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Eating Behaviour of Competing Fitness Sports Athletes in Finland



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Abstract

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The purpose of the thesis was to examine eating behaviour of athletes competing in official fitness sports in Finland. To gain better understanding of the topic, fitness sports and its history, and eating behaviour, and its disorders were studied.

The commissioning party was Finnish Fitness Sport Association. It is an association the purpose of which is to promote and develop fitness sports and bodybuilding. The aim of the thesis was to provide the commissioning party with beneficial information tools that could be used for improving and developing coaching.

The thesis employed a quantitative research method. Webropol was used to create an online questionnaire for data collection. The form was distributed by the commissioning party to the fitness sports athletes who had purchased a competition license for the year 2023. Overall, the anonymous questionnaire was sent to 544 athletes, and 253 of them responded. Thus, the response rate was 47%. The data was collected to find answers to the following research questions: 1. What is competing fitness sports athletes' eating behaviour like?, 2. How common eating disorder behaviour is among competing fitness sports athletes? and 3. Are there differences between the genders regarding eating behaviour of competing fitness sports athletes?

According to the research results, it can be stated that eating behaviour of competing fitness sports athletes is food centric. It manifests as weighing and thinking of food and strictly following the diet. Despite of the appearance of some disordered eating behaviour traits in a small group of the athletes, their eating behaviour is healthy overall. In general, men and women have a relatively similar attitude to eating and training. However, the study indicated significant differences between the genders by showing that men had more habits associated with eating disorders. The research may be continued by comparing the eating behaviour of fitness sports athletes and athletes of other sports. In addition, the research on eating behaviour of Finnish male fitness sports athletes should be continued as previous research has focused on only female fitness sports athletes.

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1 Introduction

Fitness sports' popularity continues to grow. There are 2000 competitors in Finland, and it is a popular topic in different media platforms. (Finnish Fitness Sports Association [FFSA], n.d.-b) In general, eating disorders and nutrition are widely spoken topics in Finnish media (Armero, 2022; Heikkilä, 2020). The factors affecting the choose of thesis topic were the commissioning party's need and the authors' interest in fitness sports, nutrition, and wellbeing.

1.1 Previous research

Very little research has been conducted on this subject. The only research found about this specific topic were Finnish master's and bachelor's theses and focusing on one of the fitness sports per research. They were also delimited to either, men or women. (Juntunen, 2019; Lepistö, 2022; Mikkola, 2018). International research found were university level theses and mostly about body-builders, but also delimited to one gender. (Money-Taylor et al, 2021; Ravaldi et al, 2003).

A few qualitative and quantitative research has been conducted previously regarding fitness athletes' eating behavior in Finland. Mikkola (2018) has implemented qualitative research on Body fitness - The experiences of eating and body image by the competitors. She submitted a proposal for further research on eating behaviour of fitness competitors on a larger scale. (p. 50). Juntunen (2019) has implemented quantitative research on eating behaviour of bikini fitness athletes. She studied athletes' eating behaviour, and possible contributing factors causing disordered eating behaviour.

There has been done a cross-sectional study called: The diet quality, energy availability and eating disorder symptoms in strength and physique athletes. (Lepistö, 2022). The study researched eating behaviour of fitness and strength athletes, and a comparison group. Lepistö stated that it would have been interesting to research the athlete's history of eating disorder behaviour. (p. 60).

1.2 Commissioning party

The commissioning party was Finnish Fitness Sports Association [FFSA], (Suomen Fitnessurheilun Ry.) which is the official representative of International Fitness and Bodybuilding Federation [IFBB]. FFSA was founded in 1992, and it is also an official member organization of the Finnish Olympic and Paralympic Committee. FFSA also co-operates with the official Finnish Center for Integrity in Sports fighting against use of doping as part of the antidoping program. FFSA is an association whose purpose is to drive and develop fitness sports and bodybuilding. FFSA arranges courses and other educational matters for coaches and athletes as well as organizes competitions and hosts coaching conferences. (FFSA, n.d.-c)

This thesis is based on quantitative research whose purpose is to continue the research and discover the current situation of the athletes' eating behaviour and whether eating disorder behaviour appears among competing fitness athletes in Finland. The aim of the thesis is to provide beneficial information for the commissioning party that could be used for coaching development purposes.

1.3 Research purpose and aims

The aim was to provide beneficial information for the commissioning party FFSA that could be used for improving and developing coaching. The authors' aim was to gain a deeper understanding of fitness sports and eating behaviour and its disorders that supports their professional competency and expertise. By implementing this research, the authors wished to discover what is currently competing fitness sports athletes' eating behaviour like. This research sample is delimited to research only competing fitness athletes in Finland including both, men and women. The purpose was to discover whether eating disorder behaviour appears among competing fitness sports athletes. The results were also reviewed comparing the answers by gender. The research questions were the following: 1. What is competing fitness sports athletes' eating behaviour like?, 2. How common eating disorder behaviour is among competing fitness sports athletes? and 3. Are there differences between the genders when it comes to eating behaviour among competing fitness sports athletes?.

2 Fitness sports and the history of bodybuilding

Fitness sports are relatively new, and they are split from bodybuilding. In fitness, use of doping is widely regulated. The intention is to present aesthetically athletic and proportioned muscular body. The overall performance reviewed by the judges includes the physique, the aesthetics and presenting show skills. (FFSA, n.d.-b).

Fitness sports have fast increased their popularity over the past decades. Reasons for fitness sports becoming more and more popular are not easy to state because this topic has yet been researched very little. However, possible reason may be the expectations of the society that fitness sports fill. Individualism and efficiency are highly valued today. (Isola, 2018).

Gold's Gym in Venice Beach, California is seen as a significant symbol for the gym business. This is the place where Arnold Schwarzenegger started training in the 1970's with his friend Franco Columbu. They decided to produce a film based on a book called *The Art and Sport of Bodybuilding* written by Charles Gaines and George Butler (1974). The film followed their competition preparing journey for Mr. Olympia and Mr. Universe in 1975. The film also followed the journey of their fellow bodybuilders Ken Waller, Mike Katz, Bill Grant, Frank Zane, and Lou Ferrigno. (Ourama, 2022.) Not long after the film, the popularity of bodybuilding had a steep increase in the 1980's. (Andreasson & Johansson, 2014, p. 92 as cited in Gaines & Butler, 1974; Klein, 1993).

Lisa Lyon won the Women's World Pro Bodybuilding Championship in Los Angeles in 1979. This was the first contest for female bodybuilders organized by The International Fitness and Bodybuilding Federation [IFBB]. Therefore, she is seen as the first official female bodybuilder. Ritva "Kike" Elomaa was the first Finnish female bodybuilder to win the contest of Ms. Olympian in 1981. (Ourama, 2022.) The film *Pumping Iron* had a follow up released in 1985 that focused on four women preparing for Caesars Palace World Cup Championship which can be seen as a breakthrough for female athletes' participation in fitness sports. (Andreasson & Johansson, 2014, p. 92 as cited in Gaines & Butler, 1974; Klein, 1993).

