

NUTRITION FOR ESPORTS ATHLETES

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ABSTRACT

Esports has become a popular international competitive activity, requiring athletes to focus, make decisions quickly, and perform in a coordinated manner. Proper nutrition plays a crucial role in enhancing performance and reducing health risks during competition. A nutritious and balanced diet helps players maintain energy, focus, reduce fatigue, and accurately respond to in-game situations. This research aims to elucidate the importance of nutrition on esports performance, propose appropriate meal selection guidelines before and during competition, and raise awareness among players and stakeholders in the esports industry. The study focused on analyzing dietary behavior, nutritional knowledge and understanding, and meal timing to provide an overview of the relationship between nutrition and player performance. The expected outcome is a practical nutritional guideline that helps esports athletes maintain optimal energy and focus, continuously regenerate their bodies and minds, reduce fatigue, and develop sustainable health habits. Furthermore, it can serve as a baseline for coaches, tournament organizers, and other stakeholders to plan meals and training to meet the needs of professional athletes.

Keywords: Nutrition, esports, athlete performance

INTRODUCTION

Esports has grown rapidly over the past decade, becoming an industry garnering widespread economic, cultural, and educational attention. Esports athletes face intense competition, long training periods, and physical and mental pressure. Although esports does not require strenuous physical movement like other sports, skills related to concentration, analytical thinking, rapid decision-making, and precise response require energy and physical care just as much as other sports. Therefore, nutrition is a key factor directly affecting the performance of esports athletes. A nutritionally complete and appropriate diet enhances brain function, reduces fatigue, and helps maintain focus during competition. Conversely, consuming an inappropriate diet, such as one high in sugar, saturated fat, or lacking essential

nutrients, can impair performance, lead to fatigue, decreased attention span, and negatively impact long-term health. However, many esports athletes lack knowledge and understanding about proper food selection. Consequently, their eating habits often rely more on convenience or familiarity than on suitability for performance and health. A key question is whether current esports athletes are making the right food choices, and what impacts improper consumption can have on their performance. This study aims to elucidate the importance of nutrition on esports performance, provide guidelines for proper food selection before and during competition, and raise awareness about proper nutritional health care for esports athletes. This will lead to the development of competitive abilities along with the promotion of sustainable health.

OBJECTIVES

1. To explain the importance of nutrition in esports performance.
2. To propose guidelines for selecting appropriate foods before and during esports competitions.
3. To raise awareness of proper nutritional health care for esports athletes.

METHODOLOGY

Nutrition Concepts for Esports Athletes

Nutrition involves consuming nutrients from food and drink to provide energy, restore the body, and help the brain and other organs function normally. For athletes, good nutrition not only enhances performance but also supports overall health. Although esports is not as physically demanding as outdoor sports, it requires high concentration, speed of thought and decision-making, and physical and mental readiness. Therefore, nutritional care is a key factor in athlete performance and readiness. Esports athletes often spend long periods of time sedentary, resulting in limited physical movement and the use of specialized energy sources, such as brain function and physical response. Some athletes' eating habits are often unbalanced, focusing on convenient and quick meals such as fast food, snacks, fried rice, or instant noodles. This results in high fat and sugar intake, but lacks essential nutrients for the brain and body, such as protein, vitamins, and minerals. The result is decreased performance, fatigue, short attention span, and reduced competitive readiness. Lack of proper nutrition also has long-term health consequences. Athletes who eat an unbalanced diet are at risk for problems such as being overweight, high blood pressure, abnormal blood sugar levels, or chronic fatigue. Furthermore, prolonged gaming sessions combined with nutritious foods increase the risk of neck and back pain, and accumulated stress, all of which directly impact performance.

For this reason, nutritional concepts for esports athletes emphasize creating a balance and preventing long-term health problems. Prioritizing nutrition doesn't just mean eating to feel full; it also lays a crucial foundation for performance and competitive readiness. Understanding the problems of inappropriate eating and its potential impacts can help athletes and stakeholders develop appropriate strategies for physical and health care, supporting sustainable esports play.

