



## RESEARCH ARTICLE

# Lifestyle Measurement of Junior Athletes: A Cross-Sectional Study of Food, Cigarette, and Alcohol Consumption in Sumedang, West Java

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## Abstract

Sedentary lifestyles, such as consuming foods high in energy, protein, carbohydrates, and fat, sleeping less than 8 hours, smoking and drink an alcohol can approximately double the risk of obesity and hypertension. These factors can affect nutritional status and impact physical fitness and achievement in junior athletes. This study aims to identify the lifestyle and nutritional status of junior athletes aged 11-24 years during the match preparation period. The sample consisted of 110 junior athletes in Sumedang, West Java. This research using a cross-sectional approach. Results showed that the average athlete in Sumedang Regency consumed 2,035 Kcal daily, with male athletes consuming 2,218.8 Kcal and female athletes consuming 1,797.7 Kcal. More than half of the male athletes (64.5%) are smoked but did not consume an alcohol (95.2%). On other hand, most of female athletes neither smoke (85.4%) nor consume an alcohol. The data also shows there is a significant ( $p$ -value  $< 0.05$ ) consumption among male and female athletes on cigarette consumption. Findings indicate that athletes did not meet the nutritional intake adequate even for normal individuals, while athletes require a higher nutritional adequacy due to their intensive training regimens. Athletes in Sumedang Regency are not meeting their nutritional needs and engage in unhealthy behaviors such as smoking and alcohol consumption, which may affect their physical fitness and performance. These lifestyle factors need to be addressed to improve their nutritional status and overall athletic performance.

## Keywords

Athletes, Lifestyle, Consumption Patterns, Cigarettes, Alcohol

## INTRODUCTION

The President of the Republic of Indonesia (2005) in Law Number 3 of 2005 stated that the scope of sports is divided into three parts: recreational sports, educational sports, and achievement sports. Individuals who have the status of athletes are those who perform sports achievements, either individually or in teams, in sports activities ([President of the Republic of Indonesia, 2005](#)). An athlete who desires success, especially a productive athlete at a young age or referred to as a junior athlete, requires a process of

practicing and training sports that involves athletes, coaches, and other supporting elements such as the role of government, community participation, management and sports organizations, facilities and infrastructure, and science and technology ([Klaperski-van der Wal, 2023](#)).

In addition to these factors, junior athletes also need to pay attention to their lifestyle, including food consumption, smoking and alcohol consumption, sleep duration, and physical activity, which can affect their level of physical fitness and achievement ([De Nitto et al., 2020](#); [Daşkesen & Alp, 2024](#)). Exercise itself is an activity carried out by an athlete through various forms of movement,

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directed, repeated, and with increasing intensity to improve competitive ability (Desbrow, 2021).

Unhealthy lifestyles, such as consuming foods high in energy, protein, carbohydrates, and fat, sleeping less than 8 hours, and engaging in sedentary activities for more than 6 hours a day, can double the risk of obesity and hypertension and affect the nutritional status of junior athletes (Oematan & Oematan, 2020; Mokolensang et al., 2016). Nutritional status is an individual's condition resulting from daily nutritional intake, categorized as undernutrition (very thin and thin/underweight), good nutrition (normal), and overnutrition (overweight and obese) (Neglia, 2021). A study suggests that male athletes in Indonesia have normal nutritional status, but female athletes have an obese nutritional status accompanied by excess fat composition compared to recommendations and energy requirements, macronutrients (especially protein and carbohydrate intake), micronutrients, and fluid intake (Penggali et al., 2018; Tahir et al., 2020; Penggali & Huriyati, 2007).

The Olympics, held every four years, is a forum for athletes to showcase their best abilities, with more than 12,000 athletes from various countries and sports competing for medals (Gifford, 2012). Before the game, athletes need a match preparation period to enhance their abilities (Desbrow, 2021). Each sport has its own way of training athletes during the match preparation period, tailored to the athlete's age, potential, and training stage (Marques & Chamari, 2023). Competitions are not limited to the Olympics but also include regional events like Regional Sports Week (PORDA), Provincial Sports Week (PORPROV), and National Sports Week (PON). During the preparation period, athletes must maintain a lifestyle that includes managing financial conditions, life scope, food access, food preparation skills, travel, and health conditions.