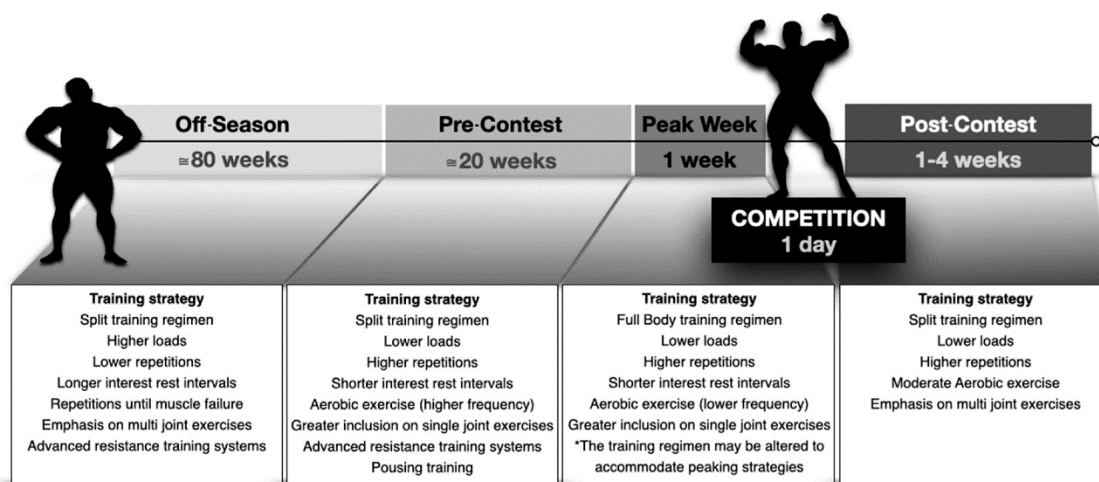
Fitness has kept its place as a popular sport. Fitness is one of the fastest growing, and one of the most doping tested sports in Finland. There are over 90 000 enthusiasts and 2000 competitive athletes. (FFSA, n.d.-a) Today, more women than men compete in fitness sports in Finland as the number of men competitors is decreasing year by year (Isola, 10.4.2023).

2.1 Fitness athlete's training cycle

Training of fitness athletes is divided into three main seasons which are off-season, pre-contest also known as in-season and post-contest (Table 1). The division of training seasons is called periodization (Lorenz & Morrison, 2015). The goal of off-season is to maximize muscle hypertrophy to align with the desired criteria of the sport. In the off-season the loads are higher, and the exercise repetitions are lower which is the opposite compared to the other training season where the loads are lower and the repetitions higher. Pre-contest season, also known as in-season, the goal is to preserve the gained muscle mass while reducing body fat mass. (Alves et al, 2020.) In the pre-contest season, the training consists of aerobic and strength training as well as posing practicing (Isola, 2017). Peak week is the last week right before the competition. Peak week's training regimen differs from other training weeks because that is when the athlete has a full body training regimen which is usually split by muscle groups. The purpose of post competition phase is to restore the body from the inconvenient physiological changes. (Alves et al, 2020.)

Table 1:

Training cycle divided into phases. (Alves et al, 2020)



According to Robinson et al, (2015 pp. 4,6) fitness athletes train 4- 5 times per week. Each muscle group is targeted once or twice per week. Posing practicing is performed 2-4 times week. Form of aerobic training called low-intensity steady-state training (LISS) and high intensity interval training (HIIT) combined is performed 1-6 times per week. (Robinson et al, 2015.)

2.2 Fitness athlete's nutrition

Nutrition has a great impact on individual's health and development. It is possible to improve the immune system, extend the lifespan and lower the risk of lifestyle diseases by following the

official nutrition and food recommendations. (World Health Organization [WHO], n.d.) Nutrition also plays a significant role considering mental health as, for example most of the monoamine neurotransmitter called serotonin is produced in gastrointestinal tract (Selhub, 2022).

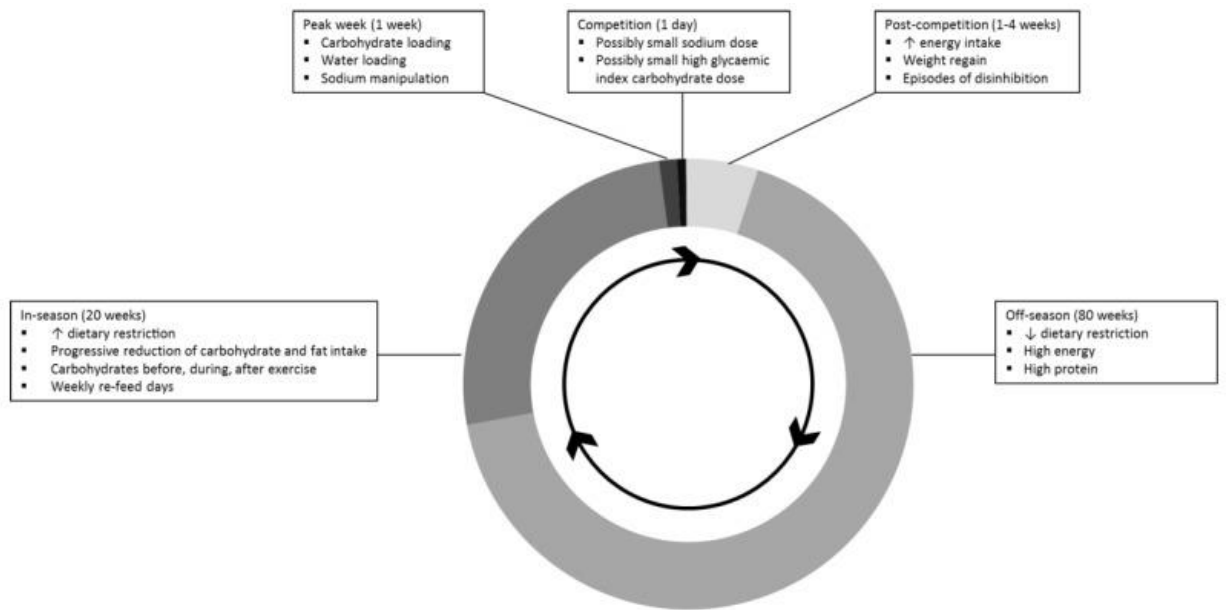
Sources of energy can be divided into three main categories. These categories are carbohydrates, proteins, and fats. Carbohydrates is one of the main energy sources. The need for carbohydrates varies widely from 4.0 to 12.0 grams per kilogram of body weight per day depending on the sport, the season, the intensity of training and the total number of hours. The optimal amount of protein for athletes is from 1.4 to 2.0 grams per kilogram of body weight per day. A higher amount of protein from 2.0 to 2.5 grams per kilogram of body weight per day may give an additional benefit when trying to reach the maximum muscle growth, recovering from injury, or resuming training after a long break. The optimal amount of fats for athletes is from 1.0 to 2.0 grams per kilogram of body weight per day. (Terveurheilija. n.d.-a)

The general recommendation for carbohydrates is 45-60%, protein 10-20% and fat 25-40% of energy intake (E%) (Nordic Nutrition Recommendations. 2022). The suggested daily energy intake for bodybuilders is 55-60% carbohydrates, 25-30% protein and 15-20% of fat. The recommendations for E% do not vary on and off season, but the calorie intake in total decreases. (Lambert et al, 2004.)

