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NUTRITIONAL SUPPLEMENT USE AMONG TRIATHLON ATHLETES IN SÃO PAULO, BRAZIL

ABSTRACT

Endurance sports have growing popularity, particularly in third world countries like Brazil. Both amateurs and professional athletes pursue to improve their performance, where the consumption of supplements also increases. The aim of this study is to evaluate competitors in Troféu Brasil de Triathlon (Brazil Triathlon Trophéu) focusing the quality of use nutritional supplements. Methods: Data from a 37 individuals, 19-45 y/o men, professional and amateurs, from the 4^o etapa de troféu Brasil de Triathlon Olímpico were collected. A questionnaire was applied to competitors. Descriptive analyses were conducted comparing mean \pm SD, frequencies and percentage using Statistics[®] 7.0 (StatSoft, Inc.). Results: The athletes' profiles are: $31.23 \pm 6,66$ y/o with 72.92 ± 6.29 kg, $1,77 \pm 0.05$ height and BMI of $3.12 \pm 1,50$ kg/m². Results: The majority of practitioners are specialized in Olympic Ironman (64.9%) and the use of nutritional supplementation is around 97.4%, where 22.5% are supplied by national production. Ten per cent of individuals received physical educator accompaniment, 37% receive nutritional accompaniment, 10% receive both and 27.5% does not receive any accompaniment to use supplements. Conclusion: The use of nutritional supplements had high prevalence in the collected group and the majority of individuals did not use properly professional accompaniment.

Keywords: Nutrition. Supplements. Athletes. Triathlon.

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INTRODUCTION

The popularity of endurance sports is becoming greater and more people are running competitions lasting 30 minutes or more. Also, the use of nutritional supplements is increasing, being consumed by professional, amateurs athletes and even during recreational sports. More than 30 minutes lasting endurance exercises causes fatigue mainly due to processes like dehydration and carbohydrate depletion, whereas more than 4 hours endurance exercises can generate health problems due to loss of aerobic performance as gastrointestinal, hyperthermia and hyponatremia (Jeukendrup, 2011).

Triathlon is a multiple-stage competition involving the completion of three continuous and sequential endurance disciplines. In its most popular form, Triathlon involves swimming, cycling, and running in immediate succession over various distances, like Olympic distance and Ironman (1h50min and 14h lasting) (O'Toole, Douglas, & Hiller, 1989; Strock, Cottrell, & Lohman, 2006).

An individual-based nutritional strategy can be developed concerning both hydration and carbohydrate availability. The factors that must be taken into account are absolute exercise intensity, lasting and biological individuality (Laursen & Rhodes, 2001). Beyond these factors, it is also important proper accompaniment during training and competitions when consuming supplements (Jeukendrup, 2011).

Once the use of ergogenics supplies has high incidence among practitioners, the identification of type of supply and how they are consumed is highly important, beyond their function promoting health, improving performance and maximizing after exercise recovering (Nogueira & Costa, 2004). The objective of this study was to evaluate the use of nutritional supplements and proper professional accompaniment during Troféu Brasil de Triathlon (Brazil Triathlon Tropheu).

METHODS

Study Object

Data were collected from 37 male individuals, 19-45 y/o, professional and amateurs triathlon competitors at the 4^a etapa de troféu Brasil de Triathlon Olímpic, in august 2009, São Paulo, SP, Brazil. The competition follow Sprint Distance, ie: 750 meter (.465 mi) swim, 20 kilometer (12.5 mi) bike, 5 kilometer (3.1 mi) run. Any other exclusion/inclusion criteria were needed.

Data Obtention

A ten items questionnaire was applied (supporting information 1) to a total of 37 athletes immediately after the competition. The questionnaire was designed to be applied in a quickly manner by the questioner and to be verbally answered.

Statistical analysis

A descriptive statistics was conducted. Numeric variables were plotted as mean \pm standard deviation as a central tendency measurement and dispersion. Categorized variables were plotted as absolute and relative frequencies to the total samples. All analysis was conduct with Statistics® 7.0 software (StatSoft, Inc.).