The importance of maintaining a healthy lifestyle and normal nutritional status for junior athletes during the match preparation period cannot be overstated. Identifying the lifestyle and nutritional status of junior athletes is crucial for maintaining, evaluating, and improving their conditions. This study aims to analyze the lifestyle and nutritional status of junior athletes preparing for the Provincial Sports Week (PORPROV) in Sumedang, West Java.

## MATERIALS AND METHODS

This study is a descriptive study using a cross-sectional design that aims to analyze the variables to be identified, including lifestyle and nutritional status of junior athletes in Sumedang, West Java in the preparation period for the Provincial Sports Week.

This research is being carried out in Sumedang, West Java for 8 months, namely March-October 2022 with an ethical permit issued by The Medical and Health Research Ethics Committee (MHREC) Universitas Gadjah Mada number KE/FK/1170/EC/2022. Participant provided informed consent, with the volunteer form covering research details, risks, benefits, confidentiality, and participant rights. The research strictly adhered to the ethical principles of the Declaration of Helsinki, prioritizing participant's rights and well-being in design, procedures, and confidentiality measures.

### *Participant*

The research population were 600 junior athletes in Sumedang, West Java with a minimum sample size of 110 junior athletes to be selected as research samples and the sampling technique used is purposive sampling. The selection of research subjects based on the inclusion criteria in this study were athletes aged 11-24 years at the time of the study which divided into three categories there are 11-13 years, 14-18 years, and 19-24 years; did not suffer from chronic and congenital diseases; and were willing to be respondents in this study. While the exclusion criteria were junior athletes who did not collect a complete questionnaire

### *Data Collection Tools*

Data collection was carried out in the district sports building in Sumedang, West Java, using the Covid-19 preventive health regulations. Athletes who have gathered at the research location will be asked questions first regarding the fulfillment of the requirements to become respondents, such as age 11-24 years and not having congenital or chronic diseases. If the athlete agrees to be a research respondent, the researcher will provide informed consent to be signed and continued by filling in personal data and questions related to research needs.

The data collection tool in this study used a questionnaire. The questionnaire used in this study consisted of three parts. The first part consists of the characteristics of the respondents (name, date of birth, gender, mobile phone number, occupation

Education and length of service); second, related to lifestyle data referring to the Cigarette and Alcohol Consumption Questionnaire developed by Widiansah *et al.*, (2016), the third part presents columns for 24-H Food Recall interviews on training holidays and during training. In the fourth part, the column for filling in the weight measured using a digital scale with a capacity of 150 kg and an accuracy of 0.1 kg will be presented, height using a microtoise with a capacity of 200 cm and an accuracy of 0.1 cm, as well as the percentage of fat and BMI using a digital scale.

### Statistical Analysis

Variables that have been selected and stored in the form of a data base program for further analysis using computer software and carried out in several stages, namely univariate and bivariate. Univariate analysis is an analysis that describes the characteristics of each variable. The analysis was carried out by summarizing a data set into the mean, maximum minimum, and standard devicentral tendency (measure of concentration) and then comparing the descriptive results of the data

obtained between one group and another according to the objectives to be achieved for the analysis. The form of presentation of univariate analysis can be in the form of graphs or tables. Univariate analysis in this study was used to analyze the dependent variable and the independent variable.

Bivariate analysis in this study was used to analyze each independent variable. The test used in bivariate analysis in this study is ANOVA test or chi-square test if the data was found as a normal data and Kruskal-Wallis test or fisher exact test if the data was found as a non-normal data.

The operational definition in this study consists of research variables, operational definitions, measuring methods, measuring instruments, measuring results, and data scales. The research variables consisted of age, education, occupation, duration of joining, pocket money, food consumption, cigarette consumption and alcohol consumption of athletes obtained by filling out a questionnaire. All variables use a nominal scale, except for the age variable and the allowance variable uses a ratio scale.