Figure 1 visualizes, the fitness sports athletes' diet is adapted to the ongoing training season. During off-season, the athlete usually consumes four to six meals per day. The main target of off-season nutrition is to increase muscular hypertrophy, which is why protein intake is high. Off-season may also allow processed foods that are restricted during in-season, such as ice cream. Even though the sources of calorie intake are similar compared to off-season, during in-season the nutrition guidelines are stricter. Carbohydrates and fat intake are progressively decreased during the diet. However, to maintain the wanted muscle mass, protein intake remains similar compared to off-season. (Mitchell et al, 2017.)

Figure 1

Nutrition consumption in a cycle. (Sports, 2017)



3 Eating behaviour and its disorders

LaCaille (2022) defines eating behaviour as follows: "Eating behaviour is a broad term that encompasses food choice and motives, feeding practices, dieting, and eating-related problems such as obesity, eating disorders, and feeding disorders." (p. 641). People make numerous food choices during the day, and what and how much people eat, has a significant impact on their health. Factors affecting individual's eating behaviour can be internal or external or both. Internal factors are physiological such as hunger and satiety, and psychological such as knowledge and self-regulation. External factors are cultural such as values, and socioeconomic status. (LaCaille, 2022, p. 641 as cited in Larson & Story, 2009; Valtion ravitsemusneuvottelukunta [VRN], 2010, p. 256.)

3.1 Eating disorders

Eating disorders are part of mental disorders. They are most common among adolescents and young females. In addition to abnormal eating behavior, eating disorders are accompanied by a decline in physical, psychological, and social functioning. The most common eating disorders are anorexia nervosa, bulimia nervosa and binge eating disorder. (Finnish institute for health and welfare [THL], 2022). The most common disorders have many similar physiological, behavioral, and physical symptoms. The common physiological and behavioral symptoms are, for example, an overall concern about dieting and body image. Individuals feel uncomfortable to eat with others, and they are refusing to consume certain foods, or they even might avoid a whole energy source, for example, carbohydrates. They might feel a need to control the food, or the mealtimes to skip meals and frequently to diet. The common physical symptoms are fluctuations in weight, stomach cramps and irregularities of periods and erectile dysfunction. Individuals may also have sexual problems such as reduced libido, sexual dissatisfaction and reduced sexual activity. They may face difficulties concentrating, dizziness and dental problems. (Beerens et al, 2014; Holland, 2023; National Eating Disorders Association [NEDA], n.d.-e)

Anorexia nervosa is associated with having trouble to maintain the appropriate body weight for the individual's age and height. Individuals with anorexia are controlling the calorie intake and what foods they eat. Common symptoms of some that suffer of this disorder are exercising obsessively, misuse of laxatives, or self-induced vomiting. Many experiences distorted body image in a way that even if the individual is remarkably thin, they feel overweight. Common symptoms

of anorexia nervosa are often denying hunger and dressing in layers to hide their body. Physically they may experience thin body hair called lanugo and dry skin, nails, and hair. (NEDA, n.d.-a)

Bulimia nervosa involves frequent binge eating and action that reverses its effects, such as self-induced vomiting for fear of weight gain. Other compensatory behaviors for binge eating can be misuse of laxatives, fasting and overtraining. Individuals experience a compulsive need to eat and a lack of control when and what to eat. Other common symptoms are that individuals disappear after eating, usually to the bathroom and they have unusual swelling around neck and cheek area. As a result of self-induced vomiting, cuts around top finger joints may appear and discoloration of teeth. (NEDA, n.d.-c)

Binge eating disorder includes uncontrolled eating usually quickly until discomfort and afterwards feeling shame and guilt. Individuals are not regularly using unhealthy behaviors to compensate the effects of binge eating unlike in bulimia nervosa. They might make schedules to have time for binge eating sessions. Because of bingeing they may experience stomach cramps and other non-specific gastrointestinal complaints such as acid reflux. (NEDA, n.d.-b)

3.2 Eating disorders among athletes

It has been established that athletes are at a higher risk of experiencing eating disorder symptoms compared to the rest of the population. (Poikkimäki et al, 2017a). Eating disorders are part of mental disorders in professional sports. Pre-phase of eating disorders is called eating disorders not otherwise specified (EDNOS). It has the features of eating disorders but does not fill the diagnosis. Despite the gender a fifth of young athletes and a quarter of adult athletes suffer from EDNOS. (Terveurheilija, n.d.-b).

The most common eating disorder symptoms for women athletes is binge eating and if including both, girl and women athletes the most common symptom is controlling the nutrition intake for the purpose of losing weight. Boy athletes usually do weight management through excessive training. (Poikkimäki et al, 2017a.) In many cases the symptoms of eating disorders start from the idea to eat healthy. Even the smallest symptoms affect the recovery, performance, and state of health. (Terveurheilija, n.d.-b) There are many risk factors for athletes that expose to eating disorder symptoms. These are, for example: sports that are appearance-oriented, endurance and individually performed sports; coaching that does not consider the athlete as an individual but focuses on the success and performance; too early age sport specific training and athletes' own

perfectionism; lack of trust in the coaching relationship and fear of gaining weight; culture-specific, and media-set ideals and pressures. (NEDA, n.d.-d; Terveurheilija, n.d.-b)

Factors that may prevent eating disorders for athletes are many. Coach plays an important role in the prevention work because they are responsible for how they speak to their athletes and what kind of behavior they consider acceptable when treating fellow athletes. There should not appear negative tone when speaking of anyone's body, food or weight, and the coach should encourage the athletes to eat well to develop and not to leave any food on the plate. Coaches are accountable of the coaching style, and it is important that it is individual oriented and supportive. The relationship between the coach and athlete should be trusting and safe. Coach has a responsibility to react if they notice any kind of eating disorder behavior. (Syömishäiriökeskus, 2020.)

The Figure 2 illustrates, the appearance of eating disorder symptoms in different sports. 49% of boy and male athletes and 38% of girl and female athletes experienced eating disorder symptoms in weight-class sports. In aesthetic sports the percentages experiencing symptoms for boy and male athletes is 14 and girl and female athletes is 27. (Terveurheilija, n.d.-b)

Figure 2

The commonness of eating disorder behaviour in different sports. (Poikkimäki et al, 2017b, Terveurheilija).



Note. First row from left to right: endurance sports and weight-class sports. Second row from left to right: ball sports and aesthetics sports. Red circle represents girls and women, and green boys and men.

3.3 Eating disorders in fitness sports

It has been established that sports that are aesthetic and include weight loss, judging and dietary restriction may predispose to eating disorders. Aesthetic athletes show more desire for thinness, symptoms of bulimia nervosa and concerns about weight. (Money-Taylor et al, 2021; Poikkimäki et al, 2017a; Van Durme et al, 2012). Female aesthetic athletes and bodybuilders are at a higher risk for eating disorders and they show more disturbed eating behaviour and thoughts than males, ones participating sports with less emphasis in terms of appearance and non-athletes. (Money-Taylor et al, 2021; Van Durme et al, 2012).

