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Psychological and nutritional analysis of athletes for Semarang sports week championship 2023

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Abstract

Athlete psychology and nutrition play an important role in athlete success. These factors influence each other, so knowing athletes' psychology and nutrition levels is necessary. This study aimed to analyze the level of psychology and nutrition of athletes. The research method used in this study is a survey with an ex post facto research design. This research survey uses the distribution of questionnaires in accordance with the instruments used. The sample involved in this study were athletes who participated in the 2023 Provincial Sports Week championship (PORPROV), with the total sampling technique involving as many as 285 athletes. The analysis technique in this study uses descriptive quantitative to determine the mean and standard deviation and is categorized into 5 levels. From the results of the table analysis above, the psychological aspects of the 285 athletes involved in this study showed good results. The results of the table analysis above show that the nutritional adequacy of the 285 athletes involved in this study is sufficient. This study concludes that the psychological and nutrition of athletes need to be improved, given the importance of these factors as one of improving achievement.

Keywords: Psychology, nutrition, provincial sports week competition, athletes.

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Authors contribution: a – Preparing concepts; b – Formulating methods; c – Conducting research; d – Processing results; e – Interpretation and conclusions; f - Editing the final version.

INTRODUCTION

In sports, psychology is indispensable, as it assists athletes in the management of stress, the development of confidence, and the enhancement of concentration (Handayani, 2019). It allows athletes to maintain a sense of composure and concentration in high-pressure

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situations by employing strategies such as visualization and positive affirmations to enhance their performance. Psychology also promotes motivation and dedication, assisting athletes in confronting obstacles and failures by promoting the appropriate mindset and goal-setting strategies (Özdemir, 2019). In addition, psychological support is crucial for injury recovery, as it enables athletes to recuperate from emotional trauma and return to competition with a strong mental fortitude.

Psychology is instrumental in the development of communication, the resolution of conflicts, and the establishment of trust among team members, all of which are critical components of team success (Dongoran et al., 2020). Psychology also promotes the cultivation of a healthy competitive mindset, which enables athletes to confront their opponents with confidence and enthusiasm while maintaining sportsmanship (Irwanto & Romas, 2019; Jarwo, 2022). Mindfulness and relaxation techniques can alleviate anxiety in athletes prior to or during competition, thereby maintaining their composure. In general, psychology is essential for the preparation and performance of athletes, as it ensures mental equilibrium and the attainment of optimal performance in the competitive realm of sports (Irwanto & Romas, 2019).

It is essential to comprehend the psychological profile of athletes in order to enhance and manage their performance and preserve their mental health (Permana et al., 2022). The comprehension of athletes' psychological states enables coaches and support teams to develop more effective interventions, enhance communication within the team, customize training approaches, and develop competitive strategies. It also promotes the development of character and life skills, adaptation to change, and long-term satisfaction and well-being. Psychological comprehension makes a comprehensive training approach that prioritizes both physical performance and mental and emotional well-being possible.

Nutritional issues can substantially impact the health and performance of athletes. One of the primary concerns is nutritional deficiencies, which occur when athletes fail to consume sufficient

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quantities of essential macronutrients, vitamins, or minerals (Jalph & Kaur, 2023). The immune system can be weakened, which in turn can impair an athlete's ability to train and compete optimally, and bone and muscle health can be negatively impacted by nutrient deficiencies such as iron, calcium, or vitamin D (Wijaya et al., 2021). Athletes frequently encounter the issue of inadequate calorie consumption. Their energy requirements experience a substantial increase during periods of competition or intensive training. Insufficient calorie intake can result in weight loss, fatigue, and a decline in overall performance for athletes (Wijaya et al., 2021). Athletes' endurance, strength, and recuperation capabilities are contingent upon the appropriate calorie intake.

