

Athletes' perspective on food service during European Athletics Championships

A perspetiva de atletas relativamente ao serviço de alimentação nos Campeonatos Europeus de Atletismo

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Abstract

In competitive events, performance can be affected by athletes' food choices. Thus, competition organizers work to ensure that catering fulfils participants' dietary and nutritional requirements. Knowing what motivates athletes' food choices during competition and their perspective on the food served is crucial to enhance food provision. So, with this research, we aimed to study the factors that influence athletes' food choices and their opinion on the food service at two European Athletics Championships. We collected surveys from 339 participants (57% males, 19.6 ± 1.3 years), competing in the 2019 European Athletics Under 20 (49%) and Under 23 (51%) Championships. Factors that may impact performance (time of the day and nutrient content) were rated as important or very important by a higher percentage of athletes compared to the factors teammates' and coach's presence during mealtime. Within the menu quality factors accessed, portion size and variety were the ones with better and worst rates, respectively. The average food experience reported was 7.5 ± 1.6 (0-10) and most athletes' expectations were matched (43%) or greatly exceeded (39%). Our study revealed that for most athletes, factors related to performance and sensory properties are relevant for food choices and food provision had overall positive results. Further research to access athletes' opinion on the food service at sports competitions seems pertinent to help caterers and organizers better tailor food provision to athletes needs and preferences.

Keywords: Sports nutrition sciences, exercise, menu planning

Resumo

Em competição, as escolhas alimentares podem influenciar a *performance* desportiva. Por isso, as comissões organizadoras de eventos competitivos esforçam-se para garantir que o serviço de alimentação satisfaça as necessidades dos atletas. Para melhorar o serviço, é crucial saber o que motiva as suas escolhas alimentares e a sua opinião relativamente ao fornecimento de refeições. Assim, com este trabalho, pretendeu-se estudar os fatores que influenciam as escolhas alimentares de atletas e a sua opinião relativamente ao serviço de alimentação em dois Campeonatos Europeus de Atletismo. Foram recolhidos questionários de 339 atletas com 19.6 ± 1.3 anos (57% de sexo masculino), a competir nos *2019 European Athletics Under 20 (49%) and Under 23 (51%) Championships*. Fatores com possível impacto na *performance* (momento do dia e composição nutricional) foram descritos como sendo importantes ou muito importantes para os atletas do que a presença do treinador ou de colegas de equipa. Relativamente às características do menu, o tamanho da porção e a variedade foram as com melhor e pior cotação, respetivamente. A experiência global com o serviço de alimentação foi classificada em média com 7.5 ± 1.6 (0-10), e as expectativas da maioria dos atletas foram correspondidas (43%) ou excedidas (39%). Concluindo, para a maioria dos inquiridos, a experiência com o serviço de catering foi positiva, parecendo as escolhas alimentares ser influenciadas principalmente por fatores relacionados com *performance* e propriedades sensoriais. Estudos futuros, que avaliem a opinião de atletas relativamente ao serviço de alimentação em competições desportivas, são pertinentes para que as comissões organizadoras e os fornecedores, possam adequar melhor as refeições fornecidas às necessidades e preferência de atletas.

Palavras-chave: nutrição desportiva, exercício, planeamento de refeições

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Introduction

The importance of providing nutritionally adequate meals that optimize athletes' performance is widely recognized⁽¹⁾. At international competitions, it is fundamental that athletes and coaches feel comfortable and confident with the athletes' food choices, which makes food provision an important task - yet a challenging responsibility.

Athletes' food choices affect both health and performance⁽²⁾, however, many factors may influence athletes' preferences. A recent review⁽³⁾ highlighted that there is an ongoing interest in researching the factors that influence food choices, with authors from several scientific disciplines studying many predictors. However, concerning athletes, few studies explored what motivated the selection of a certain food, particularly in a competitive environment^(2, 4). According to the recently developed DONE (Determinants of Nutrition and Eating) framework, individual, interpersonal, environmental and policy factors may influence individuals' food choices⁽⁵⁾. It has been suggested that, despite similarities with the general population⁽²⁾, for athletes, aspects with a potential impact on performance may be key factors for the food selection⁽⁶⁾.

The food and drink service is one of the factors that has more value for the perception of overall quality in sports contexts^(7, 8). Registered sports dietitians/nutritionists alongside with competition organizers have been working to improve the meal service at major international sports events⁽⁹⁻¹⁴⁾. In those competitions, catering must suite hundreds of athletes who come from very distinct cultures, and have different preferences and needs, frequently with specific dietary requirements. These aspects make food provision a challenging task for caterers, who face additional constraints of time, temporary facilities and

casual staff⁽¹⁰⁾. As a consequence, it is not unusual that meals do not conform to sports and general nutrition principles^(13, 15). Additionally, the absence of international guidelines regarding catering for athletes allows different organizations to have distinct approaches⁽¹³⁾.

European Athletics has developed Nutritional Guidelines that give the Local Organizing Committee and the team restaurants orientation for food provision at European Athletics' championships. This strategy allows quality control and ensures the provision of adjusted menus and proper meals during competition events. One of the seven principles of quality management according to ISO (International Organization for Standardization) is an ongoing focus on improvement⁽¹⁶⁾; over the years, the Nutritional Guidelines have been improved and updated by nutrition experts to incorporate advances in sports nutrition research and enhance food provision. Nevertheless, considering athletes' demands and to better prepare for new challenges in food provision, frequently unique to the cities in which the events take place, other approaches should be studied.

To the best of our knowledge, no research assessed food provision and factors influencing food choice in European Athletics' championships, and besides, not much is known about this topic in the sport of athletics. Therefore, we aimed to study athletes' perspectives and expectations on the food service at the 2019 European Athletics Under 20 and Under 23 Championships, particularly understanding what motivates their food choices in competition and study their opinion about the quality of the meals provided and its adequacy to their dietary needs.