It has been observed that fitness athletes are not concerned about the body image, as they were satisfied with their appearance (Lepistö, 2022, p. 60) but it has also been established that male bodybuilders experience more body dysmorphia than the regular population. Features of body dysmorphia are changed perception of body size which causes disbelief of muscle and body development. These thoughts may lead to physical hyperactivity, unbalanced diets and even use of anabolic drugs. Usually, athletes with symptoms of body dysmorphia, they want to gain the maximum weight so they can increase the muscle mass. (Ravaldi et al, 2003.)

Juntunen (2019, pp. 23, 41) discovered in the research of hundred participant that none of the respondents were diagnosed with eating disorder. 11% of bikini fitness athletes had eating disorder background. Most of them experienced concerning eating disorder behavioural patterns such as weighing food and constantly thinking about food. Some fitness athletes found it challenging to eat after competition season. They have got higher points in a eating disorder questionnaire in the section that dealt with restricting eating. These answers were justified by possible sports requirements. (Mikkola, 2018, pp. 32, Lepistö, 2022, pp. 58-59.)

4 Research questions and hypotheses

The purpose of the research was to create and conduct a questionnaire of eating behaviour for competing fitness sports athletes. The purpose was to clarify what is competing fitness sports athletes' eating behaviour like and does disordered eating behaviour appear. Based on the purpose of the thesis, three research questions and hypotheses were created, and they are the following:

1. What is competing fitness sports athletes' eating behaviour like?

Hypothesis: The study of bikini fitness athletes' eating behaviour stated that the bikini fitness athletes' eating behaviour is food centric. It manifests in thinking of food and strict following of the diet. (Juntunen, 2019.) In this research it was assumed that the eating behaviour might be food centric and disordered eating behaviour may appear.

2. How common eating disorder behaviour is among competing fitness sports athletes?

Hypothesis: In the cross-sectional study that researched eating behaviour of fitness and strength athletes and the comparison group, significant differences between the answers were not found. (Lepistö, 2022.) In this research it was assumed that eating disorder behaviour is not remarkable common.

3. Are there any differences between the genders when it comes to eating behaviour among competing fitness sports athletes?

Hypothesis: The literature review shows that 38% of women and 49% men in the weight-class sports, and 27% of women and 14% of men in esthetics sports experienced eating disorder behaviors. (Poikkimäki et al, 2017a) In this research it was assumed that there are no remarkable differences in eating disorder behavior between the genders.

5 Research methods

Quantitative research requires a relatively big and relevant sample as it is determined to answer question using numbers and percentages. Often, standard questionnaires consisting of multiple-choice options are used. Quantitative research describes matters using numbers, correlation between them or changes happening in the researched phenomena. This provides the understanding of the current situation but the reasoning behind usually stays uncovered. (Heikkilä, 2014a.) This research answered to the question: What is competing fitness athletes' eating behaviour like?

Quantitative research can usually tell the existing situation, but it is not possible to sufficiently expose the cause of things. (Heikkilä, 2014a.) This research was implemented to clarify what is competing fitness athletes' eating behaviour like, and does disordered eating behaviour appear, not the cause or the origin of the behaviour. According to Heikkilä (2014a), ways to gather data for quantitative research are questionnaires, interviews, and phone calls. In this research, a Webropol questionnaire was used to gather the data. The questionnaire method was chosen to preserve the anonymity of the respondents.

5.1 Research process

The thesis process started in November 2022 by narrowing down the topic and choosing the target group. The target group we chose was the fitness athletes who possess a competition license for year 2023. This specific group was chosen to receive as reliable information as possible about the current situation of eating behavior regarding fitness sports.

Thesis plan was presented in the week 9 in March 2023. The questionnaire was sent after the presentation, and time given for responses was two weeks, until week 11 in March. The questionnaire was sent to the athletes via Finnish Fitness Sports Association. The questionnaire was created on the Webropol platform, and the answers were gathered anonymously.

5.2 Research instrument

To help create the content of the questionnaire, a previously implemented questionnaire on bikini fitness athletes' eating behaviour (Juntunen, 2019) was used as a model. Some changes were made by adding a few questions to receive a more comprehensive description of the current situation. The final questionnaire consists of four logical sections, and it is presented in Appendix 1.

The first section of the questionnaire includes 13 questions of the general information about the athletes, such as age, weight, height, gender, education, eating disorder background, motives to start fitness sports, own sport, competition experience, phase of the training period, and regularity of menstruation and morning erections. The athletes' age was asked to obtain the age distribution, and the average age of the athletes. The athletes' weight and height were included in the questionnaire to be able to calculate their body mass index [BMI] to discover possible cases of underweight. Muscle mass increases the body weight. Therefore, BMI may give incorrect information about muscular people even if the body fat mass was low. (Mustajoki, 2020). This is why BMI was not used to clarify whether the athletes are overweight or not. Athletes' gender and sport were asked to see the gender distribution and the division of the sports the athletes compete in. Education level was included in the questionnaire to discover the socioeconomical status of each athlete because it has been stated to affect to an individual's eating behaviour. (LaCaille, 2022, p. 641 as cited in Larson & Story, 2009; Valtion ravitsemusneuvottelukunta [VRN], 2010, p. 256.). Eating disorders background and motives to start fitness sports were asked to learn are the athletes who have or have had eating disorder background drawn to fitness sports. The competition experience was asked to see whether it affects the individual's eating behaviour. The phase of the training period was asked because it may affect to the tone of the answers. Lastly, the regularity of menstruation and morning erections were asked because irregularities of those are one of the symptoms of eating disorders. (Holland, 2023; National Eating Disorders Association [NEDA], n.d.-e).

The second section was about coaching, and it included six questions and statements. These were the following: does the athlete have a coach, coach's experience in years and their education background, trust and co-operation between the athlete and the coach, and support received by the athlete. The statements employed a Five-Point Likert scale (1 = totally disagree, 2 = partially disagree, 3 = neither agree nor disagree, 4 = partially agree, 5 = totally agree) which allowed the athlete to choose the best suitable option to describe their trust and co-operation with their coach. This section aimed to investigate the correlation of coaching and an athlete's eating

behaviour and to find answers to the second research question: How common eating disorder behaviour is among competing fitness sports athletes?.

Third section was about training, and it included nine questions and statements. They focused on the following matters: the amount of training per week, feelings about training and recovery. The statements employed a Five-Point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often 5 = always) which was used to clarify the frequency of the feeling that they had when talking about training. This section aimed to investigate whether the athletes have habits related to disordered eating behaviour such as a compulsive need to train, causes of stress, and overtraining. (Terveurheilija, n.d.-b). This section answered to the second research question: How common eating disorder behaviour is among competing fitness sports athletes?, and the third research question: Are there any differences between the genders when it comes to eating behaviour among competing fitness sports athletes?.