Health and Performance Problems in Esports Athletes

Esports athletes may not be as physically demanding as outdoor sports, but their long-term training and competition clearly impact both their health and performance. Playing games for extended periods without rest or proper physical management can lead to a variety of health problems, both physical and mental, and competitive. One common health problem is neck, back, and wrist pain due to prolonged gaming posture. Looking down at a computer or mobile phone screen for hours causes muscle tension in the neck and back, resulting in chronic pain and potentially affecting the ability to sit or compete. Furthermore, vision and concentration problems are common. Athletes staring at screens for extended periods can lead to eye strain, dryness, or pain. Continuous screen time also slows concentration and response times. Without proper eye rest and rest, performance can significantly impact performance. Another common health problem is health problems related to eating and lifestyle habits. Many esports athletes consume convenient and quick meals, such as fast food, snacks, fried foods, or instant noodles. This leads to high fat and sugar intake, but lacks essential nutrients for the brain and body. This combined with prolonged gaming can lead to fatigue, poor concentration, and reduced competitiveness. They also face risks of long-term health problems such as being overweight, high blood pressure, abnormal blood sugar levels, and accumulated stress. Esports athletes' performance is also impacted by these factors. Chronic fatigue from prolonged gaming, insufficient rest, and poor nutrition can slow decision-making, reduce reaction time, and decrease concentration. This can lead to ineffective training and competition. Therefore, understanding the health and performance issues of esports athletes is crucial, not only to improve training and competition, but also to help players properly care for their bodies and health. Recognizing the impact of gaming behavior, prolonged sitting, unbalanced eating, and insufficient rest will help athletes and stakeholders develop strategies to prevent problems and sustain their performance.

In conclusion, esports athletes' health and performance problems stem from multiple factors, including gameplay posture, rest, eating habits, and training continuity. If not managed properly, they can impact both the body and mind, and competitive performance. Raising awareness of these issues is therefore a crucial step in developing strong and highly effective esports athletes over the long term.

Guidelines for Choosing the Right Food and Nutrition for Esports Athletes

Esports athletes require high concentration, speed of thought and decision-making, and physical and mental readiness. Proper nutrition is therefore crucial to performance, health, and competitive readiness. Before a competition, athletes should eat foods that provide adequate and easily digested energy to prepare their brains and bodies. Complex carbohydrates, such as rice, whole wheat bread, or grains, provide sustained energy and reduce fatigue. Protein, such as chicken, fish, pork, or eggs, helps repair wear and tear and enhance muscle readiness. Chewing gum can sometimes reduce excitement and anxiety, improving concentration and mental readiness. Avoid spicy or chili foods before a competition, as they can irritate the stomach, cause bloating, or stomach pain, affecting concentration and comfort during the game. Eating heavy meals can also make you feel uncomfortable and reduce performance. Athletes should choose light snacks, such as fruit, nuts, or yogurt, to maintain energy levels and focus. Water and sports drinks help replace lost water and electrolytes. Energy drinks can help the body wake up and the brain function faster, but be careful about sugar and caffeine, as they can cause palpitations or fatigue later in the competition and over the long term. Recovery of the body and brain is essential. Adequate protein, such as chicken, fish, eggs, or nuts, helps repair muscles and other worn-out areas. Carbohydrates help replenish lost energy, while healthy fats, such as olive oil or peanut oil, help

the body function better. Drinking enough water and getting enough rest promotes faster recovery, reduces fatigue, and maintains performance.

Table 1 Summary table of nutrition for esports athletes

period	Main food types	Food samples	Purpose / Benefits	Additional instructions
Before the competition	- Complex carbohydrates - Lean protein	Brown rice, whole wheat bread, grains, chicken, fish, eggs	Provides continuous energy, prepares muscles and brain, and reduces fatigue.	Avoid foods that are very spicy, greasy, or difficult to digest.
During the competition	- Light snacks - Electrolyte/caffeine drinks in appropriate amounts	Fruits, nuts, yogurt, water, sports drinks	Maintain energy levels, concentration and alertness, and prevent dehydration.	Sip water regularly and avoid excessive caffeine intake.
After the match	- Protein - Carbohydrates - Good fats	Chicken, fish, eggs, rice, potatoes, olive oil, beans	Restore muscles and brain, replenish energy, and enhance long-term health.	Drink enough water and get plenty of rest.
Long term	- Complete food from all 5 food groups - Focus on quality over quantity	Fresh fruits and vegetables, lean protein, whole grains, healthy fats	Maintain performance, prevent chronic disease and brain fatigue.	Plan your daily meals and control your sugar/ fat intake.