**Table 1.** Distribution of respondents based on the characteristics of the subject and socioeconomic

No	Characteristic	Amounts (n=110)	Percentage (%)
1	Gender		
	Male	62	56.4
	Female	48	43.6
2	Age (n= 110)	16.8 ± 2.6*	
3	Weight	60.8 ± 9.8	
4	Height	167.0 ± 6.1	
5	Allowance (Rp/ day)	22 855 ± 15 479*	
6	Family member	4.3 ± 1.2*	
7	Duration of joining	1.3 ± 0.5*	
8	Education		
	Elementary	6	5.5
	Junior High School	28	25.5
	Senior High School	68	61.8
	Endergraduate Degree	8	7.3
9	Job		
	Student	100	90.9
	Worker	10	9.1

\*Description: Score (average±SD)

## RESULTS

Respondents were 110 athletes aged 11-24 years domiciled in Sumedang. Table 1 shows the distribution of respondents according to the characteristics and socioeconomic of the respondents. Table 1 shows that more than half of the respondents (56.4%) were male and less than half (43.6%) were female with an average of 1.3 years in a sports club or organization. The average

age of the respondents is around 16.8 years with an average number of family members 4 people in 1 house. Database on Badan Pusat Statistik (2019) shows that the average family member in one household in West Java is 3.8 or rounded up to 4 family members. This shows that the number of respondent's family members is the average number of families at the National level. The respondent's pocket money per day is around Rp. 22.855,- with

the number of family members being 4 people in one house. More than half of the respondents (61.8%) are high school students (SMA) and only 9.1% of respondents are working. Residents aged 15 years and over on average have permanent jobs such as laborers or employees (Badan Pusat Statistik 2019)

### Univariate Analysis

Univariate analysis was conducted to see the mean and standard deviation of food, cigarette and alcohol consumption as well as the nutritional status of athletes in Sumedang Regency. Table 2 is the distribution of food consumption for all athletes in Sumedang Regency.

**Table 2.** Distribution of respondents based on food consumption of all athletes

No	Nutrition	Average Consumption of Nutrients
		( $\bar{x} \pm \text{Std}$ ) Athlete
1	Energy (Kkal)	2 035.0 $\pm$ 770.5*
2	Protein (g)	60.8 $\pm$ 26.9*
3	Fat (g)	59.9 $\pm$ 28.7*
4	Carbohydrate (g)	312.8 $\pm$ 128.8*
5	Calsium (mg)	552.8 $\pm$ 440.5*
6	Phosphorus (mg)	639.4 $\pm$ 359.7*
7	Iron (mg)	15.1 $\pm$ 12.1*
8	Vitamin A (RE)	798.4 $\pm$ 600.5*
9	Vitamin B (mg)	0.7 $\pm$ 0.7*
10	Vitamin C (mg)	23.4 $\pm$ 51.9*

\*Description: Score (average $\pm$ SD)

Table 2 shows that athletes in Sumedang Regency on average consume food with a calorie count of 2035 Kcal which of course does not meet the calorie adequacy for athletes. The average nutritional content of respondents' food

consumption, namely protein, is 60.8 g; fat of 59.9 g; carbohydrates of 312.8 g; calcium by 552.8 mg; phosphorus by 639.4 mg; iron by 15.1 mg; Vitamin A of 798.4 RE; Vitamin B by 0.7 mg; and Vitamin C of 23.4 mg.