Objectives

Main objective:

The purpose of this observational research was to study athletes' opinion on the food provision and the factors influencing their food choices at the 2019 European Athletics Under 20 and Under 23 Championships.

Secondary objectives:

- To examine the relative importance of different factors on food choice for athletes, during competition;
- To describe athletes' point of view concerning menu quality at these championships;
- To check athletes' opinion concerning food search and the availability of different food groups at team restaurants;
- To collect athletes' opinions and suggestions on the catering service to reinforce organization recommendations and suggest areas of improvement allowing the constant improvement of the service provided.

Methods

Study and sample design

For the purpose of an observational study it was developed a questionnaire (Attachment A), based on other studies^(9, 12, 17-19) and on researchers' experience.

Only athletes not over than 19 on the 31st December of 2019 could compete at the 2019 European Athletics Under 20 Championships⁽²⁰⁾. At the 2019 European Athletics Under 23 Championships only athletes aged between 20 years old and not over than 22 on the 31st December of 2019 could compete⁽²¹⁾. These competitions included 22 events of running, walking, jumps, throws, decathlon

and heptathlon. At these championships, meals took place at hotels' restaurants. Thus, the hotel staff was responsible for the catering of the teams staying at that hotel.

Athletes eating within the team restaurants at the 2019 European Athletics Under 20 and Under 23 Championships, and older than 18 years old, were potentially eligible to participate in the study.

Data collection

A convenience sample of athletes, competing at the 2019 European Athletics Under 23 (Gävle) and Under 20 (Borås) Championships, was recruited between 11th and 21st July. The athletes seated at team restaurants were approached by the researchers, who invited them to participate in the study and fill a self-administered questionnaire in English.

Ethics approval and consent to participate

Written consent was collected from all the participants who accepted to participate in this study. The study protocol was approved by the Ethical Committee of NOVA Medical School|Faculdade de Ciências Médicas of the Universidade NOVA de Lisboa (nº57/2019/CEFCM), and was conducted in accordance with the guidelines from the Declaration of Helsinki⁽²²⁾.

Variable definition and statistical analysis

The questionnaire included both closed and open-ended questions and was composed of 4 parts: A, B, C and D. Sociodemographic data including age, sex, level of education, country representing, sporting event, and previous experience in international competitions were included in Part A. Parts B, C and D included the questions about food choice and food provision.

Five-point Likert-type scales were applied to study: the factors that influence athletes' food choice from not important to very important (namely smell, temperature, visual appearance, familiar food, nutrient composition, cooking method, stage of the competition, time of the day, presence of the coach during meal time, presence of teammates during meal time, proximity to the hotel and proximity to the stadium); food quality from very poor to very good (explicitly food safety, food quality, freshness, variety, portion size, presentation, taste, temperature and capacity to meet your individual needs); and food search from very difficult to very easy. A four-point Likert-type scale was included to test the availability of different food groups from not available to more than enough (vegan, vegetarian, dairy/gluten and lactose-free, meat and fish dishes, fresh fruit, vegetables, sports specific, grab and go foods, sweets/desserts and for cultural restrictions and other dietary regimes). Two questions about the overall food experience were also included in the questionnaire: one for appraising the experience according to expectations from much less than expected to exceed expectations, and another for rating the overall food experience from 1 (very bad) to 10 (excellent). Open-ended questions allowed athletes to left comments, suggestions and/or requests.

The program IBM SPSS Statistics 25® was used to enter the data collected, a process that was double checked by two researchers, and to perform the analysis.

For this observational study, data were analysed pooled from both competition events, and descriptive statistics were calculated. To describe the variables age and overall experience eating at the team restaurants we used means and standard deviations because they were normally distributed. Normality

was tested by analysing kurtosis and skewness coefficients, and frequencies were used to describe the other variables, since they were nominal or ordinal variables.

To code the answers of the open-ended questions and group them in categories, new variables were created for every main subject of suggestion or comment. Additionally, to help us to discuss the written suggestions we create another variable to describe the frequency of suggestions in two open-ended questions related to more variety or quantity; labelling, nutritional information, or food display; carbohydrates; fish; meat; vegetables or vegetarian options; fruits; dairy; grab and go foods or snacks; sweets and deserts; less salty, less spicy or simpler; special options and other requests; complements or nothing to add. Moreover, we select a representative example for each category.

Results

A total of 2209 athletes participated at the 2019 European Athletics Under 20 (n = 1104) and Under 23 (n = 1105) Championships. Overall, 351 questionnaires were collected, and after the exclusion of the ones that were incomplete or did not match the inclusion criteria (n = 12), a final sample of 339 questionnaires was considered for analysis (Table 1 - Attachment B). Participants, 43% female athletes and 57% male athletes, aged between 18 and 22 years old, represented: Austria (2.7%), Azerbaijan (0.3%), Belarus (2.1%), Belgium (5.0%), Bosnia and Herzegovina (0.9%), Bulgaria (1.8%), Croatia (2.1%), Cyprus (0.3%), Czech Republic (1.5%), Denmark (0.3%), Estonia (1.2%), Finland (4.7%), France (2.1%), Germany (3.5%), Great Britain and Northern Ireland (12.7%), Greece (3.2%), Hungary (3.2%), Iceland (0.6%), Ireland (6.8%), Italy (4.4%), Latvia (1.5%), Liechtenstein (0.3%), Lithuania (0.3%), Luxembourg (0.3%), Netherlands (3.2%), Norway (0.6%), Poland (2.1%),

Portugal (7.1%), Romania (0.6%), Serbia (0.9%), Slovenia (2.7%), Spain (8.6%), Sweden (8.6%), Switzerland (1.5%), Ukraine (2.7%). Most respondents (82%) reported having competed in international competitions before.

The factors to which athletes attributed greater importance for their food choice were the time of the day and the nutrient composition, with 78% and 74% of the athletes, respectively, rating it as important or very important. In contrast, the presence of a coach and the presence of teammates were reported as the less important factors, with 53% and 43% of the athletes, respectively, rating it as not important or less important (Figure 1 - Attachment C).

