DESIGN, VALIDATION, AND RELIABILITY OF SURVEY TO MEASURE KNOWLEDGE OF NUTRITION, WEIGHT CONTROL AND ITS RISKS

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Abstract The purpose of this study was to design, validate, and test the reliability of an instrument to evaluate knowledge of nutrition, weight control and its risk. The instrument collects information regarding: socio-demographics and athletic status; basic knowledge of nutrition (the diet they follow, nutrients, supplements, energy balance, myths, hydration and habits); and weight control and risks (weight control, eating behaviors, and weight control habits). The design, validation, and testing of the reliability of the questionnaire were done in four phases: a) design and development of the instrument, b) content validation, c) instrument reliability, and d) concurrent validity. The results show that the instrument is suitable for measuring nutrition, weight control and risk knowledge in athletes. The instrument that was developed and validated in this paper can contribute to assessing how the athletes evolve through their different formation stages.

Key words sport, health, prevention, evaluation

Introduction

Athletes train to achieve success in competition. Ideally, sport practice should involve improving or maintaining the physical, psychological, and social wellbeing of the athletes. However, this is not always true (Sundgot-Borgen, 2002). For example, in sports where the aesthetics or weight control is important (e.g. gymnastics or combat sports), many athletes try to reduce their weight with the theoretical goal of being more successful (Sundgot-Borgen, 2002; Steen, Brownell, 1990). These weight control cycles risk affecting athletes' self-perception and health. Additionally, numerous studies have reported the use of inadequate weight control techniques (Artioli et al., 2010a; Ubeda et al., 2010; Valliant, Emplaincourt, Wenzel, Garner, 2012). There are several possible reasons for the use of these unhealthy procedures in athletes, such as stress, social and environmental factors, or stereotypes.

Prevention is widely regarded as the key to combating the risks related to weight control (Rust, 2002; Beals, Brey, Gonyou, 1999; Joy et al., 1997). Coaches focus their efforts on increasing their players' knowledge and skill in the sport, but they should also provide information regarding reducing the risks of their athletes being unhealthy. In order to measure their athletes' needs and the effects of specific continuing education about this topic, an instrument to measure their knowledge and habits is needed. The information about the athletes' knowledge or their nutrition and weight control habits will provide useful information for coaches, federations, and managers to ensure healthy habits in their players and emphasize these aspects in the life of athletes. Ideally, monitoring the health of the athletes and the aspects that affect it should be as important as monitoring the physical or technical aspects. In the bibliography review carried out, several instruments that measure the knowledge and habits of athletes with regard to nutrition or weight control risk have been found (Artioli et al., 2010b; Bonci et al., 2008; Brito et al., 2012; Juzwiak, Ancora-Lopez, 2004; Zawila, Steib, Hoogenboom, 2003). However, those instruments were focused on specific aspects such as knowledge of nutrition or nutritional habits. In order to provide useful tools to coaches and researchers to measure how athletes are evolving or the effect of a specific educational programming, a comprehensive instrument is needed. This instrument must provide information from different perspectives or approaches due to the multi-dimensional aspects that are involved. This information should help coaches, dietitians, sport psychologists, athletes' families, etc. in the process of maintaining the athletes' health. The purpose of this study was to design, validate, and test the reliability of an instrument to evaluate athletes' knowledge about nutrition, weight control and its risks.

Method

The design, validation, and testing of the reliability of the questionnaire were done in four stages: a) design and development of the instrument, b) content validation, c) instrument reliability, and d) concurrent validity (Trochim, Donnelly, 2007). The design and development of the instrument involved the use of specific literature about sport nutrition, weight control and its risks. Reviews in the following databases were done: ISI Web of Knowledge, Medline, SPORTDiscus, Google Scholar, EBSCO, and Dialnet. The key word searches included: "nutrition", "knowledge", "weight control", "eating disorders", "athletes", "survey" (as well as their equivalents in Portuguese and Spanish for the Scielo and Dialnet databases, respectively). A review of abstracts was done to select the papers related to the instrument topic. Questionnaires found in the literature (Artioli et al., 2010b; Bonci et al., 2008; Brito et al., 2012; Juzwiak, Ancora-Lopez, 2004; Zawila, Steib, Hoogenboom, 2003), specific literature (Bean, 2010; Bonci, 2009), and literature about creating an original instrument (Hague, Hague, Morgan, 2004; Thomas, 2004) were used as guides. Some of the questions were translated to Spanish and adapted to be used in different sports such as combat sports, gymnastics, or athletes in general. In the process of designing the first draft of the survey, the researchers, a dietician, two coaches of combat sports, two combat sport athletes, and a former gymnast participated in the process of selecting the questions, adapting or wording the questions, and clarifying them.