**Table 3.** Distribution of respondents based on food consumption of male and female athletes by age

No	Nutrition	11-13 ages		14-18 ages		19-24 ages		P-value
		Male	Female	Male	Female	Male	Female	
1.	Energy (Kkal)	2322.4 $\pm$ 501	1 639.3 $\pm$ 244.8	2 190.7 $\pm$ 895.2	1 992.4 $\pm$ 697.8	2 269.6 $\pm$ 557.7	1 496.6 $\pm$ 559.3	0.313 <sup>a</sup>
2.	Protein (g)	65.9 $\pm$ 22.8	46.9 $\pm$ 22.8	63. $\pm$ 26.3	59.3 $\pm$ 26.2	72.2 $\pm$ 28.1	48.4 $\pm$ 29.0	0.645 <sup>a</sup>
3.	Fat (g)	58.0 $\pm$ 19.1	60.9 $\pm$ 23.0	63.5 $\pm$ 34.0	62.1 $\pm$ 28.0	59.1 $\pm$ 20.7	47.0 $\pm$ 22.2	0.479 <sup>a</sup>
4.	Carbohydrate (g)	371.3 $\pm$ 88.8	243.2 $\pm$ 651	344.1 $\pm$ 147.9	292.9 $\pm$ 110.8	352.7 $\pm$ 106.0	227.0 $\pm$ 92.7	0.319 <sup>b</sup>
5.	Calsium (mg)	529.9 $\pm$ 348.4	245.8 $\pm$ 17.8	658.5 $\pm$ 523.4	457.9 $\pm$ 287.2	730.9 $\pm$ 580.0	380.2 $\pm$ 226.6	0.315 <sup>a</sup>
6.	Phosphorus (mg)	635.9 $\pm$ 349.2	320.0 $\pm$ 208.9	636.9 $\pm$ 294.9	641.8 $\pm$ 368.6	784.6 $\pm$ 550.4	614.5 $\pm$ 360.5	0.400 <sup>a</sup>
7.	Iron (mg)	15.1 $\pm$ 6.3	4.5 $\pm$ 3.1	16.6 $\pm$ 12.0	15.5 $\pm$ 15.3	18.8 $\pm$ 12.5	10.0 $\pm$ 5.0	0.303 <sup>a</sup>
8.	Vitamin A (RE)	438.0 $\pm$ 449.2	898.0 $\pm$ 33.5	802.7 $\pm$ 721.8	868.8 $\pm$ 465.1	671.3 $\pm$ 668.6	868.9 $\pm$ 509.8	0.409 <sup>a</sup>
9.	Vitamin B (mg)	0.6 $\pm$ 0.2	0.4 $\pm$ 0.2	0.7 $\pm$ 0.5	0.7 $\pm$ 0.5	1.4 $\pm$ 1.6	0.6 $\pm$ 0.2	0.547 <sup>a</sup>
10.	Vitamin C (mg)	14.4 $\pm$ 15.3	8.5 $\pm$ 15.5	21.0 $\pm$ 38.6	14.4 $\pm$ 21.3	31.5 $\pm$ 39.1	46.8 $\pm$ 111.2	0.101 <sup>a</sup>

\*Description: Score (average $\pm$ SD), <sup>a</sup>Kruskal Wallis test, <sup>b</sup>Anova

Table 3 shows that neither male and female athletes in Sumedang Regency on average consume food with a total calorie of 2218.8 Kcal and 1639.3 does not meet the caloric adequacy for athletes. Most of male athlete nutritional content are twice higher than female nutritional content except Vitamin A's

averages among male and female athletes. Female athletes had 898.5 RE of Vitamin A and male athletes has nearly half of female's Vitamin A. The data also describe there are no significant ( $P$ -value  $<$  0.05) between nutritional content of male and female athletes.

**Table 4.** Distribution of respondents based on cigarette and alcohol consumption

No	Characteristic	Amounts (n=110)		P-value
		Male (%)	Female (%)	
1	Cigarette consumption (n= 110)			
	Yes	40 (64.5%)	7 (14.6%)	0.000a
No	22 (35.5%)	41 (85.4%)		
2	Alcohol consumption (n= 110)			
	Yes	3 (4.8%)	3 (6.3%)	0.532b
No	59 (95.2%)	45 (93.8%)		
3	Never consume alcohol in past year (n= 110)			
	Yes	2 (3.2%)	1 (2.1%)	0.596b
No	60 (96.8%)	47 (97.9%)		

\*Description: Score (average $\pm$ SD), a chi-square test, b fisher exact test

Table 4 describe more than half of male athletes (64.5%) are smoked but did not consume an alcohol (95.2%). On other hand, most of female athletes neither smoke (85.4%) nor consume an alcohol. Nearly 100% of male (96.8%) and female (97.9%) athletes did not consume an alcohol in the