Careful attention and management of nutrition issues in athletes are necessary to ensure that they can maintain their overall health and attain peak performance. According to Alit Arsani (2014), athletes' nutrition knowledge is crucial because it directly impacts their health, recuperation, and performance. Athletes' energy availability for training and competition depends on their proper nutrition. Carbohydrates, which serve as the primary energy source, proteins that facilitate muscle recovery and growth, and healthy fats that promote hormone function and endurance are indispensable for attaining peak performance (Maćkała et al., 2015). The nutritional requirements of each athlete are contingent upon their personal objectives, training intensity, and sport. According to Bulqini et al. (2022) specifically state that athletes and support teams can customise their diet to support optimal performance and health by understanding the nutritional requirements. An in-depth comprehension of nutrition enables athletes to make more informed decisions about their diet and recuperation strategies, thereby promoting their long-term health and optimal performance.

This study aimed to analyze the psychology and nutrition of athletes preparing to compete at the national level. This research wants to examine these things as a form of analysis of the results obtained from the Semarang team at the 2023 provincial sports week. Given the importance

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of athletes' psychology and nutrition, a sports psychology questionnaire approach using the Sports Personality Quiz 20 (SPQ 20) was used to collect data. Many psychology researchers use this questionnaire to assess athletes' psychological personality, including 20 psychological measures. A unique questionnaire with qualitative suggestions for pre-workout nutrition was used to examine athletes' nutritional habits. This questionnaire consists of 15 statements (questions) regarding pre-exercise eating habits. This research contributes to providing an overview for athletes and coaches to develop by providing a form of training or a form of special attention in order to get even better achievements.

METHOD

This research uses survey research using ex post facto research design. This research survey uses the distribution of questionnaires in accordance with the instruments used. The sample in this study were athletes who participated in the 2023 Provincial Sports Week championship (PORPROV), as many as 23 group or individual sports. Subjects were recruited using population sampling with a total of 285 athletes.

This study used the Sport Personality Questionnaire 20 (SPQ 20) to gather data (Smith, 2016). Many psychology researchers use this questionnaire to assess athletes' psychological personalities, which includes 20 psychological measures. For additional information, the indications for each variable are shown in the graphic below:

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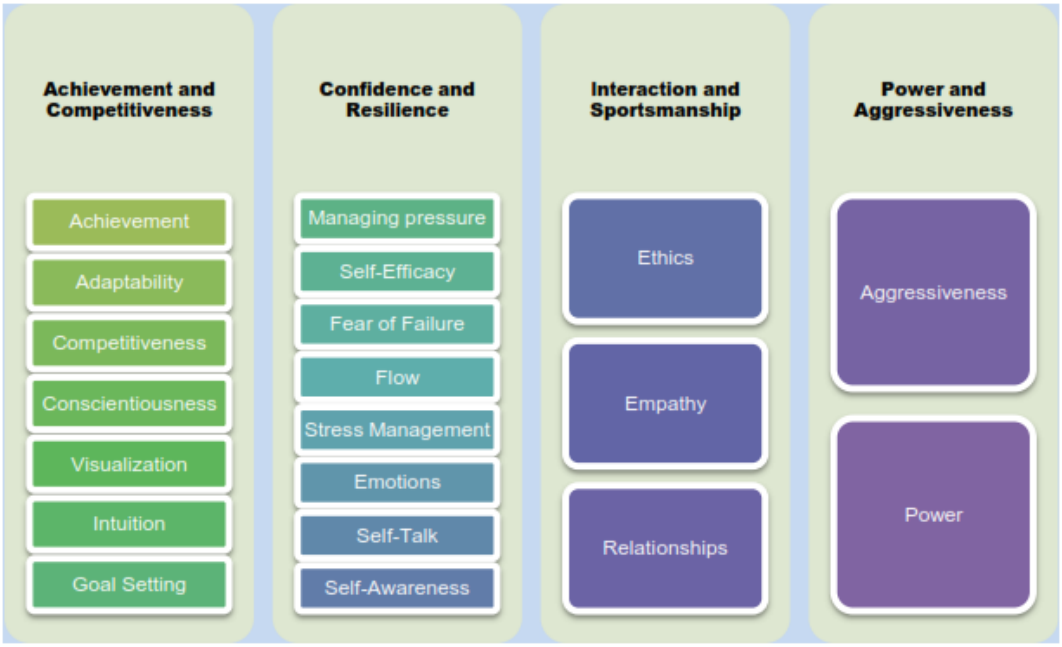