From this review, a list of key aspects about the female athlete triad was established. Questions were grouped into: a) athletes' characteristics (10 questions), nutrition knowledge (23 questions), nutrition habits (2 frequency charts), knowledge of weight control and its risks (12 questions), habits and perceptions regarding weight control and its risks (19 questions). For the questions related to socio-demographics of the athletes, open and closed questions were used. For the questions related to nutrition knowledge and weight control and knowledge about it,

true/false were used. For questions related to nutrition habits, open questions were used. For habits and perceptions regarding weight control and its risks, open questions and multiple choice items were used.

In the second stage, the instrument was sent to four experts in fields related to at least one of the components of the survey, nutrition or weight control. The experts were asked to evaluate qualitative (open questions) and quantitative questions (scale from 1 to 10) from the survey regarding: degree of understanding of the survey's questions; degree of adequacy of the survey's questions, and the need to reduce or include more questions in the survey. The collective suggestions from the experts were considered, and the appropriate changes were made. A descriptive analysis of their answers (i.e. mean, median, and mode) was also done. Following Bulger and Housner (2007), questions with values lower than 7.0 were eliminated, questions with values between 7.1 and 8.0 were modified, and questions with values greater than 8.1 were accepted or accepted with modifications. With the values from the quantitative evaluation done by the experts, the Aiken's V was calculated (Penfield, Giacobbi, 2004).

In the third stage, the reliability of the instrument was calculated. The questionnaire was completed by Spanish wrestlers and rhythmic gymnasts. The four week test-retest procedure was completed by 12 wrestlers (24.16 ±4.87, national level) and 11 gymnasts (16 ±1.16, international level). A final section allowing for comments took into consideration their understanding of the questionnaire, the time taken to complete the survey, and questions or concerns they had with the instrument. Reliability of each item was calculated using the Kappa Index for each of the questions (categorical variables) using the SPSS software.

In the fourth stage, the ability of the instrument to differentiate between athletes of different age groups was measured (Trochim, Donnelly, 2007). Twenty-one under-16 wrestlers and 20 senior wrestlers who participated in the Spanish National Championship were analyzed (2012–2013 season). An inferential analysis of the data (one-factor ANOVA) was done to establish the existence of differences between wrestlers of both ages using the SPSS 21.0 software, with a level of statistical significance set at $p < 0.05$.

Results

The draft of the survey had 63 questions after the first stage. Sub-scales with 23 points and 12 points were established with regard to the questions pertaining to nutrition knowledge and weight control and its risks, respectively. After reviewing the experts' evaluation of the draft of the survey, vocabulary for four questions were changed. The experts' observations were related to the terms used, the need to clarify the terminology or questions, etc. At this stage, all questions from the draft of the survey had an average score >7.0. The Aiken's V was pertinent (>0.81 for the lowest value).

Table 1. Knowledge scores of nutrition and of weight control and its risks for under-16 wrestlers and senior wrestlers

	Nutrition knowledge		Weight control knowledge	
Type of sport	average	percentage	average	percentage
Under-16 wrestlers	18.24*	68.48	3.15*	78.70
Senior wrestlers	12.93*	76.07	2.68*	67.12

* p<.000 (One-factor ANOVA).

