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Nutritional Status, Physical Fitness, and Anthropometric Parameters of Judo Players of Belgavi District - A Cross Sectional Study

Priyanka Gotur[1], Dr. Harpreet Kour[2], Dr. Ashwini Narasannavar[3]

[1]PG Student, M. Sc. Medical Nutrition and Dietetics, Department of Public Health, JNMC, KAHER Belagavi

[2]Assistant Professor, Department of Physiology, JNMC, KAHER Belagavi

[3]Assistant Professor, Department of Public Health, JNMC, KAHER Belagavi

Abstract: ***Introduction: Nutrition is very important in any sport because it is the main source of energy required to perform the activity. The food eaten directly impacts strength, training, performance, and recovery. Also, fatigue can lead to poor performance and therefore appropriate nutrition can help in reducing fatigue. Hence basic understanding of nutrition is necessary to understand and apply the principles of sports nutrition. Athletes should have proper nutritional status with support of good physical fitness. Objective: To assess the Nutritional status, Physical fitness and Anthropometric parameters of judo players of Belagavi district. Methodology: 24 participants were enrolled in the study. Data to assess physical fitness, anthropometric parameters and nutritional status were obtained by using pre designed questionnaire. Data was analyzed using SPSS software and was tabulated using percent. Results: The study resulted that most of the players were normal weight which is most required in this area. . The nutritional evaluation of the players had shown that the diet was in adequate in nutrients for some players and excess for some players. Conclusion: In conclusion to the study conducted, it was observed that physical components were not discriminatory to success. The anthropometry had a minimal effect on the game.***

Keywords: Judo, physical fitness, special judo fitness test (SJFT).

1. Introduction

Judo is a Japanese art and an Olympic sport, in which besides technical skill and tactical strategies, physical and physiological characteristics are also indispensable for success in competition and for training[1]. Competitive judo can be described as a combative, high intensity sport in which the athlete attempts to throw the opponent onto his back or to control him during groundwork combat. Both attempts depend on specific techniques and tactical skills with the support of good physical fitness.2 As judo is a weight-classified sport, high level judo players should have low body fat. It has been suggested that percentage of body fat may be a discriminator for success[3]. Thus, it directly influences some key aspects of athletes' preparation, including the management of bodyweight and body composition[4]. Thus it can be achieved with the practice of good nutrition.

Nutrition is very important for the athlete because it is the main source that provides energy.3 The food eaten directly impacts the strength, training, and performance.3 It also helps in reducing both physical and mental stress, prevents or minimizes lactic acid accumulation, helps reduce muscle soreness and speed up recovery rate.4 Therefore improving the overall physical fitness of an athlete.

It is well known that understanding the characteristics of elite athletes can provide insightful information regarding what is needed for competitive success. In this view this study was undertaken to scientifically contribute to assessment of the Nutritional, Physical Fitness and Anthropometric Parameters which will help the coaches to direct the training program to these players in future.

2. Materials and Methods

Study Design: A cross sectional study

Source of Data: Judo players who practice regularly in district stadium of Belgavi city.

Study Period: September 2019 to February 2022

Sample Size: 24

Ethical clearance: Ethical clearance was obtained from ethical committee of JNMC.

Inclusion Criteria: All Judo players practicing in district stadium of Belagavi city were included in the study.

Data Collection Procedure: Permission was taken from the coach**.** Participants were briefed about the study. Demographic data and nutritional profile was collected in a pre designed questionnaire. Physical fitness was evaluated by performing various tests.

Data Analysis: Data was entered in MS excel and then analyzed using SPSS software. Inferential data was analyzed using Chi square test and descriptive data is presented as percentage.

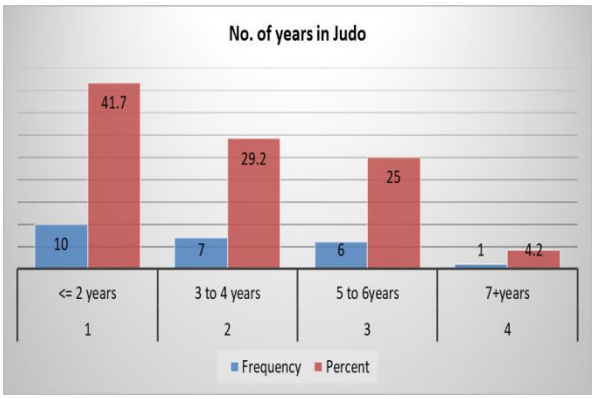
3. Results

A total of 24 participants were included in the study.

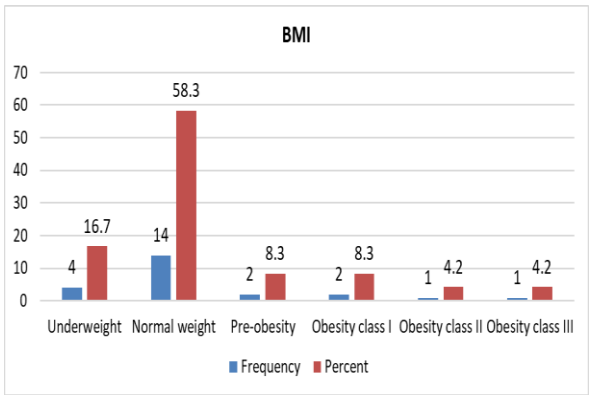
Table 1: Demographic profile of players

Socio demographic data		Frequency	Percentage
Age	>=15	7	29.2
	16-18	15	62.5
	19+	2	8.3
BMI	Underweight (below 18.5)	4	16.7
	Normal weight (18.5-24.9)	14	58.3
	Pre obesity (25.0-29.9)	2	8.3
	Obesity class 1 (Obesity class I () 0-34.9)	2	8.3
	Obesity class II (35.0-39.9)	1	4.2
	Obesity class III (Above 40)	1	4.2
No of years of practise	<=2 years	10	41.7
	3 to 4 years	7	29.2
	5 to 6 years	6	25.0
	7+ years	1	4.2