The fourth and the last section was about eating, and it consisted of 22 questions and statements. They dealt with the following matters: the origin of the athlete's diet, use of supplements, avoidance of foods, eating certain foods only because they are told to or because the foods are healthier than others, following the diet, feelings about eating and actions during or after eating. Also, these statements employed a Five-Point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often 5 = always and 1 = totally disagree, 2 = partially disagree, 3 = neither agree nor disagree, 4 = partially agree, 5 = totally agree) which helped to clarify the frequency of the feelings and actions that they had when talking about eating. This section aimed to investigate athletes' eating behaviour and to discover whether they had action patterns that are usually associated with disordered eating behaviour. This section answered to all of the research questions: 1. What is competing fitness sports athletes' eating behaviour like?, 2. How common eating disorder behaviour is among competing fitness sports athletes? and 3. Are there differences between the genders when it comes to eating behaviour among competing fitness sports athletes?.

5.3 Pilot study

The purpose of the pilot study was to improve the quality of the main study by receiving feedback from the pilot study participants, such as modification suggestions and to identify other possible necessary changes. The pilot study usually tests the feasibility of the study on a smaller scale. A

pilot study is a necessary initial step in the process. The aim of a pilot study is not to research the hypotheses of the study. (Leon et al, 2014.)

Pilot study was sent to through the commissioning party to a group of 32 official referees of fitness sports. The aim of the pilot study was to receive useful feedback that could assist to edit and finalize the questionnaire before sending it to the actual sample group. They were asked to focus on the tone and form of the questions, as well as whether some questions should be added or removed. They were also asked to record the time they spent filling it.

5.4 Sampling method

Convenience sampling was chosen as a sampling method which enabled the individuals of the selected target group to participate voluntarily. Convenience sampling is a usual choice for qualitative research. Motivation of the participating respondents plays a part affecting the study which brings a bias into the research (Stratton, 2021).

The questionnaire was ready to be sent out in the second week of March via email through the commissioning party. The target group was given two weeks of time to answer the questionnaire. The aim was to collect a minimum of 100 responses. Participation in the study was voluntary and anonymous which allowed the respondents to reply willingly and reliably. The questionnaire was provided in Finnish language.

5.5 Analysis

The thesis employed quantitative research method, and the analysis was done in a descriptively and using statistical reasoning (Pearson Chi-Square test). Webropol gave an automatically made analysis of the answers and it was possible to see the percentage distribution when comparing the answers. In addition to the Webropol report, Excel was used to construct graphs and tables. PSPP software was used to statistical testing (Pearson Chi-Square test (χ^2)) to present possible differences between men and women. Due to Chi-Square tests preconditions we had to combine some of the alternatives of the Five-Point Likert scale to gain three different values that enabled the use of Pearson Chi-Square test. The scale that was used in Pearson Chi-Square test was the

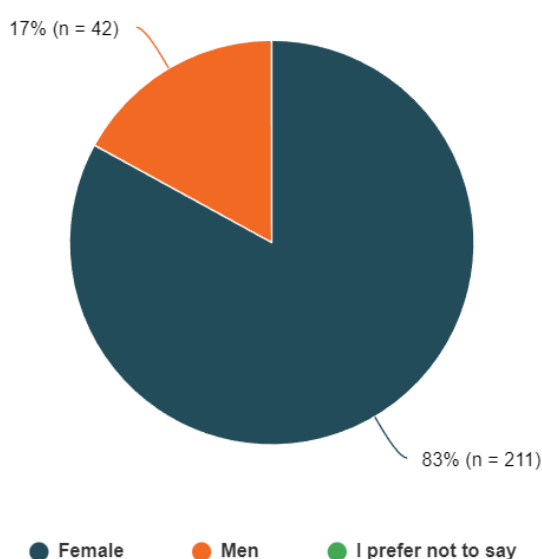
following: 1 = never or rarely, 2 = sometimes, 3 = often or always, and 1 = totally or partially disagree, 2 = neither agree nor disagree, 3 = partially or totally agree.

6 Results

The results are presented and analyzed descriptively. The Webropol questionnaire link was sent by the commissioning party to 544 a competition license of the year 2023 purchased athlete. Figure 3 presents the number of responses received as well as the gender distribution. 253 answers were received in total, giving the questionnaire a response rate of 47%. 17% (42) of the respondents were men and 83% (211) were women. The questionnaire was open for two weeks which gave the athletes plenty of time to participate. A reminder email was sent by the commissioning party a week after the opening, and another reminder was sent two days before closing the questionnaire. After the second reminder 25 more replies were received. Unfortunately, only 17% (42) of them were men which has its own affect when analyzing the results and comparing the genders. However, the age distributions range was from 16 to 57 years old. The average age was 30.

Figure 3

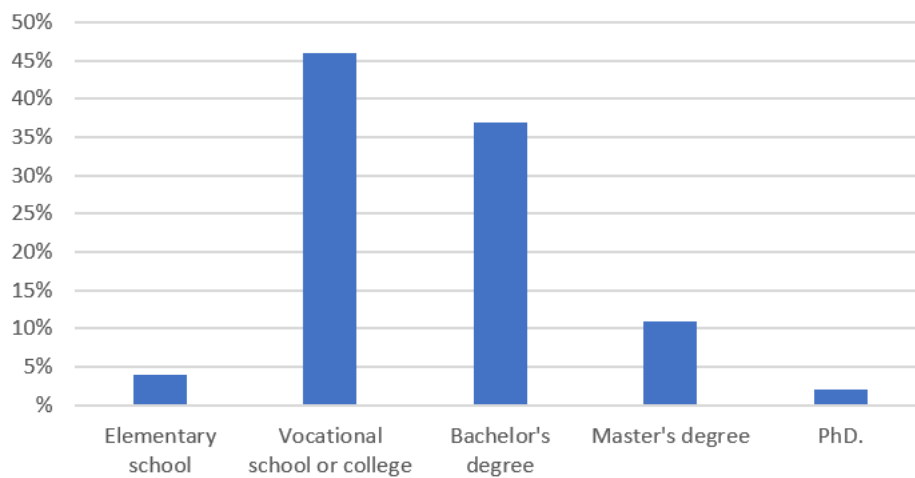
The gender distribution of respondents (n= 253)



The education level was asked because the socioeconomical status has shown effect on individual's eating behavior as young and/or uneducated people tend to eat more poorly. Figure 4 shows that only a small group of the athletes had a master's degree or a PhD. However, 30% (76) of respondents were younger than 25 years old which also explains the lower number of master's degrees as it is possible that these people are still studying and have not graduated yet.

Figure 4

Education level of the respondents (n= 253)



As can be seen in Figure 5, most of the respondents (240) did not have a diagnosed eating disorder. 5% (13) of the respondent have or have had diagnosed eating disorder. Only one of the athletes had an eating disorder diagnosis, and 12 have had one but did not suffer from it anymore. Athletes' (253) BMI was calculated to discover any cases of underweight. Only eight athletes of all respondents (253) were underweight according to the BMI chart.