In what concerns to food characteristics, the temperature was considered the most relevant factor for athletes' food choice (72% of the athletes rated it as important or very important), followed by the smell (70%), the visual appearance (66%), familiar food (62%), and the cooking method (45%). Similarly, factors related to the competition were rated positively with the stage of competition (69% of the athletes) and the proximity to the stadium (63%) rated as important or very important.

Aspects related to the quality of the menu were also accessed. The portion size was the characteristic that was most frequently rated as good or very good (86% of athletes), followed by food safety (82%), food quality (77%), freshness (76%), temperature (73%), taste (69%), presentation (66%), and capacity to meet individual needs (61%). In contrast, the variety was the one with the lowest rates (22% rated it as very poor or poor) (Figure 2 - Attachment D).

Regarding food search, most athletes (54%) found that it was easy or very easy to find meals that met their nutritional needs and dietary requirements, only a small proportion (8%) rated it as very difficult or difficult.

Athletes gave their opinion about the availability of different food groups (Figure 3 - Attachment E) and grab and go foods (64% of the athletes rated it as not enough or not available) and sweets and desserts (57%) were reported as being the less available food groups. Despite these two exceptions, all other food groups were rated as enough or more than enough by most athletes, being fish dishes (93% of the athletes) and meat dishes (86%) the food groups described as the most available.

In open-ended questions, when athletes were asked to describe their favourite meal in the menu, carbohydrate-rich foods, especially pasta and lasagne, were the most frequent answers (35% of the athletes), followed by meat (26%), fish (20%), namely salmon, fruits and vegetables (7%), and breakfast foods (4%). Besides, through open-ended questions, athletes named food groups they considered that were missing from the menu, should be included in the future, and made other suggestions. Examples (one for each 5%, per answer category) of athletes' comments and responses are summarized in Table 2 - Attachment F.

Overall, athletes' expectations of the food experience in the team restaurants during the championships were matched (43%) or greatly exceeded (39%), and on a scale from 1 (very bad) to 10 (excellent), the average overall food experience was 7.5 ± 1.6 .

Discussion

This study collected a singular perspective, from European athletes, both about the factors that influence their food choices during international competition and about their opinion on the catering service provided at the 2019 European Athletics Under 20 and Under 23 Championships.

Concerning food choice, in line with what was found in recent researches^(4, 6), the factors that could impact performance, such as time of the day, nutrient composition and cooking method, were rated higher than interpersonal factors (presence of coach and teammates). Interpersonal factors, especially the influence of teammates, seem to determine young athletes' food choices^(23, 24); however, this influence loses importance as athletes' experience increases⁽²³⁾, which is the case for more than 80% of the respondents of our study (i.e., experienced athletes, with at least one past international competition experience). As previously suggested by Birkenhead and Slater⁽²⁾, given their competitive demands it is expected that performance is also a concern.

In our research, the familiarity of the food was rated as lesser important than sensory properties (visual appearance, temperature, and smell), which contrasts with what has been shown in other study conducted in major international competitions, where the familiarity of the food was one of the factors with more influence on athletes' food choice⁽⁶⁾. A possible explanation for this might be the fact that the 2019 European Athletics Under 20 and Under 23 Championships took place in Sweden, and Swedish cuisine has many international influences, possibly allowing local caterers to offer meals that could be familiar to most European athletes. Besides, the menus initially proposed by both local organizing committees were revised and adjusted by the European Athletics, which may also help to explain our results. From another point of view, the familiarity of the food may not be that important for these athletes as most of them reported having past international competition experiences, that could have prepared them to the challenge of eating unfamiliar foods⁽¹³⁾. Nevertheless, sensory properties are known to be a determinant factor concerning food choice^(13, 25). For the general

population, taste, texture, odour and appearance tend to be less flexible factors when selecting food, compared to non-sensorial factors⁽²⁵⁾. Interestingly, the temperature, a factor whose importance has not been highlighted in recent studies, was the third factor rated as more important for athletes in our study. Therefore, to better understand its importance in catering to athletes, the temperature should be included in future researches. Our results highlight the necessary cooperation between caterers and specialized dietitians/nutritionists to the development of meals that meet both athletes' dietary needs and requirements and organoleptic preferences, as suggested in the past⁽⁹⁾.

Registered dietitians/nutritionists have been collaborating with competition organizers to ensure the provision of nutritionally adequate meals for athletes^(9, 10). Concerning menu quality, and in a similar fashion to what was found in a previous study⁽²⁶⁾, most factors were rated positively. In this research, the portion size was the characteristic better rated by athletes, suggesting that the quantity of food available was adequate to fulfil athletes' needs. European Athletics recommends that caterers be conscious of the fact that athletes' food consumption might be 1.5 times higher than their regular food supply per person.

Providing safe meals is crucial to avoid gastrointestinal infections and to ensure athletes' health⁽²⁷⁾. Illnesses like Travellers' diarrhoea have been commonly reported by athletes and may have multiple causes, including reasons related with the food served during a competition event^(27, 28). So, the fact that athletes gave high rates to food safety of the meals provided is consistent with what is expected by both the organizers and the teams.

The fact that Borås and Gävle in Sweden, the host cities of the 2019 European Athletics U20 and U23 Championships, respectively, are small cities, with less than

100 000 thousand inhabitants, with relatively small hotels, may help to explain why variety was the menu characteristic with the lowest rate. In these competitions, caterers were presumedly less experienced in serving large athletic groups, and the high number of team restaurants (one per hotel) could hinder the uniformization of the food served in all team restaurants. It reinforces the importance that has been given to the dialogue between competition organizers and caterers. Informing the food service staff about athletes' nutritional requirements and dietary preferences, as well as suggesting menu and recipe improvements, helps caterers to provide better food service to athletes^(9, 11, 12).

