Amount Of Food Servings By Food Group Commonly Ingested In Mexican Varsity Athletes

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ABSTRACT:

PURPOSE: To describe the habitual amount of food servings by food group ingested in male and female varsity athletes.

METHODS: 365 (206 males, 159 females) varsity athletes were evaluated anthropometrically and for dietary habits. They were asked about their habitual food intake by trained nutritionists using a food frequency questionary, which includes 75 common local foods divided in 9 food groups. Each athlete described how many days per week he/she usually ate each food and the usual amount they consumed on those days. The servings' amount were calculated for each food weekly as a total weekly servings per food group, finally a daily average was calculated. Servings' size were determined according to Mexican System for Equivalent Foods. The sample was divided by sex and then the servings were calculated as quartiles.

RESULTS: Subjects' age, body weight and stature were 21 ± 2 and 21 ± 2 years old, 76 ± 15 and 61 ± 11 kg, 177 ± 7 and 163 ± 7 cm, for males and females respectively. Considering the 50th centile, the most ingested food groups were cereals, animal source foods (ASF) and fats. The less consumed food group was legumes (its quartile analysis revealed 0 serving/day at the 50th centile and 1 servings at 75th centile). Veggies group were repetitive in centile 25th and 50th in male athletes.

CONCLUSIONS: Male and female varsity athletes had the same pattern of food intake, but in different amount. Further research is needed for assessing if these servings are enough to achieve the macronutrient daily needs.

INTRODUCTION

It is well established that daily nutrient needs, like carbohydrates, protein and some micronutrients, are higher in physically active individuals [1,2]. There are several published nutrient intake guidelines for athletes that suggest daily adequate nutrient intakes for an optimal performance [2,3]. Besides the importance of daily nutrient intake, we also consider valuable to know the source of the nutrients in the athlete's diet. However, little is known about the food groups and the amount of food servings habitually consumed by athletes [4]. Therefore, the purpose of this study was to determine, by gender, the amount of food servings by food group commonly ingested in Mexican varsity athletes.

METHODS

Subjects

We evaluated 365 varsity athletes (206 males and 159 females) of different sports (Table 1) from October 2015 to April 2016.

Anthropometry and body composition

Basic anthropometric measurements (height [SECA 213], weight and body fat [both TANITA TBF 410]) were performed following a standardized protocol [5].

Habitual food servings consumption

We applied a Food Frequency Questionnaire to each subject. Each questionnaire contained 9 food groups: Animal Source Foods (ASF), Dairy products, Legumes, Cereals, Vegetables, Seeds, Fats, Fruits and Sugars; that included a total of 75 foods. The athlete was asked how many days per week consumed each food from each food group, and how many food servings he/she ingested each day. The questionnaire was applied by staff standardized in the interview process. Food servings´ size were determined according to the Mexican Equivalent Foods System [6]. The intake of daily servings by food group for each subject was calculated.

Statistics

The sample was separated by gender and we calculated the percentiles of ingested servings by food group, or quartiles when percentiles were repetitive. Data are expressed as mean ± standard deviation unless otherwise stated.

RESULTS

The athletes general description is shown in Table 2. For Legumes and Vegetables groups male athletes consumed 0-0-1, and 2-2-4 servings (25-50-75th percentile), respectively; therefore, data were excluded from Table 3. Similarly, female athletes consumed 0-0-1 Legumes servings, and data were also excluded from the Table 4. Based on the 50th percentile, Cereals (14.0), ASF (9.0) and Fats (7.0) food groups were the most ingested in male athletes (Table 3). Female athletes showed the same pattern but the amount of servings were different (Cereals 9.0, ASF 6.0, and Fats 6.0) (Table 4).

Table 1. Athletes surveyed by sport (n=365)

Sport	Males	Females	Total
Chess	3	1	4
Athletics	21	16	37
Baseball	18	-	18
Basketball	15	14	29
Indoor soccer	13	27	40
Soccer	19	21	40
Aerobic gymnastics	3	2	5
Weightlifting	8	5	13
Handball	12	13	25
Judo	11	7	18
Karate	10	8	18
Wrestling	21	10	31
Tae Kwon Do	14	8	22
Tennis	1	2	3
Table tennis	3	3	6
Archery	13	4	17
Triathlon	5	2	7
Volleyball	16	16	32
Total	206	159	365

Table 2. Surveyed athletes general description (n=365)*

Variable	Total	Males (n=206)	Females (n=159)
Body weight (kg)	69.9 ± 14.9	75.8 ± 14.7	61.1 ± 10.8
Height (cm)	170.9 ± 9.3	176.8 ± 6.6	163.3 ± 6.5
BMI (kg/m^2)	23.6 ± 3.8	24.2 ± 4.0	22.9 ± 3.5
Age (years)	21.0 ± 2.0	21.3 ± 2.0	20.6 ± 1.9
Body fat percentage (n=352)	20.9 ± 8.5	16.7 ± 6.6	26.4 ± 7.5

*Expressed in mean ± standard deviation

CONCLUSIONS

When determining the ingested servings, it was found that Cereals, ASF and Fats were the most commonly ingested food groups; while Legumes and Seeds were the least consumed in male and female varsity athletes in this study. These results could help as a reference for a more comprehensive nutritional assessment. It still remain to know if these servings amounts are adequate to fulfill the daily athletes' nutritional requirements.

Table 3. Food servings ingested by food group in male athletes (n= 206)

Food Groups	Percentiles								
	10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**
Cereals	7.0	9.0	11.0	13.0	14.0	16.0	18.0	20.5	27.0
ASF	4.0	6.0	7.0	8.0	9.0	10.0	11.0	13.0	17.0
Fats	3.0	4.0	5.0	6.0	7.0	8.0	9.0	11.0	14.0
	Quartiles								
	25				**50**			**75**	
Fruits	3.0				6.0			8.0	
Dairy products	2.5				4.0			6.0	
Sugars	2.0				4.0			6.0	
Seeds	0.0				1.0			2.0	

ASF: Animal source foods

Table 4. Food servings ingested by food group in female athletes (n= 159)

Food Groups	Percentiles								
	10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**
Cereals	4.0	6.0	7.0	8.0	9.0	10.0	11.0	13.0	15.0
Fats	2.0	3.0	4.0	5.0	6.0	8.0	9.0	11.0	12.0
	Quartiles								
	25				**50**			**75**	
ASF	5.0				6.0			9.0	
Fruits	3.0				4.0			7.0	
Vegetables	2.0				3.0			4.0	
Dairy products	2.0				3.0			4.0	
Sugars	2.0				3.0			4.0	
Seeds	0.0				1.0			2.0	

ASF: Animal source foods

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