From the score of the test-retest carried out with wrestlers and gymnasts, the total reliability of the questionnaire was calculated (the smallest of these calculations). Intra-class correlation coefficients of 0.615 and 0.609 were

found for male wrestlers and female gymnasts, respectively. Regarding the ability of the instrument to differentiate theoretically different age groups of wrestlers (Table 1), significant differences were found in the nutrition knowledge score ($p < 0.001$) and weight control and its risks score ($p<.001$) for the wrestlers of different age groups. The final Spanish and English versions of the survey can be found after the references.

Discussion

This paper describes the process done to design and validate a survey to measure knowledge of nutrition, weight control and its risks. In the first stage, the review of the available literature and similar questionnaires was the basis for developing the survey. The information from different sources was translated and adapted to ease understanding and pertinence for athletes from different environments and sports. The combination of internal reviews, mini-pilot studies with athletes and coaches, and the experts' opinions contributed to increasing the clarity, understanding, and proper terminology of the survey. The quantitative evaluation done by experts allowed for the establishment of the pertinence of the sections and questions of the survey (Bulger, Housner, 2007; Escurra, 1989; Padilla, Gómez, Hidalgo, Muñiz, 2007; Zhu, Ennis, Chen, 1998). The levels of content validity found are higher than the proposed minimum (Penfield, Giacobbi, 2004). The level of reliability of the instrument in the test-retest procedure carried out with male wrestlers and female gymnasts was "substantial" (Landis, Koch, 1977). The values showed that it is pertinent at this level (intra-rater reliability). The results show that the survey that was developed has the ability to measure differences between groups that, in theory, are different.

These data show that the instrument can be useful to measure the knowledge of nutrition and weight control and its risks in athletes. The survey has a structure that allows for dividing it into several parts, so it can be used as a whole survey or different parts, depending on the goals and needs. The combination of information related to knowledge and habits allows us to determine what the needs of the athletes are. Future studies are needed about reference values and normative profiles for different sports, genders, and levels of competition in order to properly understand and apply the information provided by the survey.

Conclusions

The process that was followed and the data that were found show that this instrument is suitable for measuring athletes' knowledge of nutrition as well as of weight control and its risks. This instrument can be useful to evaluate the need for specific education and the effect of educational training. Performance sport can involve the risk of developing unhealthy behaviours. Coaches, clubs, institutions, etc. must be proactive to avoid these problems. Prevention is a key aspect to prevent these health problems, and measuring the states and needs of the athletes is part of preventive and proactive actions. More research and specific normative profiles are needed to reduce the risk of inadequate eating and weight control behaviors.

CUESTIONARIO SOBRE NUTRICIÓN, CONTROL DEL PESO Y SUS POSIBLES RIESGOS

El presente cuestionario forma parte de un trabajo de investigación que se está realizando en la Universidad de _____. **El estudio pretende conocer los conocimientos sobre nutrición, control del peso y posibles riesgos que el control del peso puede generar.** Dado que el cuestionario es anónimo, **te rogamos contestes con la mayor sinceridad**, pues los datos obtenidos son de relevancia para el conocimiento de nuestro deporte. Para cumplimentarlo marca los cuadros de las opciones que se plantean en cada pregunta, teniendo en cuenta que, **excepto cuando se indique**, **sólo deberás marcar una respuesta**. Cuando sea necesario, escribe sobre las líneas con letra clara.

Club: _____ Género: ( ) Femenino ( ) Masculino F. Nacimiento: _____/_____/_____ Altura: _____

CUESTIONES SOCIO-DEMOGRAFICAS

1. ¿A qué edad comenzaste a practicar este deporte?____ años
2. ¿A qué edad comenzaste a competir federada? _____años
3. ¿Cuánto pesas? periodo de entrenamiento___ Kg / periodo de competición ___ Kg / vacaciones ___ Kg.
4. ¿Cuál ha sido tu máximo nivel de competición?
   ( ) Regional ( ) Nacional ( ) Europeo ( ) Intercontinental (ej. Campeonato del mundo)
5. ¿Cuántas veces competiste el año pasado en competiciones oficiales? ___ veces
6. ¿Cuántas horas semanales y sesiones entrenas este deporte? Horas semanales _____ Sesiones semanales _____

CUESTIONES SOBRE NUTRICION

A continuación se presentan una serie de afirmaciones sobre conocimientos en nutrición. Señala en la columna si estás de acuerdo o no con cada una de ellas.

