ACSM Annual Meeting
May 30-June 3, 2017 • Denver, Colorado USA

Food Servings Habitually Ingested By Mexican Varsity Athletes Depending On The Type Of Sport

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ABSTRACT:

Several studies have reported the macronutrient intake in different types of sports, however, the type and amount of food that is needed for achieve these quantities is not commonly reported.

PURPOSE: To describe the habitual amount of food servings ingested in varsity athletes depending on the type of sport performed.

METHODS: 365 varsity athletes were polled. They were asked about their habitual food intake by trained nutritionists using a food frequency questionary. This 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 consume in those days. Then the servings' amount were calculated for each food weekly and a total weekly servings per food group as a daily average was calculated. Servings' size were determined according to the Mexican System for Equivalent Foods. The sample was divided by the type of sport as team (soccer, basketball, baseball, volleyball, handball, n= 184) or individual (weightlifting, tennis, athletics, wrestling, gymnastics, karate, tae-kwon-do, judo, n=181). For each group, the servings' amount were analyzed as quartiles.

RESULTS: Analyzing the 50th centile, cereals were the most consumed food group, followed by animal source foods (ASF) and fats. Legumes were the less consumed food group (50th centile: 0 servings; 75th centile: 1 serving) and wasn't included in the table. Foods had a very similar amount of servings per group per type of sport.

CONCLUSIONS: In our population, the amount of food servings commonly ingested by varsity athletes were very similar between these two types of sport classification. These data could help as a reference for comparing the habitual amount of food serving's ingested (25th to 75th centile) in different types of sports.

INTRODUCTION

Feeding is one of the influencing factors that affect athletes´ performance [1]. It is highly recommended that athletes follow a specialized feeding plan for the type exercise they perform, since energy requirements vary significantly according to the practiced type of sport [2]. There are numerous publications that describe the quantity of macronutrient intake (absolute or relative) in different sports [2,3,4], nonetheless, there are few studies describing the intake of food groups and serving portions in this population [5,6,7]. Thus, the purpose of this study is to determine the amount of food servings of different foods groups habitually consumed by athletes of team and individual sports.

METHODS

Subjects

We evaluated 365 students (206 men and 159 women) aged between 15 and 27 years (Table 1). They belonged to the representative university teams and participated in the 2016 National Mexican University Games. They were classified into team and individual sports (Table 2).

Dietary assessment

A Food Frequency Questionnaire was applied by trained nutritionist; for each item it was indicated the portion size (based on Mexican Equivalent Foods System [8]) and habitual frequency of consume for the past 7 days. The instrument contained 75 different foods, the most representatives of local diet, classified into 9 groups (Animal Source Foods [ASF], Dairy Products, Legumes, Cereals, Vegetables, Seeds, Fats, Fruits and Sugars). In some cases food replicas were employed.

Anthropometry and body composition

Basic anthropometric measurements (height [SECA 213], weight and body fat [both TANITA TBF 410]) were performed following a standardized protocol [9].

Statistic analysis

Ingested portions per food groups were calculated in quartiles per sport type. The portions consumed by day were compared using the 50th percentile. The variables with normal distribution or not normal distribution were presented in mean and standard deviation or median and interquartile range, respectively. Data normal distribution was analyzed with the Shapiro-Wilk test. All analysis were performed with the statistic software for Windows® SPSS® version 20.

RESULTS

A similar number of subjects was observed in both sports classifications; soccer and indoor soccer were the most representative sports on team category, while track and field was the most representative on the individual sports category (Table 2).

We found that both sports categories had a habitual Legumes intake of 0-0-1 servings (25-50-75th percentile), hence this food group was excluded from tables 3 and 4.

For both sports classifications, we observed the food group intake (from highest to lowest) was the same. The food groups that were most consumed were Cereals, ASF and Fats. However, the number of portions that were consumed were different between the sports classifications (Tables 3 and 4). Moreover, the food servings of Fruits, Sugars, Vegetables, and Seeds, presented the same consumption pattern in both sports classification.

Table 1. General subjects characteristics.

	Whole sample (n=365)	Individual sports (n=181)	Team sports (n=184)
Weight (kg) *	69.9 ±14.9	68.4 ± 15.0	70.4 ± 14.9
Height (cm) **	171 (164 – 177)	171 (147 – 191)	172 (151 – 195)
Body Mass Index (kg/m^2) *	23.6 ±3.8	23.4 ±3.9	23.8 ± 3.8
Age (years) *	21.0 ±2.0	21.1 ± 2.1	20.8 ±1.8
Body Fat (%) *	20.9 ±8.5	19.7 ± 8.5	22.2 ± 8.4

* Mean ± Standard Deviation
** Median (Interquartile Range 25-75th)

Table 2. List of athletes polled by type of sport (n = 365).

Team sports (n=184)					
Baseball	Basketball	Indoor Soccer	Soccer	Handball	Voleyball
18	29	40	40	25	32
Individual sports (n=181)					
Chess Archery	Track and Field /Triathlon	Gymnastics	Weightlifting	Tennis/ Table Tenis	Judo/Karate/ Wrestling/ Tae Kwon Do
4/ 17	37 / 7	5	13	3 / 6	18/ 18/ 31/ 22

CONCLUSIONS

Cereals, ASF and Fat groups were the most ingested for both sports classifications, even though the ingested servings pattern was different. It still remain to know if these servings amount are adequate for fulfill daily nutrient requirements.

Table 3. Amount of food servings ingested by team sports athletes (n=184).

Food group	Quartile		
	25	50	75
Cereals	9	13	16
ASF	6	8	12
Fats	4	7	10
Fruits	3	5	8
Dairy products	2	4	5
Sugars	2	3	5
Vegetables	2	3	4
Seeds	0	1	2

Table 4. Amount of food servings habitually ingested by individual sports athletes (n = 181).

Food group	Quartile		
	25	50	75
Cereals	8	10	16
ASF	5	7	10
Fats	4	6	9
Fruits	3	5	8
Dairy products	2	3	5
Sugar	2	3	5
Vegetables	2	3	4
Seeds	0	1	2

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