Ethical Statements

Any personal information was used beyond the information requested in questionnaire. All individuals assign statement of consent. This research was registered on Brazilian National Committee of Research and Ethic and approved by Nove de Julho University ethical and Research Committee following the resolution 496/2012 of the Brazilian National Health Counseling.

RESULTS

Table 1 - General characteristics of athletes by age (years), body mass (kg), height (meters) and body mass index (BMI, kg/m²). Values expressed as mean and standard deviation. São Paulo, august, 2009.

Variables	Mean ± sd
Age	31.23 ± 6.66
Body mass	72.92 ± 6.29
Height	1.77 ± 0.05
BMI	23.12 ± 1.50

Table 2 - Athletes distribution by age (years), relative frequency (n) body mass index (BMI, kg/m²) and years of training (mean±SD). Values expressed as mean and standard deviation. São Paulo, august, 2009.

Age	n	BMI	Years of training
19 - 22	3	21.80 ± 1.11	2.33 ± 0.85
22 - 26	6	21.76 ± 0.88	5.10 ± 3.71
26 - 30	6	23.07 ± 1.08	3.83 ± 2.72
30 - 34	8	23.83 ± 1.14	5.86 ± 4.77
34 - 38	10	23.45 ± 1.50	4.87 ± 4.81
38 - 42	4	23.06 ± 1.21	3.00 ± 1.27
42 - 46	2	24.90 ± 1.61	22.00 ± 19.00
Total	39	-	-

Table 3 - Distribution according to athlete's specialties. Values expressed as absolute numbers (n) and percentage (%). São Paulo: August, 2009.

Specialty	n	%
Olimpic	24	64.9
Half-Iron	4	10.8
Olimpic e Half-Iron	2	5.4
Short	3	8.1
IronMan	3	8.1
All	1	2.7
Total	37	100

Figure 2 shows use of dietary supplementation by triathletes. n=38 (97.4%) of athletes interviewed supplementation and 1 athlete (2.5%) did not.

Figure 3 shows origin of supply consumed by athletes. n=9 (22.5%) consumes national supplements. n=7 (17.5%) consumes imported supplements, n=11 (27.5%) consumes both and n=13 (32.5%) did no answer.

Figure 4 shows costs of nutritional supplementation per month.

Figure 5 indicates professional accompaniment by triathletes. n= 15 (37.5%) had nutritional accompaniment, n=4 (10%) had physical educator accompaniment, n=4 (10%) had both accompaniment, n=11 (27.5%) was not accompanied and n=6 (15%) did not answer.

Table 4 - Distribution according desired effects in performance. Values expressed as absolute numbers (n) and percentage (%). São Paulo: August, 2009.

Desired Effect	N	%
Yes	13	3.3
No	26	66.7
Total	39	100

DISCUSSION

Balanced and planned nutrition in triathlon athletes determines an diminishing in muscular fatigue and ameliorated the use of energy reserves, mainly due to the diverse necessities among the three sports composing the modality (Jeukendrup, Jentjens, & Moseley, 2005; O'Toole et al., 1989). Correct nutritional accompaniment is important among trainings and also during competitions. In the former, the use of supplements has a big importance mainly due to practicality (Bentley, Millet, Vleck, & McNaughton, 2002; Jeukendrup et al., 2005). In the present study, just one individual did not consumed supplement during the competition, indicating a high prevalence in our data.

The use of carbohydrates supplies and hydration are also highly important during competitions, independent of the distance, and are positively correlated with performance (Hauswirth & Brisswalter, 2008). Even during Olympic distances (approximately 2 hours), the use of isotonic and supplements acts improving performance (Jeukendrup et al., 2005; Jeukendrup, 2011). This is particularly important during cycling, because in this stage the athlete had depleted glycogen reserves and ingestion is more comfortable.