## DISCUSSION

The energy adequacy of normal male adolescents is in the range of 2400-2 650 Kcal per day and the energy adequacy of normal female adolescents is in the range of 2050-2 250 Kcal per day, but in athletes, the energy adequacy depends on diet and the type of exercise performed (Hull et al., 2016)). The energy sufficiency of athletes in Sumedang Regency from the results of research that has been carried out does not even meet the adequacy of normal adolescents, while athletes need to fulfill several aspects that will support performance, especially aspects of calorie needs (calorie needs), macro nutrients (macro nutrients), hydration (hydration), timing, and supplementation (Kerksick et al., 2017). In addition, the adequacy of energy, fat, carbohydrates, iron, daily fluid intake, fluid intake before exercise, hydration status and percent body fat are closely related to the level of fitness and performance of an athlete (Condo et al., 2019). Male and female athletes in Sumedang Regency are only able to meet 89% carbohydrate adequacy for normal men and of course cannot meet the carbohydrate needs as athletes which of course have an influence on athletes' energy intake (Gonzalez et al., 2022). Proteins that function to help increase muscle mass in athletes can only achieve normal adequacy in men and only meet 84% of energy adequacy for normal women (Jäger

past year. The data also shows there is a significant ( $p$ -value < 0.05) consumption among male and female athletes on cigarette consumption, but there are no significant ( $p$ -value < 0.05) between alcohol consumption and alcohol consumption's time among male and female athletes.

et al., 2017). Other macronutrients such as fat that help increase energy only meet approximately 80% of the fat adequacy for normal adolescents, not athletes (Ministry of Health of the Republic of Indonesia 2019; Almatsier 2011).

On the other hand, lack of carbohydrate, protein, fat and vitamin C intake in female athletes can cause menstrual cycle disorders (Close et al., 2016). In practice, the nutritional management of athletes in Indonesia is not carried out by nutrition professionals but by athletes and their parents who have sufficient nutritional knowledge (Foo et al., 2021). The nutritional status of a good athlete will be influenced by the nutritional knowledge and physical activity of the athlete (Condo et al., 2019). With limitations on various sides, in fact athletes, families and coaches need to master their own nutritional knowledge and be able to carry out nutritional management without professional assistance and must be able to make special food arrangements in training, games and post-match (Rodriguez et al., 2009)

The results showed that more than half (64.5%) of athletes in Sumedang Regency were smokers. Athletes who do not smoke have better levels of speed, agility, VO<sub>2</sub> Max, level of physical fitness and strength when compared to athletes who smoke, so athletes are recommended to reduce or even quit smoking (Chagué et al., 2021). In addition to cigarette consumption, 4.8% of male athletes and 6.3% of female athletes in Sumedang Regency

consume alcohol. Alcohol consumption in athletes is usually influenced by the belief that alcohol can reduce stress as well as the influence or motivation of the surrounding environment such as from parents, peers and seniors at the training ground (Zhou et al., 2015). Athletes should be able to avoid smoking and alcohol consumption and pay attention to food intake and physical activity to maintain body weight and obtain maximum physical fitness so that it can affect the athlete's performance (Osullivan et al., 2022).

### Conclusion

The results showed that the average athlete in Sumedang consumed 2035 Kcal. Male athletes consumed 2218.8 Kcal and female athletes consumed 1797.7 Kcal. More than half of the athletes (57.3%) smoked and 5.5% of the respondents smoked. Smoking every day with an average consumption of 38 cigarettes for 30 days. Only about 5.5% of respondents consumed alcohol during their 1.7 years of life with the types of alcohol commonly consumed were wine (33.3%) and ciiu (16.7%). The results showed that the respondents had not met the nutritional adequacy intake even for normal individuals, while athletes had special nutritional adequacy that was adapted to the type of sport so that with a high duration of exercise, the nutritional adequacy would be greater than normal individuals. Consumption of cigarettes and alcohol is still a lifestyle among athletes in Sumedang.

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### Conflicts of Interest

The authors have no conflicts of interest to declare.

### Ethical Statement

This research is being carried out in Sumedang, West Java for 8 months, namely March-October 2022 with an ethical permit issued by The Medical and Health Research Ethics Committee (MHREC) Universitas Gadjah Mada number KE/FK/1170/EC/2022.

### Author Contributions

Study Design, MRS; Data Collection, MRS, HMI; Statistical Analysis, MRS, HMI; Data Interpretation, MRS, HMI; Manuscript Preparation, MRS, HMI, AF; Literature Search, MRS, HMI, AF.

All the authors agreed on the final draft of the manuscript before submitting it for publication.

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