Figure 1. SPQ20 Framework of Mental Skills (Smith, 2016)

The test was administered using a questionnaire consisting of 168 questions with various answers based on the respondent's behaviors, with five categories chosen: never, occasionally, moderately, often, very often, and always. With a dependability of 0.6 to 0.8 (Smith, 2016). SPQ20 measures 20 dimensions of mental strength, which are divided into 4 areas: achievement and competitiveness, confidence and resilience, interaction and sportsmanship, and power and aggressiveness.

Nutritional Instruments (Nutritional Intake)

A unique questionnaire with qualitative suggestions for pre-exercise nutrition was utilized to examine athletes' nutritional habits. The questionnaire consists of 15 statements (questions) concerning eating habits before to exercise. The responses were graded on a 5-point Likert scale (from 1 to 5, "definitely no," "rather no," "hard to say," and "rather yes" to "definitely yes"). The questionnaire's eating behavior items are critical for the post-workout nutritional strategy, which improves exercise ability and the rate of regeneration processes, according to the authors of scientific papers on nutritional recommendations for athletes. Questionnaire questions regarding the following: Consumption of isotonic drinks during exercise, types of food consumed before and after training,

types, and amounts of drink consumed before and after training, including drinks containing carbohydrates and electrolytes, as well as drinks containing drinks and electrolytes, and consumption of carbohydrate and protein products after training/competition. The examination focused on the athlete's pre-training dietary habits (during the preceding six months). Based on the results of the questionnaire, the degree of implementation of individual nutritional recommendations and the overall index of rational nutritional behavior during the peri-exist period are assessed (on a scale of 1-75 points, assuming that the higher the index, the more intense The test's validity was tested by repeated testing (n = 32). The linear correlation coefficient was determined, and the null hypothesis, H0: r = 0, was evaluated using the student's t-test, yielding data that confirmed the scale's dependability (r = 0.378; p = 0.035). The scale's internal consistency was established with a Cronbach's α coefficient of 0.77 (Gacek & Wojtowicz, 2023).

Data analysis techniques to determine the percentage of psychological and nutritional each each test obtained. The rough data results are then reprocessed, and the first stage is processed to determine the mean using the following values:

$$\overline{x} = \frac{\sum x}{n}$$

Information:
X: average (mean)

∑x: The sum of the elements in the variable

n: number of subjects

The data results are then processed to determine the standard deviation using the following values:

$$SD = \sqrt{\frac{\sum x^2}{N}}$$

Information:

SD: Standard deviation

Σx^2: Sum of variable elements

n: Number of subjects

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RESULT

The table below shows the socio-demographic sample: The total sample consists of 285 athletes (184 men and 101 women) from 23 sports.

Table 1: Data on the psychological athletes (n=285)

Indicator	Score	Frequency	Persenatge	Category
Achievement	26.33 – 34.65	125	43,86%	Good
Adaptability	25.33 – 29.31	140	49,12%	Good
Compete	23.21 – 28.41	138	48,42%	Good
Conscientiousnes	29.43 – 32.78	121	42,46%	Good
Visualization	28.41 – 33.68	171	60,00%	Good
Intuition	27.55 – 31.77	168	58,95%	Good
Goal_setting	26.31 – 30.72	138	48,42%	Good
Manage_presure	27.11 – 32.61	120	42,11%	Good
self_efficacy	25.32 – 32.71	156	54,74%	Good
Fear_failure	26.34 – 33.37	114	40,00%	Good
Flow	27.33 – 33.28	156	54,74%	Good
Stress_management	29.15 – 34.71	156	54,74%	Good
Emotion	26.13 – 33.02	182	63,86%	Good
Self_talk	27.88 – 34.15	167	58,60%	Good
Self_awarenes	23.38 – 31.72	166	58,25%	Good
Ethics	25.77 – 31.28	228	80,00%	Good
Emphaty	28.91 – 34.59	171	60,00%	Good
Relationship	26.71 – 33.73	148	51,93%	Good
Agressiveness	26.55 – 32.39	168	58,95%	Good
Power	28.01 – 34.86	181	63,51%	Good