Figure 5

The number of diagnosed eating disorders (n= 253)

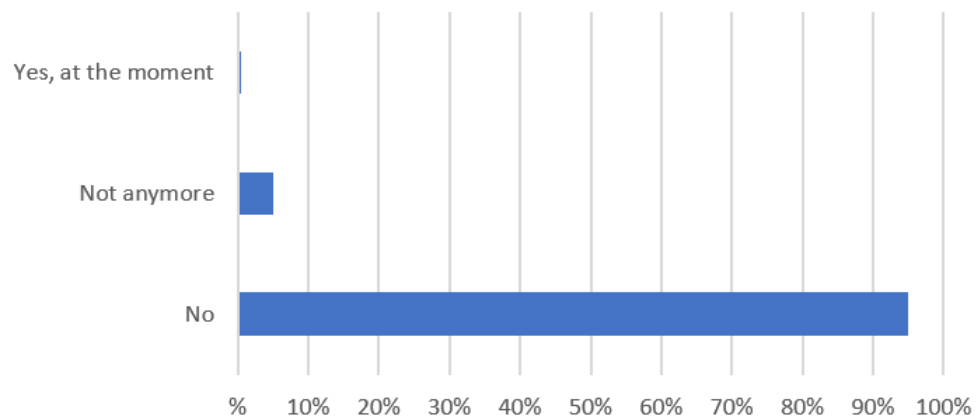
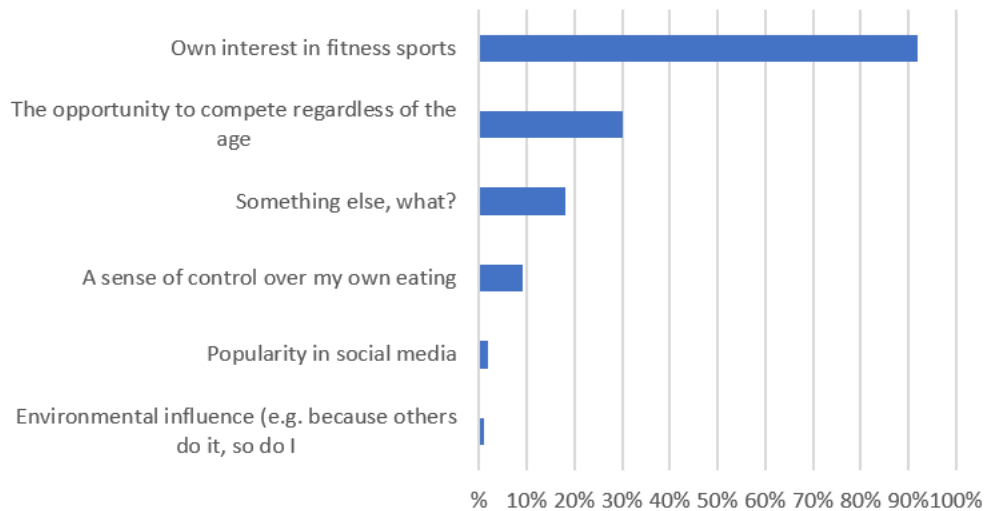


Figure 6 shows the most popular (234) reason to start fitness sports was athlete's own interest. The second popular (77) reason was the opportunity to compete despite the athlete's age. 18% (46) of athletes chose the "something else, what?" alternative that rose as the third popular reason replied. According to the replies, the most popular reason to start was "challenging myself". Other popular answers were "the possibility to compete without earlier sport-specific

background” and “gym training background”. According to the questionnaire, social media and other environmental matters have not significantly affected the athletes’ will to start fitness sports. 9% (24) of the respondents answered that the “sense of control over my own eating” was the reason they started fitness sports.

Figure 6

Reasons for starting fitness sports (n= 253)

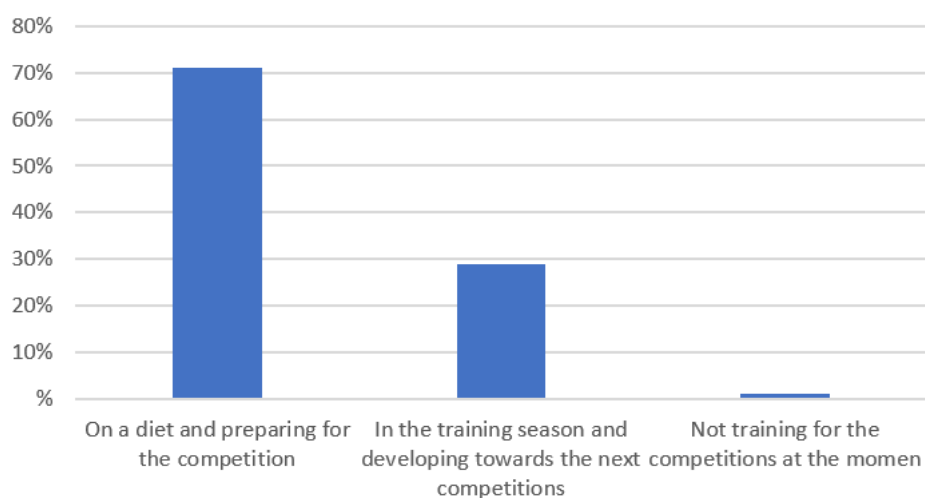


According to the replies, most of the female athletes competed in bikini or body fitness. Most of the men athletes’ sport was men’s physique. It was noticed that almost a half of the respondents are competing for the first time ever in year 2023. A majority of 70% (177) had competed twice or less. Therefore, it can be stated that most of the athletes did not have competing experience, or it was very minimal. (Tables in the Appendix 2).

According to Figure 7, most of the respondents were on the competition diet during the questionnaire. This is a significant factor that may affect the tone of the answers. This is because of the eating behaviour during the competition diet is usually more precisely regulated compared to the off season.

Figure 7

Phase of the training season (n= 253)



6.1 What is competing fitness sports athletes' eating behaviour like?

The sections of the questionnaire that were used to answer this research question were the third and the fourth section which were about training and eating. The section contained 22 questions and statements. These statements required an answer by using a Five-Point Likert-scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often 5 = always and 1 = totally disagree, 2 = partially disagree, 3 = neither agree nor disagree, 4 = partially agree, 5 = totally agree). These sections were used to clarify the frequency of the feelings and actions that athletes have when talking about eating, and its aims were to investigate the athletes' eating behaviour.

Most of the respondents (88%, 223) answered that their coach had made a diet plan for them. Rest of the athletes had made a diet plan for themselves, or they did not have a plan. As can be seen in Figure 8, 81% (205) of the athletes had not had to give up any foods because of the fitness hobby. The most common foods that were left out of the diet were sugar, fatty dairy and meat products, and white grains. 88% (223) of the respondents did not consume some foods because they were told to (Figure 8). This makes them responsible of their own nutrition choices. Rest of the answers showed that the foods that were told to be consumed were most commonly soft fat sources such as soy lecithin, olive oil and MCT oil. A majority of 92% (233) used averagely 4,5 supplements on daily basis. The most common supplements were vitamins, creatine, protein, and caffeine.