The supplies' costs may interfere in consumption (Maughan, Greenhaff, & Hespel, 2011; Weitzel, Sandoval, Mayles, & Wischmeyer, 2009). The majority of the studied athletes consumes national supplements, mainly due to the lower costs (figure 4), even when partially sponsored.

Independent of these factors, when we evaluate the supply costs, 30-200 reais/month is a high investment per athlete when considered the minimum salary in Brasil in august, 2009 (500 reais/month).

Approximately half of individuals interviewed are accompanied by a nutrition specialist. The other half follows self diet or an indicated by a physical trainer. The National counseling of Nutrition, through the Nutritional Ethical Code, states that dietetic prescription is privative for Nutritionists, responding ethical, civil and criminal for their acts, The Nutritionist Ethical Code (Resolução CFN nº 334/04). Also, the nutritional necessities vary greatly among endurance modalities, which make Nutritionist accompaniment even more important. Beyond loss of performance, there are side effects of using nutritional supplementation incorrectly, varying from gastrointestinal discomfort to nauseas (Knez & Peake, 2010; Nogueira & Costa, 2004).

We here concluded that the use of nutritional supply for athletes of 4ª etapa de troféu Brasil de Triathlon Olímpico has high prevalence, but are not adequately accompanied. The misuse of supplementation may generates health problems and even negative performance effects. When adequately supervised, the use of supplements will diminishes the incidence of negative health and performance effects, enabling early problems identification and appropriate intervention.

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FIGURES

Figure 1 - shows frequencies of specialities of thriatlon practised.

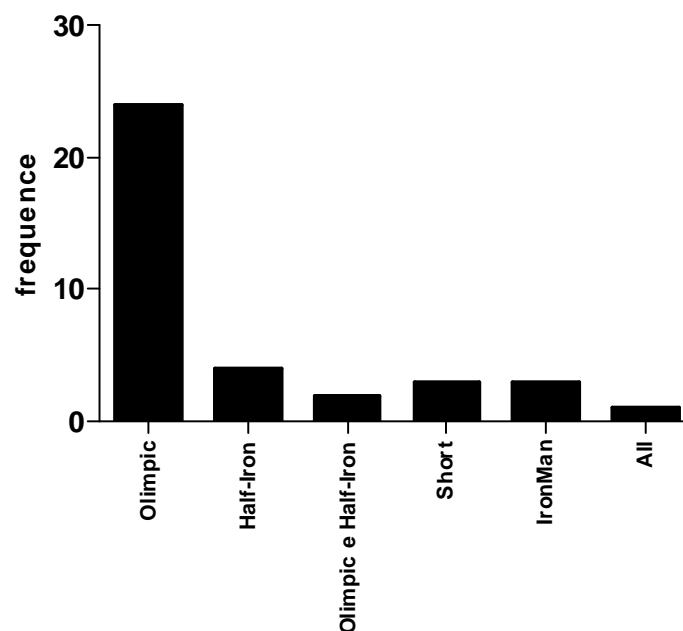


Figure 2 - shows frequencies of supplementation by athletes.

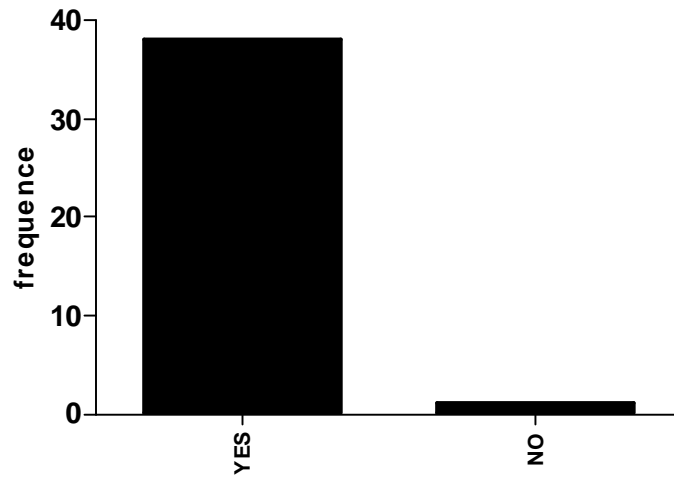


Figure 3 - indicates the origin of supplements consumed by athletes.