From the results of the analysis that has been presented in the table above, it can be interpreted as follows

Athlete personality aspects of achievement motivation

The results of the study state that in the aspect of achievement motivation, 92 athletes have a very good category, 125 athletes have a good category, 68 athletes have enough categories, 0 athletes have less achievement motivation, and 0 athletes have very less achievement motivation.

Athlete personality aspects of adaptability

The results stated that regarding adaptability, 88 athletes had a very good category, 140 athletes had a good category, 57 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very less achievement motivation.

The personality of athletes in the aspect of scientific power

The results stated that in the aspect of competitiveness, 86 athletes had a very good category, 138 athletes had a good category, 61 athletes had a

sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very little achievement motivation.

Athlete personality aspects of awareness

The results stated that in awareness, 75 athletes had a very good category, 121 athletes had a good category, 89 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very less achievement motivation.

The personality of athletes in the visualization aspect

The results stated that in the visualization aspect, there were 92 athletes in the very good category, 171 athletes in the good category, 22 athletes in the sufficient category, 0 athletes who had less achievement motivation, and 0 athletes who had very less achievement motivation.

Intuition aspect of the athlete's personality

The results stated that in the intuition aspect, 88 athletes had a very good category, 168 athletes had a good category, 29 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very less achievement motivation.

The personality of athletes in the aspect of goal-setting

The results stated that in the aspect of goal setting, there were 121 athletes in the very good category, 138 athletes in the good category, 26 athletes in the sufficient category, 0 athletes who had less achievement motivation, and 0 athletes who had very less achievement motivation.

Athlete personality aspects of managing pressure

The results stated that in the aspect of goal setting there were 98 athletes in the very good category, 120 athletes in the good category, 67 athletes in the sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

Athlete personality aspects of self-efficacy

The results stated that in the aspect of self-efficacy, 120 athletes were in the very good category, 158 athletes were in the good category, 7 athletes

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were in the sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very little achievement motivation.

Athlete personality aspects of the ability to overcome mistakes

The results stated that in the aspect of the ability to overcome mistakes, 114 athletes had a very good category, 124 athletes had a good category, 47 athletes had sufficient categories, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

The personality of the flo aspect athlete

The results stated that in the flow aspect there were 83 athletes in the very good category, 156 athletes in the good category, 46 athletes in the sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

Athlete personality aspects of stress control

The results of the study state that in the aspect of stress control there are 77 athletes who have a very good category, 156 athletes have a good category, 52 athletes have sufficient categories, 0 athletes have less achievement motivation, and 0 athletes who have very less achievement motivation.

The personality of athletes in the emotional aspect

The results stated that in the emotional aspect, 66 athletes had a very good category, 182 athletes had a good category, 37 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very less achievement motivation.

Self-tal aspect of athlete personality

The results stated that in the aspect of self-talk there were 78 athletes in the very good category, 167 athletes in the good category, 40 athletes in the sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

The personality of athletes in the aspect of selfawarenes

The results stated that in the aspect of self-awareness, 92 athletes had a very good category, 166 athletes had a good category, 27 athletes had a

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sufficient category, 0 athletes had less achievement motivation, and 0 athletes had very less achievement motivation.

Ethical aspect of athlete's personality

The results stated that in the ethical aspect there were 58 athletes in the very good category, 221 athletes had a good category, 6 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

Four aspects of athlete personality

The results stated that in the empathy aspect, 98 athletes had a very good category, 171 athletes had a good category, 16 had a sufficient category, 0 had less achievement motivation, and 0 had very less achievement motivation.