Figure 8

Adding or removing foods from the diet. (n= 253)

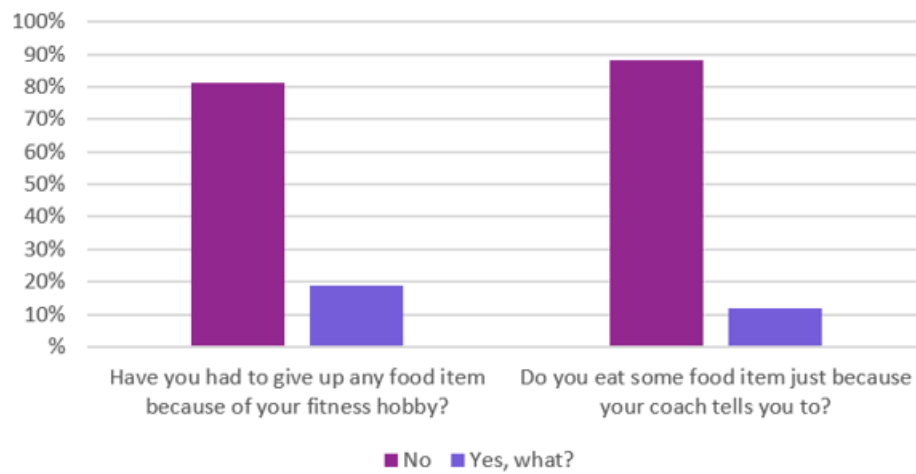


Figure 9 illustrates that weighing food is very common for fitness sports athletes whether they are on the competition diet or not. Most of the respondents weigh their food always or often. The athletes who were on a competition diet weigh food more often than the ones who were not currently dieting. Option “always” was chosen by the dieting athletes 22% (56) more often than by the athletes who were not on a diet. Option “often” was the most popular alternative for the ones who were not currently dieting.

Figure 9

The commonness of weighing food (n= 253)

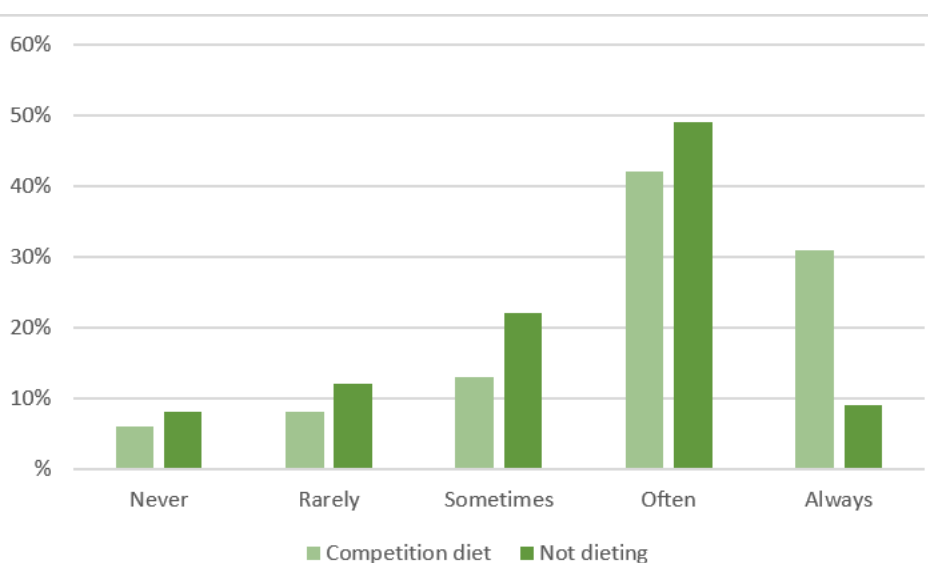


Figure 10 shows that 77% (195) of the respondents felt an uncontrollable urge to eat “never” or “rarely”. Minority (3%, 8) felt that way “often” or “always”. Vomiting after eating too much, was very rare among fitness sports athletes because 93% (235) answered that they never try to vomit after eating. Only 2% (4) of the athletes did it sometimes. Nobody picked the alternatives “often” or “always”. A fifth of the respondents avoided certain foods always or often, which is 1% more than the ones who had given up of some foods because of the fitness hobby.

Figure 10

Eating behaviour (n=253)

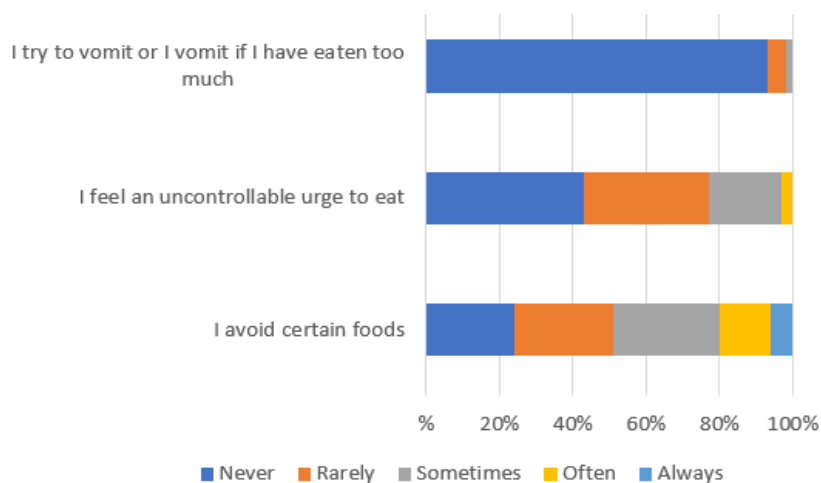


Figure 11 visualizes, that a majority of 84% (214) followed their diet perfectly always (74) or often (138). 59% (149) of the athletes ate when they feel hunger often (124) or always (26). 14 athletes answered that they never eat when they feel hungry. The question regarding calculating the intake of nutrition, 50% (66) answered option “always” or “often”. It can be stated that it is common that the athletes track their nutrition intake. Nearly all the athletes (96,4% 144) felt that they are in control of their own eating. Two athletes (0,8%) answered “never” and one (0,4%) answered “rarely” being in control of their own eating. Overall, these results are a bit concerning. There are quite high numbers on following the diet very strictly and not eating when hungry.