	Si	No
7. Son los cereales, el yogurt y la leche desnatada buenas opciones para tomar en el desayuno.		
8. Las nueces y la fruta no son consideradas como un buen tentempié para tomar en competición.		
9. El arroz, la pasta, las patatas y el pan son buenos alimentos para la semana previa a la competición.		
10. Los deportistas necesitan constantemente más proteínas que las personas sedentarias.		
11. Una dieta adecuada tiene aproximadamente una proporción de 20-35% de hidratos, 45-65% de grasas y 10-15% de proteínas.		
12. Tras el entrenamiento, se debe evitar comer alimentos salados (patatas), cereales y sándwich.		
13. La última comida previa a la competición debe realizarse 3-4 horas antes de su inicio.		
14. Antes de los entrenamientos matutinos se recomienda hacer un desayuno ligero.		
15. Es recomendable tomar entre 3-5 piezas de fruta al día.		
16. Cien gramos de ternera contienen menos proteínas que cien gramos de merluza.		
17. Las grasas son los nutrientes que contienen más calorías (por cantidad de peso).		
18. El azúcar y la fruta aportan hidratos a la dieta y favorecen la recuperación.		
19. La ingesta de fruta en nuestra dieta es importante porque es fuente natural de azúcar, vitaminas, minerales, antioxidantes y fibra.		
20. En el proceso de recuperación de un deportista, la hidratación no es importante.		
21. La ingesta de suplementos de vitaminas y minerales no es necesaria para un deportista de alto nivel si se realiza una dieta equilibrada (completa).		
22. Al realizar una actividad intensa y de corta duración (1-2 min) nuestro cuerpo obtiene principalmente la energía a través de los hidratos de carbono.		
23. El uso excesivo de laxantes y/o diuréticos naturales disminuye el estrés que sufre el organismo.		
24. Las vitaminas y minerales nos aportan energía.		
25. En un día normal de entrenamiento se debe beber entre 1 litro y 2 litros (entre 4 y 7 vasos de agua).		
26. En competición no es importante hidratarse constantemente (al menos cada 15-30 minutos).		
27. Síntomas de la deshidratación son perdida repentina de energía, temprana fatiga, dolor de cabeza, etc.		
28. Por cada kilo perdido tras entrenamiento o competición, se debe beber entre 1 y un 1,5 litros.		
29. En entrenamientos previos a la competición, es aconsejable beber únicamente antes de entrenar.		
30. En los días previos a la competición, se recomienda aumentar la ingesta de grasas.		
31. Consumir alimentos ricos en fibra producen la sensación de estar lleno.		

32. ¿Con qué frecuencia tomas algunos de los siguientes alimentos en periodo de entrenamiento (en la presente temporada)? (Pon una cruz en las casillas correspondientes)

	Varios o varias veces al día	Una vez al día	3 a 5 veces por semana	1 a 2 veces por semana	Algunas veces al mes	Rara vez o nunca
Leche						
Yogur						
Queso						
Mantequilla y/o margarina						
Carne						
Embutidos (chorizo, morcilla...)						
Hamburguesas o salchichas						
Pescado						
Huevos o tortilla						
Frutas						
Verduras y hortalizas						
Legumbres (garbanzos, lentejas...)						
Cereales (pasta, arroz, trigo, maíz…)						
Pan						
Galletas, bizcochos, bollería…						
Precocinados (comida rápida)						
Frutos secos						
Aperitivos de bolsa, gusanitos...						
Golosinas						
Otros (_____)						

CUESTIONES SOBRE CONTROL DEL PESO Y LOS RIESGOS QUE IMPLICA ESTE

A continuación se presentan una serie de afirmaciones sobre control del peso y sus respectivos riesgos. Señala en la columna si estás de acuerdo o no con cada una de ellas.