A buffet-style service is considered the most appropriate way of serving athletes⁽²⁹⁾, and thus should be promoted. Additionally, it is recommended by the European Athletics guidelines that food organization in the buffet line follows the order of a traditional meal, presenting the salad buffet and the vegetable soup first, then the carbohydrate's garnish, subsequently the fish, meat and vegetarian dishes and, at the end of the buffet line, the desserts. As the search for food was considered easy for most athletes in our study, the food display seems to be adequate. Nevertheless, in open-ended questions, many athletes added that they would like to have nutrition labels, suggesting that this may be an area of improvement. To the date of these championships, the European Athletics recommended that near each food item should be present at least the name of the dish, including the cooking method. Our results suggest both the need for additional supervision to help caterers fulfilling this recommendation and the improvement of the labels.

The main meal options proposed by European Athletics seem to be adequate since almost all food groups (except grab and go, and sweets and desserts) were

rated as enough or more than enough by most athletes. However, some athletes commented on the need for having more plain dishes, less salty and less spicy, or for the sauces to be served on the side. Given that this was a widely referred recommendation, it reinforces that in future competitions, caterers should have additional advice, and ultimately supervision, to ensure that the meals served, comply with these specific recommendations.

At these championships, caterers were only responsible for providing breakfast, lunch, and dinner; snacks and other small meals were not mandatory. Some athletes' comments (e.g., "more fruits, grab and go" or "sports snacks for the athletes at track and hotel, so we can have food on the go") suggest the need for providing these food groups. In fact, grab and go and sports specific foods were amongst the groups of foods rated as less available by the athletes. This result is in line with previous reports^(26, 29) which suggest that the absence of between-meal snacks could be a limitation for athletes who have high nutritional requirements⁽²⁹⁾. Economic constraints may limit the possibility of caterers to provide additional meals and, to account for this situation, the Nutritional Guidelines created by the European Athletics already advocate that athletes should have the possibility to grab fruits from main meals to eat later, a solution also suggested by Halson et al., 2019⁽²⁹⁾. An alternative option, without a significant economic burden, could be the provision of fruit boxes at both the hotel lobby and the stadium.

Our results highlight that asking athletes' opinion on the food provided in international competitions is fundamental for continuous improvement. Also, the overall reports at those European Athletics age-group Championships, regarding the catering experience, were very positive. The fact that more than two-thirds

of the participants had an international competition experience reinforces this statement as they could have higher expectations. These results reflect not only the role and importance of having nutrition guidelines, created purposely to the sport of athletics and European Athletics' championships, but also the relevance of reviewing the menu in advance.

Effective communication between the organizers and the catering company should exist, and all the aspects of the food provision must be discussed and agreed on before the competition starts. This advanced planning allows both organizers and caterers to adjust details and discuss possible necessary adaptations to the already established guidelines. Additionally, and to guarantee that all the procedures and food options comply with the previously agreed and that any issue that arises during competition is handled in the best way possible (both for the organizer and the caterer partner), the food provision should be monitored by a nutrition expert during the competition event.

Study Limitations

It should be borne in mind that the present study has some limitations, such as the environment in which data were collected. Frequently, participants were sitting next to peers and coaches, which may have influenced their responses. Besides, the athletes that participated in this study were convenience sample and, consequently, may not represent the entire athlete cohort that competed at these two championships. Other limitations may be related to the fact that for most participants English was not their native language. Although adequate English comprehension was assumed based on interviewer dialogue with the athlete at recruitment, it might not reflect reading literacy and, as a result, respondent miscomprehension error might be present.

Conclusion

Despite the similarities between competitors, in terms of age, there were more than 2000 athletes competing at these championships, representing more than 30 countries with different cultural backgrounds. Even with the challenging task of providing adequate meals for these population, faced by the local organization and caterers, the overall athletes' food experience was very positive.

Most quality factors were rated as good or very good by athletes, and the availability of most food groups were considered as enough or more than enough by most athletes. Additionally, most respondents found that it was easy or very easy to find meals that met their nutritional needs and dietary requirements, which adds value to the efforts that are being made to improve the catering service for athletes, in what sports nutrition may concern.

Athletes' food choices may be influenced by many factors, particularly factors related to performance (such as time of the day and nutrient composition) and sensory properties (specifically temperature, smell, and visual appearance). Nevertheless, it is important to learn from athletes' suggestions to improve the service provided. Answering to athletes' needs may enhance their performance by allowing them to feel comfortable about their food choices during competition. Caterers may benefit from additional advice, and ultimately supervision, from registered nutritionists/dietitians to help them to provide a better service that complies with catering for athletes' recommendations.

The study of athletes' opinion on the catering service in future sports events should be promoted, to gather more evidence about catering to athletes from different cultures and sports. Additionally, it seems pertinent to test whether

there are differences between the answers of athletes from different events, country regions, and between female and male athletes.

In conclusion, this study demonstrates that performance and sensory properties may significantly influence athletes' food choices and that athletes' overall opinion with the food service at the 2019 European Athletics Under 20 and Under 23 Championships was very positive. This results also highlight the role of dietitians/nutritionists in this field, and the necessity of future investigations in catering for athletes.

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Attachments

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Attachment A

Questionnaire

Date (d/m/y): ____/____/____

Code: ☐☐☐☐

**Athletes opinion about the catering service and availability of nutritional and dietary
information at European Athletics Championships**

PART A – DEMOGRAPHIC INFORMATION

Please mark with an X the answer of your choice or write the answer in the space provided.