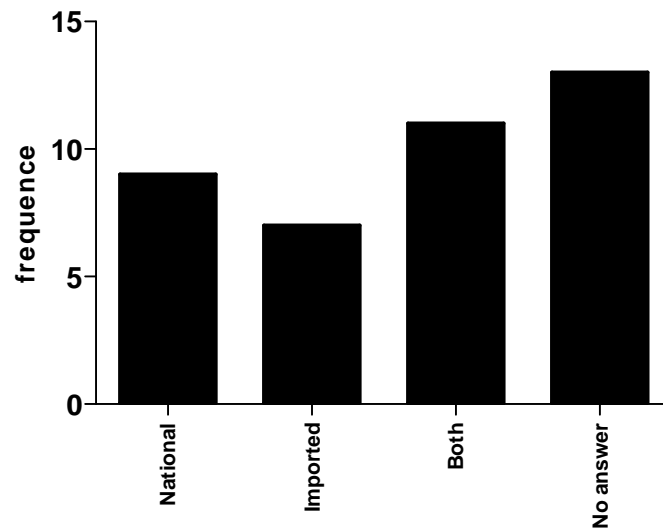


Figure 4 - represents the monthly costs by athletes with supplements.

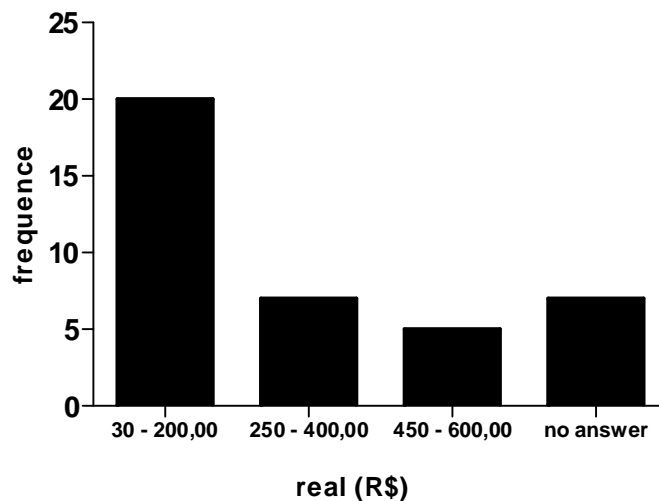
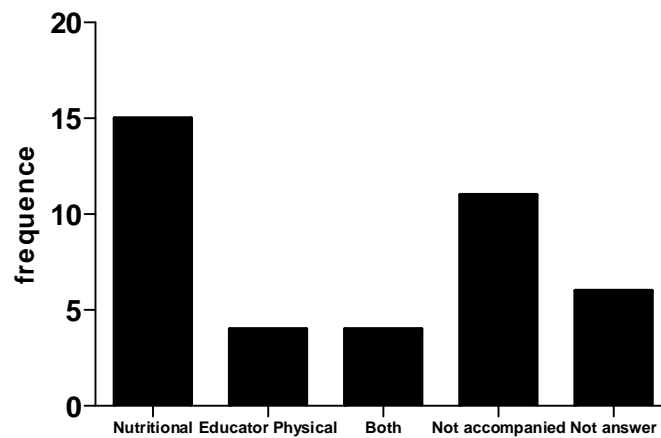


Figure 5 - shows professional orientation about the use of supplements.



SUPPLEMENTAL MATERIAL

Questionnaire

1. Age -----
2. Weight-----
3. Height-----
4. Practice this modality how long?
5. Do you use nutritional supplements? 6. Nationals, imported or both?
7. How much money do you spent monthly with supplements?
8. Have you ever had undesirable side effects consuming supplements?
9. What's you thriathlon speciality?
 Olimpyc () medium () medium olympic () short () medium iron () medium long () all ()
10. What type of Professional prescribes the supplements you consume?