Table 1 gives the demographic profile of the players in which majority of the players (62.5%) were between the age group of 16 to 18 years. About 58.3% were of normal weight according to their BMI.16.7% were underweight and 4.2% was in obesity class III. 41.7% of the players were practicing the sport since 2 years.1 player was practicing for more than 7 years.



Graph 1: No. of years of judo practice among judo players



Graph 2: Body mass index of study participants.

Table 2: Assessment of average nutrient intake by 24 hour Dietary recall

	CHO (gm)	Fat (gm)	Energy (Kcal)	Protein (gm)
Mean	1.66	1.32	1.14	1.22
Std. Deviation	.800	.614	.560	.613

Table 2 gives the average nutrient intake by the study participants. The mean intake of energy (Kcal) was 1.14 with a std deviation of.560, protein (gm) was 1.22 with a standard deviation of.613, CHO (gm) was 1.66 with a std deviation of.800 and fat (gm) was 1.32 with a std deviation of.614.

Food frequency of the players resulted that cereals was the major food group consumed by all the players on a daily basis. Frequency of leafy vegetables was 100%. The frequency of non vegetarian foods was 50% on daily basis, 33% on alternate days and 13% were vegetarians.

Table 3: Physical fitness score of the players

S. No.	P F I score	Frequency	Percentage
1	<= 5.5970	12	50.0 %
2	5.5971 – 8.5970	7	29.2 %
3	8.5971 – 11.5970	3	12.5 %
4	14.5971 – 17.5970	1	4.2 %
5	17.5971+	1	4.2 %
Total		24	100.0 %

Physical fitness of the players was obtained by Harvard step test. Table no.3 depicts the physical fitness scores of the players.50% had a PFI score of <=5.5970 which was the average score.29.2% had the score between 5.5971-8.5970.12.5% had score between 8.5971-11.5970 Score of 4.2% was between 14.5971-17.5970. the highest PFI score of a player was more than 17.5971.

Table 4: Association of HR and SJFT Test of Study Participants

Paired t Test	Mean	Std. Deviation	t value	Df	P value
Heart Rate Immediately after 'C' Series-Heart Rate after 1 min	15.208	7.144	10.429	23	.000**

***Highly significant

Table No 4 explains about the association of heart rate and special judo fitness of study participants. The table shows the association between heart rate immediately after C series with heart rate after 1 min. it was found that it was highly significant with t value 10.429 (p value.000**)

4. Discussion

The present study was done to evaluate the physical fitness, assess nutritional profile and anthropometric profile of judo players of Belagavi district.

In the present study, the demographic profile of the players was obtained from which the age, gender, number of years practicing judo was obtained. Anthropometric parameters were collected from which we calculated the BMI of the players. The majority of the players were normal weight. A comparison study done on Indian judo players had no significant difference in the BMI of the players (p=0.2).2 Difference in the mean group of body mass index of judo players was statistically insignificant. This result collaborates with a result of a study done on senior and junior players of Poland.3

In the present study, there was no comparison done concerning the game and the number of years of experience of the players. However, in our study, we saw that a player with more than 7 years of experience was an international player. A study done on Indian judo players had concluded that long-term training had less effect on anthropometry. Athletes of the same age and same training period tend to show equal performance in the game.2

In the present study, the physical fitness test calculated by the Harvard step test showed maximum players performed the test for less than 39 seconds. A study done on Indian judo players had shown a comparison between 2 judo groups. The physical fitness in these players had shown a higher index for Group B than Group A. This study also predicted that long-term practice might contribute to higher PFI scores.2

In our study, the special judo fitness test had shown the association between heart rate immediately after C series with heart rate after 1 min. it was found that it was highly significant with a t value of 10.429 (p-value.000**). In one study the results of the special judo fitness test had shown no significant difference. Also, the body fat had a negative correlation with performance in SJFT.2

The nutritional analysis done in this study had shown that there is no particular type of diet followed by the players. They consumed a diet provided by their hostel mess. The dietary recall of every player was improper with unbalanced proportions of calories, proteins, carbohydrates, and fats. This study showed that all the players consumed an average of 2246 kcal, 93.78 gm of protein, 308.60 gm carbohydrates, and 76.48 gm fat in a day. A study done on assessment of diet in judo players had shown the average calories intake was 2766.57 +-605.16, average protein intake was 133.2+-32.3 gm, average carbohydrate intake was 340.6=-78.9gm and average fat intake was 104.8+-32 gm. This study has shown statistically differences in energy value and intake of carbohydrates, protein, and fat.7

5. Conclusion

In conclusion to the study conducted, it was observed that physical components were not discriminatory for success in judo. The higher fat percentage in the player resulted in low performance of the player. The nutritional status of the players was satisfactory, the mean consumption of macronutrients like energy, carbohydrates, fats and proteins approximately matched the RDA.

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