	Si	No
33. Los cambios bruscos de peso no afectan a la salud física ni a la salud mental.		
34. Aumentar los entrenamientos y disminuir la ingesta, aumenta el estrés que sufre el organismo.		
35. Saltarse las comidas es justificable cuando se necesita lograr una rápida bajada de peso.		
36. La pérdida de peso hace que las reservas de energía y los fluidos corporales estén en desequilibrio.		
37. La bulimia nerviosa se caracteriza por fuertes atracones de comida, seguido de vómitos.		
38. Un atleta que sufre un trastorno de la conducta alimenticia o se encuentra en riesgo de padecerlo, tiene un aumento de su rendimiento.		
39. La triada atlética femenina se compone de amenorrea, osteoporosis y un trastorno de la conducta alimenticia.		
40. Los trastornos de la conducta alimenticia pueden ser fatales.		
41. La combinación de una excesiva práctica deportiva y una disminución prolongada de ingesta de alimento, puede causar la perdida de densidad mineral de los huesos (osteoporosis).		
42. La anorexia nerviosa incluye el fracaso de mantener un peso corporal normal, para la edad y altura de una persona; y el miedo intenso a ganar peso.		
43. Las demandas energéticas de un deportista varían en función del momento de la temporada.		
44. El organismo necesita unos niveles mínimos de grasas para su correcto funcionamiento (6-13% para hombres y 12-18% para mujeres).		
45. Controlar el peso es una manera adecuada de monitorizar el efecto de un cambio en tu alimentación.		
46. Cuando uno pierde peso, únicamente pierde la grasa acumulada en su cuerpo.		
47. Una persona en crecimiento (normalmente hasta 18-20 años de edad) tiene unas demandas diferentes que una persona que ha finalizado su crecimiento.		
48. La composición corporal de una persona se puede reducir a través de la reducción de la ingesta y/o el incremento de ejercicio físico.		
49. El color de la orina es una buen método para controlar nuestro nivel de hidratación.		
50. En caso de trastornos alimenticios, el rol del entrenador y familia es detectar la posible existencia de un problema, derivar al deportista a un especialista, y ayudar en el proceso de tratamiento.		

51. ¿Controlas tu peso con regularidad?
( ) A diario ( ) Semanalmente ( ) Mensualmente ( ) Con menos frecuencia ( ) Nunca

52. ¿Cuántas comidas haces al día? (ej. desayuno, tentempié a media mañana, comida, merienda y cena)
( ) Una ( ) Dos ( ) Tres ( ) Cuatro ( ) Cinco ( ) Seis o más

53. ¿Has modificado alguna vez tu peso para competir?. En caso de responder "NO" pasa directamente a la pregunta 58.
( ) Sí, he perdido ( ) No, nunca he cambiado de peso para competir

54. ¿Has tenido alguna supervisión o recomendación en este proceso de pérdida de peso? Señala todas las que correspondan
( ) Ninguno ( ) Entrenador ( ) Otros deportistas
( ) Familiares ( ) Amigos ( ) Directivos club
( ) Nutricionista ( ) Medico ( ) Otros (_____)

55. Marca el grado de influencia que tiene cada persona que aparece a continuación cuando cambias tu peso (ej. persona de referencia en tu deporte, persona que te presta información, da consejos...). (0 □ no influye / 10 □ máxima influencia)

Yo mismo	0 1 2 3 4 5 6 7 8 9 10
Compañeros	0 1 2 3 4 5 6 7 8 9 10
Entrenador	0 1 2 3 4 5 6 7 8 9 10
Fisioterapeuta	0 1 2 3 4 5 6 7 8 9 10
Psicólogo	0 1 2 3 4 5 6 7 8 9 10
Padres/familiares	0 1 2 3 4 5 6 7 8 9 10
Amigos	0 1 2 3 4 5 6 7 8 9 10
Medico	0 1 2 3 4 5 6 7 8 9 10
Internet/ foros	0 1 2 3 4 5 6 7 8 9 10
Dietista	0 1 2 3 4 5 6 7 8 9 10
Otros (_____)	0 1 2 3 4 5 6 7 8 9 10

56. ¿Te han diagnosticado clínicamente un trastorno de la conducta alimenticia alguna vez? (marca todas las que corresponda)
( ) No ( ) Anorexia ( ) Bulimia ( ) Otros (indica cual) _____