1. Name: _____

2. E-mail: _____

3. Sex: ☐ Female ☐ Male

4. Date of birth (d/m/y): ____/____/____ 4.1. Age: _____

5. Country of origin: _____ 5.1. Country representing: _____

6. Level of education:

☐ Never attended school☐ Completed intermediate/middle school☐ Completed high school☐ Attended university or other tertiary institution

7. Sporting event (s): _____

8. Hotel where you are staying during competition: _____

9. Have you ever competed in an international competition before? ☐ Yes ☐ No9.1. If yes, have you ever eaten in the dining area before? ☐ Yes ☐ No

9.1.1. If yes, in which competition(s)? _____

10. Do you follow a dietary regimen prescribed by a registered dietitian/nutritionist?

☐ Yes ☐ No11. Do you have any specific food restriction? ☐ Yes ☐ No

11.1. If yes, choose the option that reflects your specific dietary regimen, and describe in which it consists:

☐ Allergy/avoidance: _____☐ Vegetarian: _____☐ Vegan: _____☐ Red meat avoiders: _____☐ Religious beliefs: _____☐ Other(s). Which? _____

Date (d/m/y): ____/____/____

Code: **PART B – CATERING SERVICE**

1. **Factors Influencing food choice.** For each one of the items listed below, mark the response that best characterizes your opinion about its relevance for your food choice.

	Not Important	Less Important	So-so	Important	Very Important
Smell	☐	☐	☐	☐	☐
Temperature	☐	☐	☐	☐	☐
Visual appearance	☐	☐	☐	☐	☐
Familiar food	☐	☐	☐	☐	☐
Nutrient composition	☐	☐	☐	☐	☐
Cooking method	☐	☐	☐	☐	☐
Stage of competition	☐	☐	☐	☐	☐
Time of the day	☐	☐	☐	☐	☐
Presence of coach	☐	☐	☐	☐	☐
Presence of team mates	☐	☐	☐	☐	☐
Proximity to the hotel	☐	☐	☐	☐	☐
Proximity to the stadium	☐	☐	☐	☐	☐

2. **Menu quality.** For each one of the items listed below, mark the response that best characterizes your opinion about the different aspects related to the quality of the menu.

	Very poor	Poor	Average	Good	Very good
Food safety	☐	☐	☐	☐	☐
Food quality	☐	☐	☐	☐	☐
Freshness	☐	☐	☐	☐	☐
Variety	☐	☐	☐	☐	☐
Portion size	☐	☐	☐	☐	☐
Presentation	☐	☐	☐	☐	☐
Taste	☐	☐	☐	☐	☐
Temperature	☐	☐	☐	☐	☐
Capacity to meet your individual needs	☐	☐	☐	☐	☐

3. **Food accessibility.** For each one of the items presented below, mark the response that best characterizes your opinion about the accessibility of food and beverages in general.

	Very low	Low	Average	High	Very high
Food	☐	☐	☐	☐	☐
Beverages	☐	☐	☐	☐	☐

4. **Food availability** (i.e., the amount of food/beverages that is physically present in the cafeteria). For each one of the items presented below, mark the response that best characterizes your opinion about the availability of food and beverages in general.

	Very low	Low	Average	High	Very high
Food	☐	☐	☐	☐	☐
Beverages	☐	☐	☐	☐	☐

5. **Availability of different food groups.** For each one of the items presented below, mark the response that best characterizes your opinion about the overall amount of food provided. If you didn't consume a certain type of food listed, circle the option "unsure/did not eat".

	Not available	Not enough	Enough	More than enough	Unsure/did not eat
Vegan	☐	☐	☐	☐	☐
Vegetarian	☐	☐	☐	☐	☐
Dairy free	☐	☐	☐	☐	☐
Gluten free	☐	☐	☐	☐	☐
Lactose free/low	☐	☐	☐	☐	☐
Fish dishes	☐	☐	☐	☐	☐
Meat dishes	☐	☐	☐	☐	☐
Fresh fruit	☐	☐	☐	☐	☐
Vegetables (raw/cooked)	☐	☐	☐	☐	☐
Sports specific foods	☐	☐	☐	☐	☐
"Grab and go" food	☐	☐	☐	☐	☐
Sweets/Desserts	☐	☐	☐	☐	☐
Cultural restrictions/acceptability:	☐	☐	☐	☐	☐
Other dietary regime/intolerance:	☐	☐	☐	☐	☐

6. **Supply of different food groups.** For each one of the items presented below, mark the response that best characterizes your opinion about the variety of options provided. If you didn't consume a certain type of food listed, circle the option "unsure/did not eat".

	Not available	Not enough	Enough	More than enough	Unsure/did not eat
Vegan	☐	☐	☐	☐	☐
Vegetarian	☐	☐	☐	☐	☐
Dairy free	☐	☐	☐	☐	☐
Gluten free	☐	☐	☐	☐	☐
Lactose free/low	☐	☐	☐	☐	☐
Fish dishes	☐	☐	☐	☐	☐
Meat dishes	☐	☐	☐	☐	☐
Fresh fruit	☐	☐	☐	☐	☐
Vegetables (raw/cooked)	☐	☐	☐	☐	☐
Sports specific foods	☐	☐	☐	☐	☐
"Grab and go" food	☐	☐	☐	☐	☐
Sweets/Desserts	☐	☐	☐	☐	☐
Cultural restrictions/acceptability:	☐	☐	☐	☐	☐
Other dietary regime/intolerance:	☐	☐	☐	☐	☐

7. Do you think that the different meal options were well identified? Mark the response that best characterizes your opinion.

Never	Occasionally	Sometimes	Often	Always
☐	☐	☐	☐	☐

Date (d/m/y): ____/____/____

Code:

8. Food search. How was your search for the foods/meals that meet your nutritional needs and/or dietary requirements (e.g., considering the information available about the items, items' location in the dining area, ...)? Mark the response that best characterizes your opinion.

Very difficult Difficult So-so Easy Very easy

☐ ☐ ☐ ☐ ☐

PART C – NUTRITIONAL LABELLING

9. Do you know what is a nutritional label? ☐ Yes ☐ No (If you answered No, go to the PART D)

10. How often do you use nutritional labels? Mark the response that best characterizes your opinion.

Never Occasionally Sometimes Often Always

☐ ☐ ☐ ☐ ☐

11. Why don't you use nutritional labels more often? Mark as many statements as necessary to characterize your opinion.

11.1. ☐ I don't understand the information presented on nutritional labels.