The relationship aspect of athlete personality

The results stated that in the aspect of relationships there were 111 athletes who had a very good category, 148 athletes had a good category, 26 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

Athlete personality aspects of aggressiveness

The results stated that in the aspect of aggressiveness there were 77 athletes in the very good category, 183 athletes in the good category, 25 athletes in the sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

The personality of athletes in the leadership aspect

The results stated that in the leadership aspect there were 91 athletes in the very good category, 168 athletes had a good category, 26 athletes had a sufficient category, 0 athletes had less achievement motivation, and 0 athletes who had very less achievement motivation.

The personality of athletes in the power aspect

The results stated that in the aspect of impression management, 73 athletes were in the very good category, 181 athletes had a good category, 31 had sufficient categories, 0 had less, and 0 were lacking.

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The results of the table analysis above show that of the 285 athletes involved in this study, their psychological aspects showed good results. This can be seen from the average category obtained based on the findings of data processed using relevant instruments. This finding indicates that, in general, the psychological condition of athletes is at an adequate level, in accordance with the parameters set in this study.

Table 2. Results of athletes' nutrition level (n=285)

Indicator	Score	Frequency	Persenatge	Category
Height	23.41 – 32.71	121	46,32%	Good
Weight	35.47 – 53.21	140	49,12%	Poor
Calori	32.12 – 37.12	161	56,49%	Good
Protein	28.17 – 33.69	158	55,44%	Good
Fat	22.13 – 25.36	131	45,96%	Poor
Carbo	24.12 – 28.36	167	58,60%	Good

The results of the analysis presented in the table above can be interpreted as follows:

Height

The results of the study state that the athlete's height is 60 athletes have a very good category, 121 athletes have a good category, 50 athletes have a good enough category, 31 athletes are lacking, and 23 athletes are very lacking.

Body weight

The results stated that in body weight, there were 62 athletes in the very good category, 32 athletes in the good category, 44 athletes in the fair category, 140 athletes in the poor category, and 7 athletes in the very poor category.

Calories

The results stated that in calories, 72 athletes were in the very good category, 161 athletes were in the good category, 30 athletes were in the fair category, 11 athletes were in the poor category, and 10 athletes were in the very poor category.

Protein

The results stated that in protein, 35 athletes were in the very good category, 158 athletes were in the good category, 42 athletes were in the fair

category, 20 athletes were in the poor category, and 30 athletes were in the very poor category.

Fat

The results showed that in fat, 32 athletes were in the very good category, 28 were in the good category, 68 were in the fair category, 131 were in the poor category, and 26 were in the very poor category.

Carbo

The results stated that in carbo, 38 athletes were in the very good category, 167 athletes were in the good category, 42 athletes were in the sufficient category, 33 athletes had less achievement motivation, and 5 athletes were very lacking.

The table analysis above shows that of the 285 athletes involved in this study, the aspect of their nutritional adequacy shows sufficient results. This can be seen from the average category obtained based on data findings processed using relevant instruments. This finding indicates that, in general, athletes' nutritional adequacy conditions are at an adequate level in accordance with the parameters set out in this study.

DISCUSSION

According to the results of the previous section, the psychological aspects and nutritional levels of athletes are classified as excellent and moderate. These results offer significant insights that can be further explored, as athletes' psychological well-being is critical to their ability to achieve peak performance. Positive psychology has the potential to enhance mental endurance, focus, and motivation, all of which are essential components of athletics competition. Athletes who possess a strong emotional and mental equilibrium are more adept at managing pressure, maintaining consistency in their performance, and confronting obstacles (Lima et al., 2022; Özdemir, 2019). Consequently, coaches and support teams are encouraged by results that indicate athletes' psychological categories are in excellent condition, as they indicate a strong mental preparedness for competition.

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Furthermore, their nutritional sufficiency significantly influences athletes' physical health and performance. According to Berliandita and Hakim (2021) and Wijaya et al. (2021), athletes who attain nutrition levels that fall within the acceptable and moderate categories are adequately supplied with nutrients to facilitate their recovery and energy requirements. Maintaining strength, endurance, and rapid recuperation following training or competition is facilitated by optimal nutrition (Rismayanthi, 2019). Nevertheless, if athletes are in the moderate category, this could be a cause for concern and necessitate additional intervention, such as dietary modifications or consultation with a sports nutritionist to guarantee that their nutritional requirements are adequately addressed.