57. Indica empleando la siguiente tabla, ¿Has usado alguno de los siguientes métodos para perder peso?

	Siempre	A veces	Casi nunca	Nunca lo he usado
Comer menos				
Restricción de hidratos de carbono				
Restricción de grasas				
Saltarse comidas				
Ayunar (no comer en todo el día)				
Reducir la ingesta de líquidos				
No beber				
Incrementar el ejercicio				
Saunas				
Tomar laxantes, diuréticos…				
Vomitar				
Otros (_____)				

58. Señala el grado de satisfacción con tu imagen (responde en una escala de 0 a 10)_____
59. Señala el grado de satisfacción con tu peso (responde en una escala de 0 a 10)_____
60. ¿Cuál es tu peso ideal? _____
61. ¿Crees que tienes conocimiento suficiente sobre…? (responde de 0 a 10).
Nutrición y alimentación _____
Control del peso _____
Riesgos que entrañan el control peso (anorexia, bulimia…) _____

62. ¿Has recibido alguna vez información sobre…? (marca las que corresponda e indica por parte de quien has recibido la información)
( ) Nutrición y alimentación (He recibido información por parte de _____)
( ) Control del peso (He recibido información por parte de _____)
( ) Riesgos control del peso (anorexia, bulimia…) (He recibido información por parte de _____)
( ) Otros (_____) (He recibido información por parte de _____)

63. ¿Qué logras cuando pierdes o ganas peso? (marca todas las que corresponda)

Mi rendimiento	( ) Empeora	( ) No varia	( ) Mejora
Mi estado de salud	( ) Empeora	( ) No varia	( ) Mejora
Mi apariencia	( ) Empeora	( ) No varia	( ) Mejora

64. ¿Crees que hay un problema relacionado con el control del peso en tu deporte (ej. falta de conocimiento, hábitos, entorno…)?
( ) No ( ) Sí (Si respondes "SI", indica cual)
_____

65. ¿Crees que hay un problema relacionado con los trastornos de la conducta alimenticia (anorexia, bulimia,…) en tu deporte (ej. falta de conocimiento, hábitos, entorno…)?
( ) No ( ) Sí (Si respondes "SI", indica cual)
_____

¡GRACIAS POR TU COLABORACIÓN!

Observaciones (usa este espacio para realizar cualquier observación o comentario con los aspectos abordados en este cuestionario):

QUESTIONNAIRE ABOUT NUTRITION, WEIGHT CONTROL AND ITS POSSIBLE RISKS

This questionnaire is part of a research study being carried out at the University of _____. **The study is an attempt to assess your knowledge of nutrition**, **weight control and the possible risks involved with weight control**. Since the questionnaire is anonymous, **we ask that you respond as sincerely as possible**. The data you provide are very important for the knowledge of our sport. To complete the questionnaire, mark an X under the response that best corresponds to your answer, keeping in mind that **unless otherwise indicated**, **there should only be one answer**. When necessary, print clearly on the lines provided.

Club: _____ Gender: ( ) Female ( ) Male Birthdate: _____/_____/_____ Height: _____

SOCIO-DEMOGRAPHIC QUESTIONS

1. At what age did you begin to practice this sport?____years
2. At what age did you begin to compete with your club? _____years
3. How much do you weigh? during training ___ Kg / during competition ___ Kg / in the off-season ___ Kg.
4. What is the highest competitive level you have reached?
   ( ) Regionals ( ) Nationals ( ) European competition ( ) Intercontinental (e.g. World Championship)
5. How many times have you competed this year in official competitions? ___ times
6. How many weekly hours and training sessions do you train for this sport? Weekly hours _____ Weekly sessions _____

NUTRITION QUESTIONS

Next there is a series of statements about nutrition knowledge. Mark in the corresponding column whether or not you agree with each of these statements.