11.2. ☐ I don't trust the information presented on nutritional labels.

11.3. ☐ I'm not used to reading nutritional labels.

11.4. ☐ I think that the information presented on nutritional labels is not useful.

11.5. ☐ I think that nutritional labels are confusing.

11.6. ☐ I don't need to read nutritional labels.

11.7. ☐ I don't have time to read nutritional labels.

11.8. ☐ Other reason(s). Which? _____

12. In future championships, would you like to have nutritional information regarding the served meal? ☐ Yes ☐ No

13. Do you consider that the present of nutritional labels would help you make better meal choices? ☐ Yes ☐ No

13.1. Explain why? _____

14. Components of the nutritional label. For each one of the items presented below, mark the response that best characterizes your opinion about its relevance on the nutritional label.

	Not Important	Less Important	So-so	Important	Very Important	Unsure/Do not know
Ingredient list	☐	☐	☐	☐	☐	☐
Allergens	☐	☐	☐	☐	☐	☐
Serving size	☐	☐	☐	☐	☐	☐
Energy	☐	☐	☐	☐	☐	☐
Carbohydrates	☐	☐	☐	☐	☐	☐
Sugar	☐	☐	☐	☐	☐	☐
Protein	☐	☐	☐	☐	☐	☐
Fat	☐	☐	☐	☐	☐	☐
Saturated fat	☐	☐	☐	☐	☐	☐
Sodium/salt	☐	☐	☐	☐	☐	☐
Icon representing a special regimen (e.g., fish, gluten free, vegetarian)	☐	☐	☐	☐	☐	☐
Icon representing an allergen	☐	☐	☐	☐	☐	☐
Icon representing the nutritional content of the dish (e.g., high carb, high fat)	☐	☐	☐	☐	☐	☐

PART D – OPEN-ENDED AND GENERAL QUESTIONS

15. Were you able to find/locate the adequate meals to supply your dietary needs? Mark the response that best characterizes your opinion.

Never	Occasionally	Sometimes	Often	Always
☐	☐	☐	☐	☐

16. What do you think could help you find/locate a certain item?

17. What were your favourite meals in the menu?

18. Leave any request about any food you consider important and was missing from the menu and regarding additional items you would like to see in future competitions. Why?

19. Did your experience in the dining hall live up to your expectations? Mark the response that best characterizes your opinion.

Much less than expected	Less than expected	Matched	Exceeded expectations	Greatly exceed expectations
☐	☐	☐	☐	☐

20. Rate your overall experience eating at the dining area from 1 to 10, where 1 = very bad and 10 = excellent or satisfaction. Mark the response that best characterizes your opinion.

1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

21. Leave any comments or suggestions for improvement.

Thank you for taking the time to complete this survey! We appreciate you taking the time to complete this survey.

Attachment B

Table 1 - Participant characteristics.

a - athletes competing in the 2019 European Athletics, under 20 years old; b - athletes competing in the 2019 European Athletics, under 23 years old; c - 100m, 200m, 400m, 100m hurdles, 110m hurdles, 400m hurdles, 4 x 100m and 4 x 400m, d - High Jump, Pole Vault, Long Jump, Triple Jump; e - 800m, 1500m, 3000m, 5000m, 3000mSC; f - 10000m, 10_20KmW; g - Shot Put, Discus Throw, Hammer Throw, Javelin Throw; h - Heptathlon, Decathlon.

Age, mean $\pm$ standard deviation	19.6 $\pm$ 1.3
Sex, n (%)	
Female	145 (43%)
Male	194 (57%)
European Athletics Championship, n (%)	
U20 ^a	166 (49%)
U23 ^b	173 (51%)
Level of education, n (%)	
Never attended school	3 (1%)
Completed intermediate/middle school	48 (14%)
Completed high school	124 (37%)
Attended university or other tertiary institution	160 (48%)
Sports event, n (%)	
Sprints ^c	120 (35%)
Jumps ^d	59 (17%)
Middle distance ^e	68 (20%)
Distance ^f	31 (9%)
Throws ^g	54 (16%)
Combined events ^h	7 (2%)

