Dietary Characteristics In Medalist Versus Non-Medalist Varsity Combat Athletes

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ABSTRACT

Nutrition is an important factor in achieving sports success. Proper dietary strategies could lead to gaining the sporting advantage. Analyzing the dietary characteristics of successful athletes could help them better understand their nutritional practices, which may possibly lead to superiority over their competitors.

OBJECTIVE: To compare dietary characteristics between medalist and non-medalist combat athletes.

METHODS: The nutritional characteristics of 58 university athletes (wrestling, judo, karate, tae-kwon-do) were evaluated one month before a national university sports tournament. After the tournament, subjects were classified as medalists if they won a medal (first four places, n = 28) or non-medalists (n = 30). Their dietary characteristics were evaluated reminder of 24-hour food and beverages applied by trained nutritionists. These characteristics were daily rations of nutrient intake (g / day and g / kg / day). All variables are expressed as median and interquartile range. Dietary characteristics were compared between the U-Mann-Whitney test group.

RESULTS: For food groups, medalist athletes have lower intakes of dairy products and fats than non-medalists. Similarly, total fat intake (g / day) was lower in medalists, as well as in the relative intake of macronutrients (g / kg / day) was significantly lower in fat consumption in the group of athletes medalists 1,3 [1.0-1.7] versus non-medalists 1.8 [1.4-2.0], p = 0.003. The protein indicated a lower trend of consumption in athletes medalists 1.8 [1.5-2.6] versus non-medalists 2.0 [1.8-3.0], p = 0.07. Carbohydrates also had a lower consumption trend in medalists 6.0 [3.8-7.5] versus non-medalists 6.6 [4.7-8.7], p = 0.11.

CONCLUSIONS: In this study, medalist athletes tended to ingest less food groups (dairy, fats, sugars), energy, fat, and relative protein one month prior to major competition. Possibly for trying to keep their competitive weight as controlled as possible in this lapse.

INTRODUCTION

As an adequate nutrition can help to keep optimal performance [1], the athlete's nutritional requirements have been the focus of many studies in order to answer what, when and how much to eat [2], to help sport success. Similarly, it is of interest to know the current dietary characteristics that successful athletes have, aiming to elucidate more about what give them an advantage [3].

With the intention of knowing the nutritional strategies of the successful athletes that possibly lead to the superiority in the sport, we sought to compare dietary characteristics between medalist and non-medalist combat athletes, analyzing in both groups the amount of energy, number of servings and macronutrients consumed.

METHODS

Subjects

Fifty eight varsity athletes belonging to combat sports (wrestling, judo, karate, tae-kwon-do), participated in this study. Subjects characteristics are in Table 1. This analysis was carried out one month before the national Mexican university sports tournament. At the end of the tournament, subjects were classified as medalists if they obtained a medal (first four positions, n = 28) or non medalists (n = 30).

Nutritional assessment

The daily dietary characteristics were analyzed using a 24-hour dietary recall applied by trained nutritionists. We analyzed each instrument with a professional software (Nutrickal® VO) to estimate the daily energy (kcal), protein, carbohydrate and fat (g/day; g/kg/day) intake. Similarly, subjects were surveyed with a Food Frequency Questionnaire to estimate the number of servings of each food group (Animal Source Foods, Dairy, Legumes, Cereals, Veggies, Seeds, Fats, Fruits and Sugars).

Statistics

All variables are expressed as median and interquartile range. Dietary characteristics were compared between groups by U Mann-Whitney test, assuming a significant difference at $p<0.05$.

REFERENCES

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RESULTS

Subjects general characteristics showed no differences except for BMI, which was higher in medalist athletes (Table 1). Total (g/day) and relative (g/kg/day) fat intake were lower in medalists athletes. Similarly, medalist athletes showed a trend to ingest lower energy (kcal/day) and relative protein (g/kg/day). Regarding food groups, medalist athletes reported lower Dairy and Fats intake than non-medalists, and a trend to ingest lower Sugars servings (Table 2).

Table 1. Subjects' general characteristics*

	Medalist (n=28)	Non-medalist (n=30)	*p*-value
Age (years)	21 (19—22)	21 (20—23)	0.38
Weight (kg)	70.1 (59.0—79.6)	66.1 (56.4—75.8)	0.32
Height (cm)	168 (164—175)	170 (163—176)	0.60
BMI (kg/m^2)	24.2 (21.9—26.9)	22.0 (20.6—25.3)	0.04

*Data expressed as median (interquartile range)

Table 2. Daily dietary characteristics by medalist group*

	Medalist (n=28)	Non-medalist (n=30)	p-value
Energy (Kcal)	2891 (1998—3741)	3360 (2592—5050)	0.08
Protein (g)	137 (103—168)	151 (122—206)	0.12
Protein (g/kg)	1.9 (1.5—2.6)	2.4 (1.5—3.0)	0.07
Fat (g)	82 (62—123)	113 (92—158)	0.01
Fat (g/kg)	1.3 (1.0—1.8)	1.8 (1.4—2.2)	0.003
Carbohydrates (g)	396 (231—493)	389 (314—670)	0.25
Carbohydrates (g/kg)	6.0 (3.8—7.5)	6.6 (4.7—8.7)	0.11
Animal source foods (servings)	8.5 (6.0—10.5)	8.5 (6.4—12.5)	0.46
Dairy (servings)	3.5 (2.5—5.0)	5.0 (3.0—6.0)	0.05
Legumes (servings)	0.5 (1.0—1.5)	1.0 (0.6—1.5)	0.71
Cereals (servings)	12.0 (8.5—16.0)	12.8 (10.8—20.0)	0.18
Veggies (servings)	3.0 (1.5—4.5)	2.0 (1.3—3.8)	0.31
Seeds (servings)	1.0 (0.5—1.5)	1.0 (0.4—2.5)	0.54
Fats (servings)	4.5 (2.5—9.5)	7.7 (5.0—12.0)	0.04
Fruits (servings)	5.0 (3.0—8.5)	5.5 (3.5—9.9)	0.36
Sugars (servings)	3.0 (1.5—6.0)	3.7 (2.7—6.3)	0.09

*Data expressed as median (interquartile range)

CONCLUSIONS

In the present study, medalist athletes reported lower intakes of Dairy, Fats and Sugars food groups, as well as energy, fat and relative protein during a month prior to the national university sports tournament. These results could correspond to the fact that it is common among elite combat sports athletes to make changes in their eating habits prior to competition in order to achieve the weight required by the competition category and once it is achieved, keep it as controlled as possible in this lapse.