The present state of athlete psychology is characterized by a variety of factors that influence their performance and overall well-being. Mental health is a significant concern, as elite athletes frequently encounter extreme pressure from the public, media, and themselves (Negara et al., 2021). This stress can result in conditions such as anxiety, depression, and exhaustion, which can have a detrimental effect on their quality of life and performance. Furthermore, athletes frequently experience competitive stress, resulting in protracted stress that disrupts their focus and concentration due to high expectations and intense competition (Nopiyanto et al., 2022). The psychological burden of fear of failure is also substantial, as it impedes the ability of athletes to perform at their best by causing them to worry about not meeting expectations or disappointing others. After retirement or a severe injury, identity crises and depression frequently manifest (Guntoro et al., 2020). The challenge of maintaining a balance between a personal life and a sporting career is also significant, as the demands of training, travel, and competition consume a significant amount of time and energy, leaving little room for an existence outside of sport. The negative effects of public criticism and unrealistic expectations on digital platforms are now a significant concern for many athletes, as they are subject to pressure from social media (Dela, 2022). The emotional burden can be further exacerbated by cyberbullying and the pressure to maintain a specific image, which can lead to stress and anxiety. In

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order to address these concerns, athletes must receive sufficient psychological support, including mental training, counseling, and comprehensive mental health programs, to ensure that they maintain optimal performance and mental equilibrium.

Additionally, these findings offer valuable insights for the creation of more comprehensive training and support programs. In order to develop more comprehensive training programs that encompass physical exercise, mental support, and ongoing nutritional monitoring, it is necessary to ensure that both psychology and nutrition are functioning optimally (Anggia et al., 2021). Furthermore, the identification of aspects that are still classified as moderate offers the potential for more targeted development, enabling them to be upgraded to a superior category in the future. Psychology and nutrition frequently interact. Athletes' nutrition levels can be influenced by poor psychological conditions, such as tension or anxiety, which can also affect their diets (Handayani, 2019). In contrast, inadequate nutritional intake may negatively impact an athlete's motivation and temperament (Jalph & Kaur, 2023). Consequently, it is imperative to maintain a harmonious equilibrium between these two components, which necessitates an integrated strategy.

Furthermore, athlete performance may be influenced by macronutrient imbalances in carbohydrates, protein, and lipids (Pratama, 2019). Protein is crucial for muscle recovery and repair, while carbohydrates are the primary energy source. Hormone function and cellular health are contingent upon the presence of healthy lipids. In the long term, athlete performance can be impacted by imbalances in macronutrient ingestion, which can disrupt energy balance and recovery processes (Zahra & Muhlisin, 2020). A lack of fluids can result in dehydration, impede performance, and increase the risk of injury, which is another critical aspect of hydration (Samodra, 2020). Athletes must ensure that they consume adequate water and electrolytes to maintain body fluid equilibrium, particularly during training or competitions that necessitate high energy expenditure and perspiration. Athletes' health and performance can also be influenced by their poor diet or irregular eating behaviors (Ojio et al., 2021). According to Slavin et al. (2023) have demonstrated that foods that

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are high in sugar, saturated fat, and low in nutrients can not only lead to weight concerns but also impair metabolic health and physical performance. Consequently, it is crucial for athletes to adhere to a well-balanced and consistent diet, with an emphasis on nutrient-rich foods that facilitate their energy and recuperation requirements.

Overall, these findings suggest that the majority of athletes are on a good track in terms of psychology and nutrition. However, there is still room for improvement, especially for those in the moderate category. With the right strategies, these two aspects can be optimized to support better athlete performance in the future.

CONCLUSION

An athlete's best performance cannot be reached just by one shaping feature, such as training; rather, several additional aspects influence an athlete's success in obtaining peak performance. An athlete's psychological aspects will impact his performance and competence when competing, but nutrition, as an athlete's support system, will also play a significant part in his performance.

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