	Yes	No
7. Cereal, yogurt, and skim milk are good options for breakfast.		
8. Nuts and fruit are not considered to be a good snack to have during a competition.		
9. Rice, pasta, potatoes, and bread are good foods for the week before the competition.		
10. Athletes always need more protein than sedentary people.		
11. An appropriate diet has an approximate proportion of 20-35% of carbohydrates, 45-65% of fats, and 10-15% of proteins.		
12. After training, you should avoid eating salty foods (chips), cereal, and sandwiches.		
13. The last meal before competition should be eaten 3-4 hours before the start.		
14. Before morning training sessions, a light breakfast is recommended.		
15. It is recommended that you eat 3-5 pieces of fruit per day.		
16. One hundred grams of beef has less protein than one hundred grams of fish.		
17. Fats are the nutrients with the most calories (by weight).		
18. Sugar and fruit provide carbohydrates to the diet and promote recovery.		
19. Fruit intake is important in your diet, because it is a natural source of sugar, vitamins, minerals, antioxidants, and fiber.		
20. In an athlete's recovery process, hydration is not important.		
21. Taking vitamin supplements and minerals is necessary for athletes, even when they eat a well-balanced diet.		
22. When executing an intense, short (1-2 mins) activity, our body primarily obtains energy through carbohydrates.		
23. Excessive use of laxatives and/or natural diuretics decrease the stress that the body suffers.		
24. Vitamins and minerals provide the body with energy.		
25. On a normal training day, an athlete should drink between one and two liters (4-7 glasses) of water.		
26. In competition, it is important to constantly hydrate oneself (at least each 15-30 minutes).		
27. Dehydration symptoms include sudden lack of energy, premature fatigue, headache, etc.		
28. For each kilogram of weight lost after training or competition, an athlete should drink one and one and a half liters.		
29. In training sessions before competition, it is recommended that you drink only before training.		
30. In the days leading up to a competition, it is recommended that you increase your fat intake.		
31. Consuming fiber-rich foods produces satiety (feeling of fullness).		

32. How often do you consume these foods when you are training for your sport (in the current season)? (Mark an X in the corresponding box)

	Several times per day	Once per day	3-5 times per week	1 - 2 times per week	Several times per month	Rarely or never
Milk						
Yogurt						
Cheese						
Butter and/or margarine						
Meat						
Cold meat (sausage)						
Hamburgers or hotdogs						
Fish						
Eggs						
Fruit						
Vegetables						
Legumes (garbanzos, lentils...)						
Grains (pasta, rice, wheat, corn…)						
Bread						
Cookies, cakes, pastries…						
Precooked (fast food)						
Nuts						
Bagged snacks, chips….						
Candy						
Other (_____)						

QUESTIONS ABOUT WEIGHT CONTROL AND THE RISKS INVOLVED WITH IT

Next, there are a series of statements about weight control and its risks. Mark in the column whether or not you agree with each statement.

	Yes	No
33. Sudden changes in weight do not affect one's physical or mental health.		
34. Increasing training sessions and decreasing intake increases the stress that is put on the body.		
35. Skipping meals is justifiable when you need to achieve rapid weight loss.		
36. Weight loss causes an imbalance in energy reserves and body fluids.		
37. Bulimia nervosa is characterized by large binges followed by self-induced vomiting.		
38. An athlete who suffers an eating disorder or who is at risk of suffering one has an increase in performance.		
39. The female athlete triad is made up of amenorrhea, osteoporosis, and an eating disorder.		
40. Eating disorders can be fatal.		
41. The combination of excessive sports practice and a prolonged decrease in food intake can cause bone mineral density loss (osteoporosis).		
42. Anorexia nervosa includes the failure to maintain a normal body weight for one's age and height as well as the intense fear of gaining weight.		
43. The energetic demands of an athlete vary according to the point in the season.		
44. The body needs a minimum level of fat to function correctly (6-13% for men and 12-18% for women).		
45. Monitoring your weight is an adequate way to monitor the effect of a change in your diet.		
46. When you lose weight, you only lose body fat.		
47. A growing person (normally until 18-20 years of age) has different demands than a person who has finished growing.		
48. Body composition can change through reduced intake and/or increased exercise.		
49. Monitoring urine color is a good method to monitor your level of hydration.		
50. When an athlete suffers from an eating disorder, the role of coaches and family is to detect the possible existence of a problem, to refer the athlete to a specialist, and to provide support in the treatment process.		