Attachment C

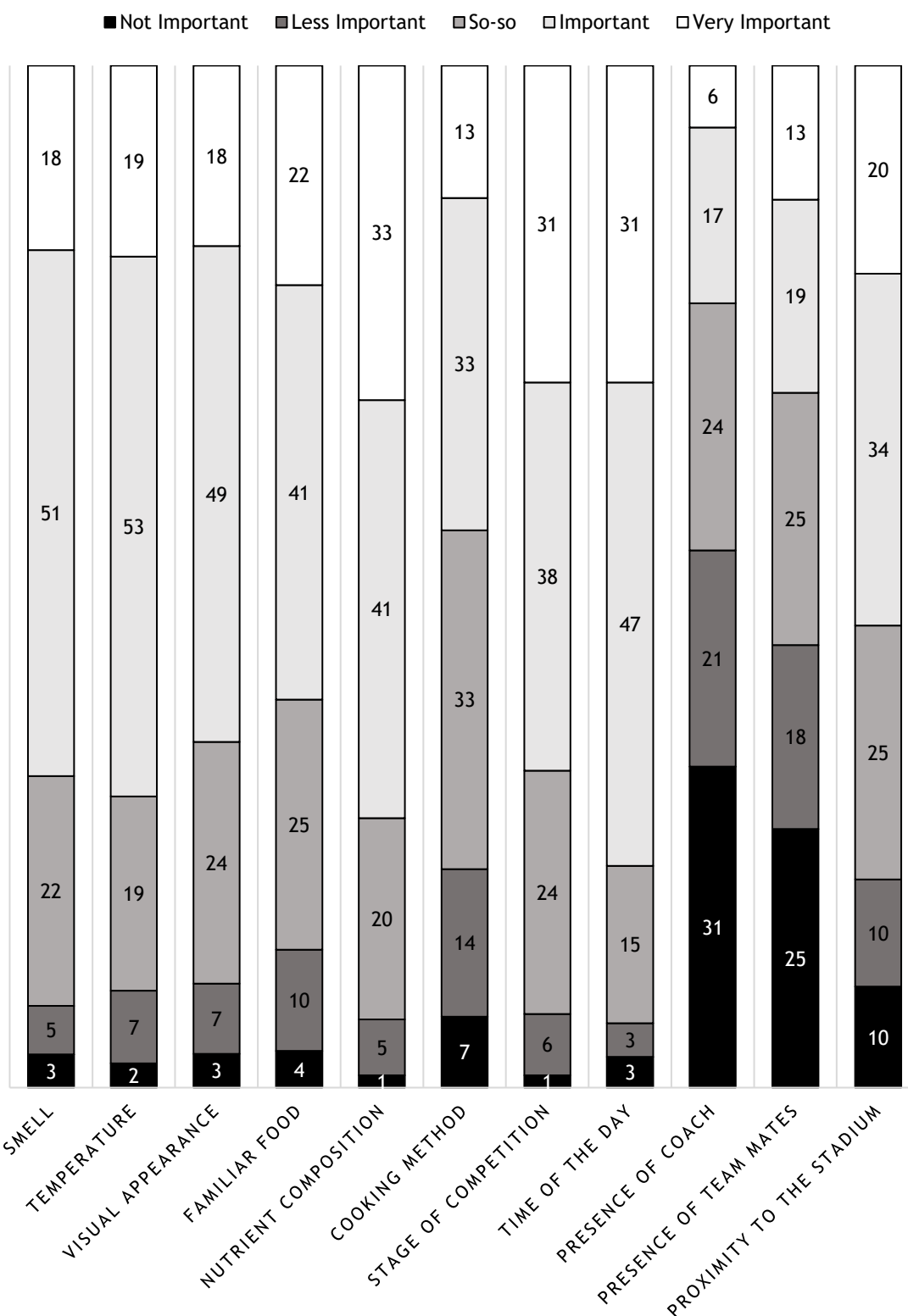


Figure 1 - Factors influencing food choice (%).

Attachment D

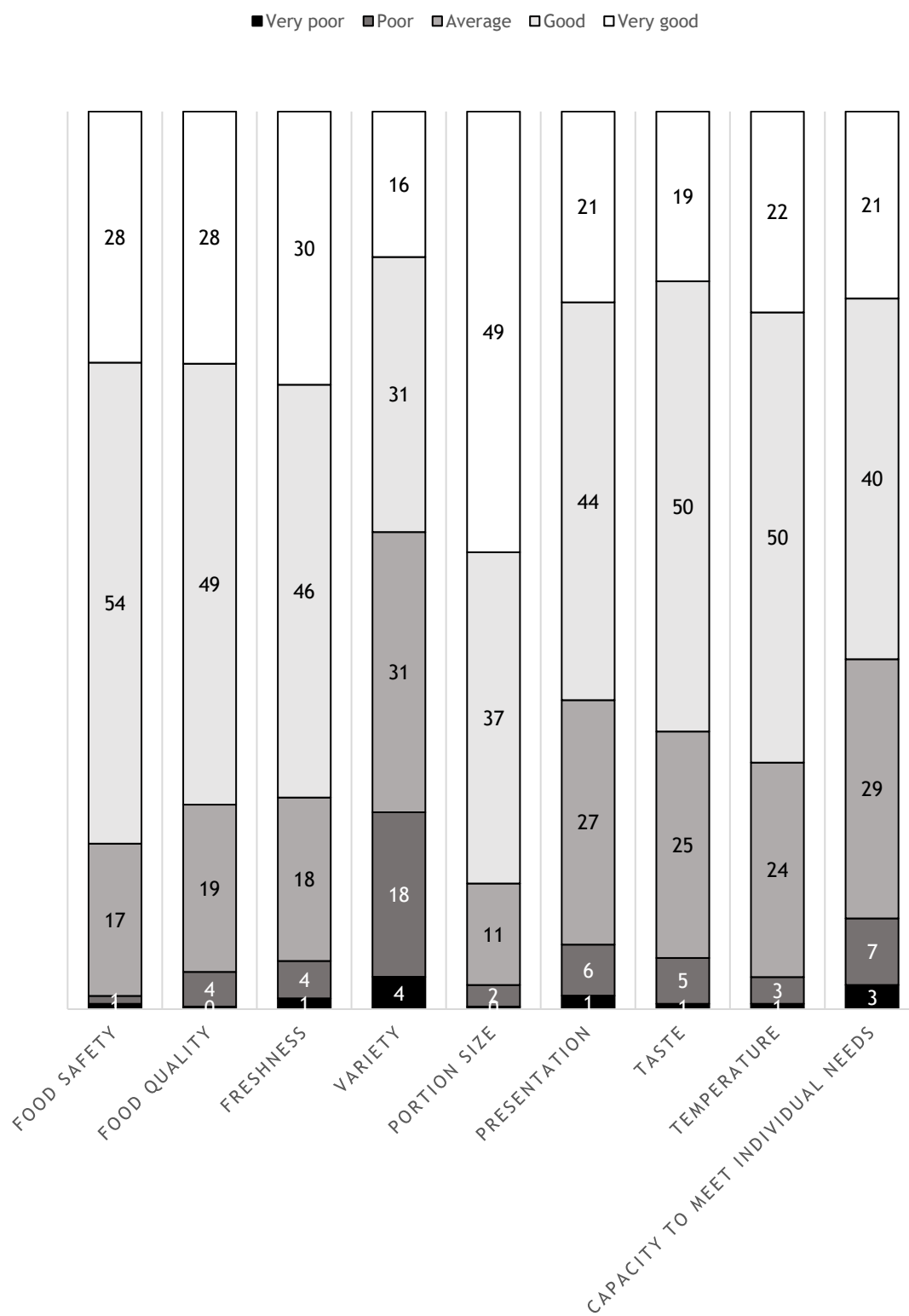


Figure 2 - Menu quality characteristics (%)