In conclusion, choosing the right foods and nutrition can help esports athletes maintain sustained energy, improve brain function, speed recovery, reduce fatigue, and maintain long-term health. Consuming the right amount of protein, carbohydrates, and fat, along with managing fluids and beverages to enhance concentration and reduce agitation, will allow athletes to perform at their full potential and achieve sustainable health.

Analyze the nutritional knowledge and understanding of esports athletes

Many esports athletes lack a proper understanding of nutrition. Many are unaware that the foods they eat daily directly impact their concentration, memory, and in-game response. During intense competitions or training, they often opt for convenient and quick meals like fast food, packaged snacks, or energy drinks rather than considering the nutritional value their bodies and brains need. This lack of understanding of the nutrients their bodies need leads to imbalanced eating patterns, such as skipping

meals, eating irregularly, or consuming excessive caffeine to stay awake. The result is fatigue, mental dullness, and insufficient rest, all of which directly impact gaming performance. Without nutritional knowledge, esports athletes often overlook essential foods for brain and nervous system function, such as fish, nuts, vegetables, fruits, and vitamins, which are more effective at enhancing concentration and focus than energy drinks. This lack of knowledge is a major weakness, not only impacting competition in the short term, but can also lead to long-term health problems.

Analysis of meal timing and its effect on competitive performance of esports athletes

Meal timing plays a crucial role in the performance and readiness of esports athletes. Although esports emphasizes brain power more than physical strength, concentration, reaction speed, and decision-making accuracy depend on the body's energy and nutrients intake. Meal planning is therefore not just about the body, but also directly impacts competition performance.

1. Pre-competition meals

The pre-competition meal is crucial because it prepares the body and brain for performance. Athletes should eat their main meal approximately 2-3 hours before the game to ensure proper digestion and sustained energy. Examples of suitable foods include whole grain rice or bread, vegetables, fruits, and lean protein such as chicken, fish, or eggs. Eating a balanced and balanced diet will help reduce hunger during the game, reduce fatigue, and enhance sustained concentration.

2. During-competition meals

For long-term competitions, having light snacks or meals during gameplay helps maintain energy and focus. For example, fresh fruit, nuts, or small grain snacks provide sustained energy without causing heaviness or drowsiness. Regular hydration is also crucial, as even minor dehydration can impair concentration and slow response times. Athletes who manage their diet well during competition tend to maintain focus, improve accuracy, and reduce the chances of unnecessary mistakes.

3. Long-term diet and daily nutrition planning

In addition to pre- and during-competition meals, daily meal planning impacts long-term performance. Nutritionally conscious athletes consistently choose a balanced and varied diet, not focusing solely on temporary energy. For example, they consume a consistent diet of fruits, vegetables, whole grains, protein, and healthy fats. This helps the body recover quickly after training and competition, reduces chronic fatigue, and maintains focus and mental readiness, enabling consistent training and performance. Timing meals at all times before, during, and long-term is therefore an important strategy that esports athletes should not overlook. Proper meal planning helps players maintain sustained energy, focus, and maintain both physical and mental readiness. Neglecting nutrition can lead to decreased focus, inconsistent energy, and slow recovery after competition, leading to decreased performance over the long term.

A nutritional development model for esports athletes, with systematic details on each topic, suitable for use in curriculum development, athlete care program design, or as part of research.



Figure 1. Nutrition development model for esports athletes.

CONCLUSION

Esports requires intense concentration and brain reflexes. Diet and nutrition management impact physical and mental readiness. Proper nutrition provides sustained energy, high concentration, and sustained performance during competitions. Consistent, well- balanced nutrition reduces fatigue, promotes recovery, and prepares the body for continued training. Inadequate nutrition can, however, impair concentration, sluggish energy levels, and negatively impact health. Planning meals in advance, selecting snacks and beverages during and after competitions, and eating after competitions all contribute to maintaining physical and mental readiness. Therefore, nutritional attention is a key factor in enabling esports athletes to simultaneously improve their performance and maintain their health.

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