1,800	2,200	2,400
13	2,000	2,200	2,600
14	2,000	2,400	2,800
15	2,200	2,600	3,000
16	2,400	2,800	3,200
17	2,400	2,800	3,200
18	2,400	2,800	3,200
19 – 20	2,600	2,800	3,000

Recommended energy intake based on Estimated Energi Requirements (EER) From Institute of Medicine Dietary Reference Intakes makronutrien, 2002. Caloric needs for adolescent athletes depend on age, gender, and level of physical activity. In certain types of exercise, adolescents on average spend about 10-25% more energy than adults. Here are the calorie needs in athletes by age category.

Table 3. Calorie needs based on age and activity level in women

Age	Normal	Active	Very Active
12	1,600	2,000	2,200
13	1,600	2,000	2,200
14	1,800	2,000	2,400
15	1,800	2,000	2,400
16	1,800	2,000	2,400
17	1,800	2,000	2,400
18	1,800	2,000	2,400
19 – 20	2,000	2,200	2,400

Recommended energy intake based on Estimated Energi Requirements (EER) from Institute of Medicine Dietary Reference Intakes makronutrien, 2002.

Proper nutrition is essential for adolescent athletes to achieve optimal growth and performance in sports. Teen athletes need to learn what foods are good for energy, when to eat certain foods, how to eat during events, and when and what to eat to replenish after activity. A balanced diet containing the right amount of macronutrients (proteins, carbohydrates and fats) and micronutrients (vitamins and minerals) is essential to provide sufficient energy for growth and activity. Fluids are also important for hydration to support growth and development. The amount of energy found in a particular food depends on the macronutrient content (carbohydrates, proteins and fats) of the item.

Table 4. Energy Content in macronutrients (in grams)

Makronutrien	Energy
Carbohydrates	4 kkal/gram
Protein	4 kkal/gram
Fat	9 kkal/gram

Carbohydrates serve as the main source of energy during high-intensity activities. Food sources of healthy carbohydrates include fruits, vegetables, whole-grain cereals, bread and pasta. Fat plays an important role in helping individuals meet their energy needs as well as supporting healthy hormone levels. Sources of healthy fats include nuts, peanut butter, avocado, olive and coconut oil. Limit the use of vegetable oils such as corn, cottonseed or soybean oil. Protein plays an important role in muscle repair and growth. Preferred sources of protein include lean meats, eggs, milk (yogurt, milk, cottage cheese) and nuts.

Table 4. Basic Macronutrient Needs For Adolescent Athletes

Makronutrien	**Necessity**
Carbohydrates	50% of caloric intake, with total 3-8g/kg body weight. 1-1,5 g/kg post-workout weight/ exercise.7
Protein	0.8-1.2 g/s.d 1.2-1.8 g/kg berat or about 10% to 30% of the total energy intake.
Fat	20-25% of caloric intake, no less than 15%.

(Smith et al., 2015)

Discussion

The coach simply sticks with what he remembers and the exercises that are commonly worn or used during this time in the physical fitness training of an athlete. Meanwhile, every athlete must have a healthy physical and spiritual condition so that in a healthy state they can carry out all activities without experiencing significant obstacles (Reno et al., 2022). Balanced nutrition needs to be considered while still fulfilling all nutrients such as carbohydrates, proteins, fats, vitamins and minerals (Swamilaksita & Suryani, 2022).

Diet is the most important behavior that can affect the state of nutrition. This is because the quantity and quality of food and beverages consumed will affect nutritional intake so that it will affect the health of individuals and society (Kadir, 2019). Applying a healthy diet cannot guarantee if it will be free from disease, but at least paying attention to the intake of daily food consumption patterns can minimize the risk of a person's possibility of disease (Kadir, 2019). The

modern lifestyle that is currently embraced by humans tends to make humans like instant things. As a result, they tend to be lazy in physical activity and like to eat instant food, which has a high sodium content (Ratna & Aswad, 2019).

Proper nutrition for adolescent athletes is not only important for maintaining health and optimizing performance during training, but is also essential for meeting growth and development requirements (Sacheck & Schultz Nicole, 2016). Proper nutrition for adolescent athletes is not only important for maintaining health and optimizing sports performance, but it is also very important for meeting growth and development requirements. In addition to adequate calorie consumption and balanced nutrition for growth and performance, timing should be a major consideration for teenage athletes (Zahra & Muhlisin, 2020).

CONCLUSION

The findings demonstrated that consuming the right nutrients is essential to preserving and enhancing court tennis players' performance. It's critical to comprehend the requirements for proteins, good fats, vitamins, and minerals in addition to carbohydrates in order to sustain energy, expedite healing, and maximize strength and endurance. To sum up, in order for field tennis players to perform to their best ability, a well-planned diet is necessary. Athletes, coaches, and medical professionals can utilize this research's helpful recommendations to create nutrition plans that are tailored to each athlete's specific needs.

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