Attachment E

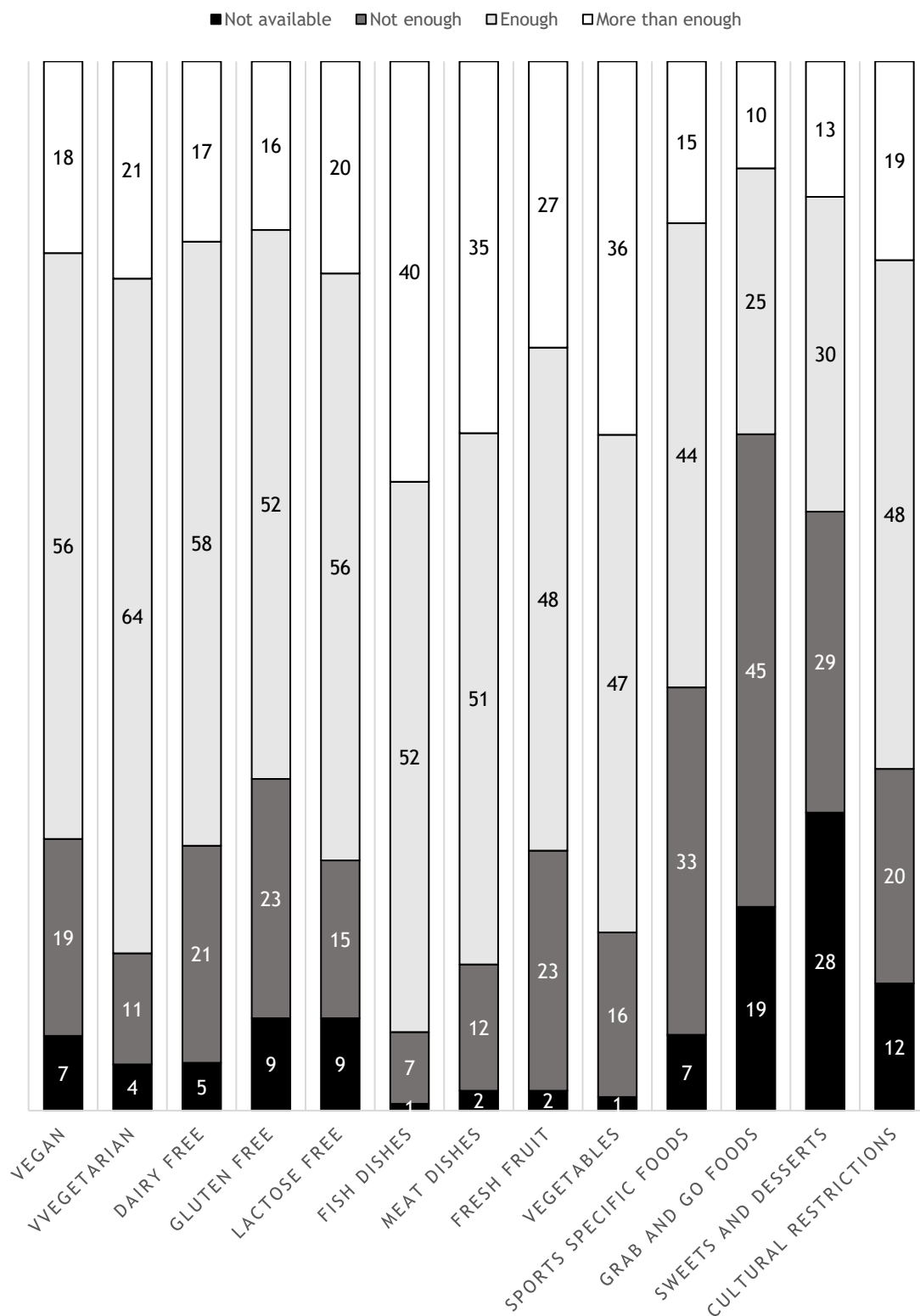


Figure 3 - Availability of different food groups (%)

Attachment F

Table 2 - Open questions: suggestions and requests

Category	% of athletes	Examples of responses
Overall opinion	18	Everything was what I needed. Best food so far on international championship. Nothing special, does the job.
More quantity or variety	14	More variety since athletes need a good nutrition to be able to compete at the highest level and be healthy. 2 meat options, 2 fish options and a hot vegetarian option (e.g., bean dish).
Meat	12	More chicken, most people eat it and it is easy and nice to eat before competing. More types of meats.
Sweets and desserts	12	Dessert, I am used to desserts after dinner meal. Desserts, very important.
Carbohydrate-rich foods	11	Always have pasta as an option. I would like to eat more plain food, like pasta (without any sauce) and some porridge.
Fruits	10	There were only fruits in the morning, in my opinion there should be some for every meal. More fruits.
Other requests	10	Sports specific foods.
Vegetables or vegetarian options	8	More variety of vegetables etc. there were very few. Only tomato, cucumber, and salad. I missed more vegetarian options which consists of high levels of protein, I had to eat fish everyday even though I prefer not to, since that was the only option with proper proteins.
Plain food or less seasoning	8	More plain food. Suits more people then have sauce separated. Everything should be almost unseasoned, without sauces, so that everyone can add it as they like it.
Grab and go foods and snacks	5	More food to grab and go.
Labels of food display	3	Every food should be "marked" with the tag which would tell the consumer what he is looking at.
Dairy	3	Cottage cheese/yoghurt for the evening, for the proteins.
Fish	2	Tuna, more fish.