51. Do you regularly weigh yourself?
( ) Daily ( ) Weekly ( ) Monthly ( ) Less frequently ( ) Never

52. How many meals do you eat per day? (e.g. breakfast, mid-morning snack, lunch, afternoon snack, and dinner)
( ) One ( ) Two ( ) Three ( ) Four ( ) Five ( ) Six or more

53. Have you ever modified your weight to compete? If you respond NO, skip to question number 58.
( ) Yes, I have lost weight ( ) No, I have never changed my weight to compete

54. Have you had any supervision or recommendations in this weight loss process? From whom? Mark all that apply:
( ) No one ( ) Coach ( ) Other athlete
( ) Family member ( ) Friend ( ) Club manager
( ) Dietician ( ) Doctor ( ) Other (_____)

55. Mark the degree of influence that each person listed below has had when you have tried to change your weight (e.g. reference person in your sport, person who provides information, gives you advice, etc.). (0 = no influence / 10 = maximum influence)

Yourself	0 1 2 3 4 5 6 7 8 9 10
Teammates	0 1 2 3 4 5 6 7 8 9 10
Coach	0 1 2 3 4 5 6 7 8 9 10
Physical therapist	0 1 2 3 4 5 6 7 8 9 10
Psychologist	0 1 2 3 4 5 6 7 8 9 10
Parents/family members	0 1 2 3 4 5 6 7 8 9 10
Friends	0 1 2 3 4 5 6 7 8 9 10
Doctor	0 1 2 3 4 5 6 7 8 9 10
Internet/ forum	0 1 2 3 4 5 6 7 8 9 10
Dietician	0 1 2 3 4 5 6 7 8 9 10
Other (_____)	0 1 2 3 4 5 6 7 8 9 10

56. Have you ever been clinically diagnosed with an eating disorder? (mark all that correspond)
( ) No ( ) Anorexia ( ) Bulimia ( ) Other (which?) _____

57. Indicate whether you have ever used the following methods to lose weight. Mark the corresponding box.

	Always	Sometimes	Rarely	Never
Eat less				
Restrict carbohydrates				
Restrict fats				
Skip meals				
Fast (refrain from eating all day long)				
Reduce liquid intake				
Refrain from drinking				
Increase exercise				
Sauna				
Use laxatives, diuretics…				
Vomit				
Other (_____)				

58. Indicate the degree of satisfaction you have with your body on a scale from 0 to 10, with 10 being very satisfied _____
59. Indicate the degree of satisfaction you have with your weight on a scale from 0 to 10, with 10 being very satisfied _____
60. What is your ideal weight? _____
61. Do you think you have sufficient knowledge of the following? Respond using a scale from 0 to 10, with 10 being the most knowledge)
Nutrition and diet _____
Weight control _____
Risks involving weight control (anorexia, bulimia…..)_____

62. Have you ever received information about the following? (mark any that apply and fill in from whom you received the information)
( ) Nutrition and diet (I've received information from _____)
( ) Weight control (I've received information from _____)
( ) Weight control risks (anorexia, bulimia…) (I've received information from _____)
( ) Other (_____) (I've received information from _____)

63. What results do you find when you lose weight? (mark any that apply)
My performance ( ) Worsens ( ) Does not vary ( ) Improves
My health ( ) Worsens ( ) Does not vary ( ) Improves
My appearance ( ) Worsens ( ) Does not vary ( ) Improves

64. Do you think there is a problem related to weight control in your sport? (e.g. lack of knowledge, habits, environment, etc.)
( ) No ( ) Yes (If yes, what?) _____

65. Do you think there is a problem related to eating disorders (anorexia, bulimia,…) in your sport? (e.g. lack of knowledge, habits, environment, etc.)
66. ( ) No ( ) Yes (If yes, what?) _____

THANK YOU FOR YOUR COLLABORATION!

Comments (use this space to make any observations or comments regarding any aspect touched on in this questionnaire):

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