Figure 11

Eating behaviour (n=253)

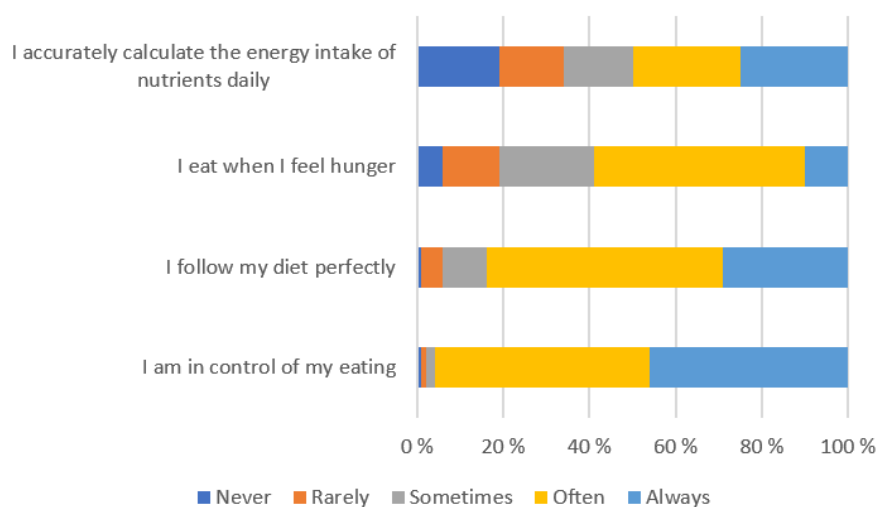


Figure 12 shows that nearly 80% (198) of the athletes thought that deviating from the diet would not affect negatively to the success in the competition, and they did not feel that they are better than other people because of the diet. Most of the athletes did not stress about eating nor think about it during waking hours. 27% (68) of the athletes thought about eating during waking hours “always or often”. A third of the athletes ate foods “always or often” because those are healthier than others, and a third answered to the same statement that they did it “never or rarely”. 65% (165) did not get anxious “always or often” if they had eaten foods that were not included their diet plan yet, a fourth of the athletes did get anxious if they had slipped from their diet plan.

Figure 12

Eating behaviour (n= 253)

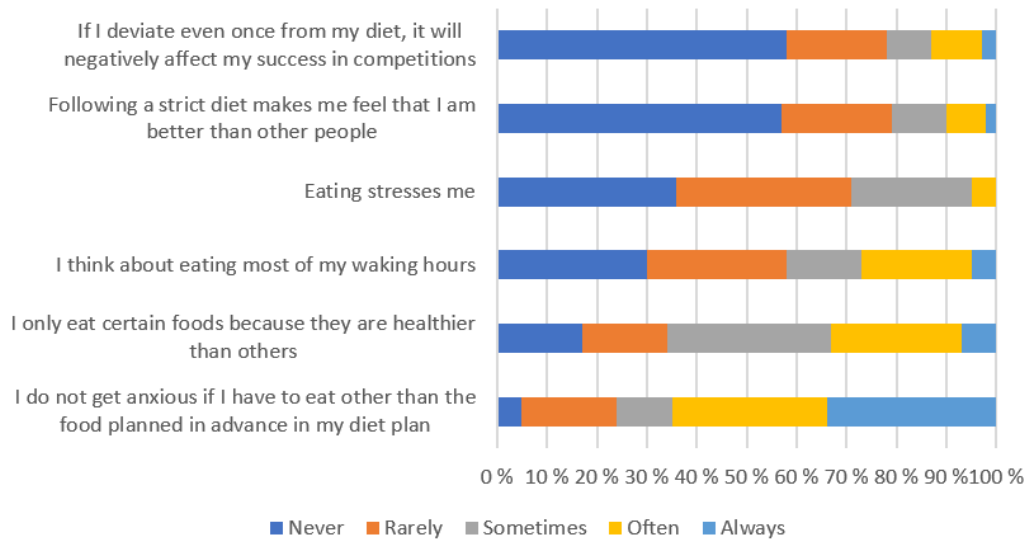
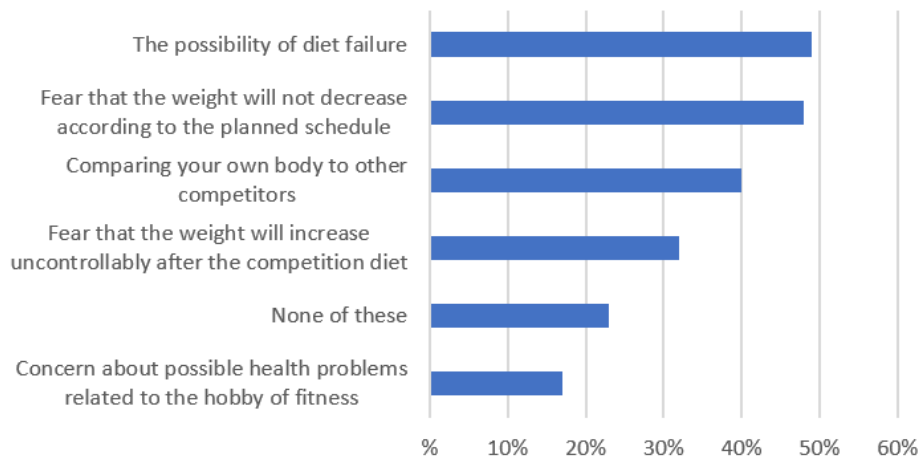


Figure 13 shows that nearly a half of the respondents felt that factors such as “the possibility of diet failure”, “comparing your own body to competitors” and “fear that the weight will not decrease according to the planned schedule” caused stress to them. 32% (81) of the respondents felt that “fear that the weight will increase uncontrollably after the competition diet” is a stress factor to them.

Figure 13

Stress factors (n= 253)



Based on the results, it can be stated that the eating behaviour of the competing fitness sports athletes is overall healthy. It is yet quite food centric, and some traits of disordered eating behaviour can be seen. Athletes weighing food was common on both, in-season and off-season. A half of the athletes calculated their energy intake daily. Most of the athletes did not avoid any

foods or cut out any foods of the diet. They ate when they were hungry, meaning they listened to their body, and they were in control of their eating. Correspondingly, athletes did not have anxiety if they had consumed foods that were not included in their diet plan, but they followed their diet strictly.

6.2 How common eating disorder behaviour is among competing fitness sports athletes?

The sections of the questionnaire that were used to discover the answers to this research question were the second, the third and the fourth section, which were about coaching relationship, training and eating. The second section aimed to investigate the correlation of coaching and an athlete's eating behaviour. The third section was used to investigate the training habits that are associated with disordered eating. The fourth section was used to investigate the athletes' eating behaviour. Together these sections of the questionnaire were used to clarify the commonness of eating disorder behaviour. Every section consisted of statements and questions. Most of them included a Five-Point Likert-scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often 5 = always and 1 = totally disagree, 2 = partially disagree, 3 = neither agree nor disagree, 4 = partially agree, 5 = totally agree). There were also simple questions and statements that gave only a yes/no alternatives to choose of.

Figure 14 illustrates that none of the athletes vomit after eating too much, and 3% (8) of them felt an uncontrollable urge to eat. A fifth of the athletes avoided certain foods "often or always" while a half of them did it "never or rarely". Two thirds of the athletes weighed their food "often or always", while the response rates to the same statement with answer options "never and rarely" were 16% (40).

Figure 14

Eating behaviour (n=253)



Figure 15 shows that calculating the energy intake is common as a half of the athletes did so “often or always”. A fifth of the athletes did not eat when they were hungry. However only 1% (3) felt they were “never or rarely” in control of their eating. A majority of 96% (244) were in control of their eating, and 84% (213) of the respondents followed their diet perfectly. Calculating the energy intake, avoidance of eating and very strict diet are habits that are related to disordered eating behaviour.

Figure 15

Eating behaviour (n= 253)

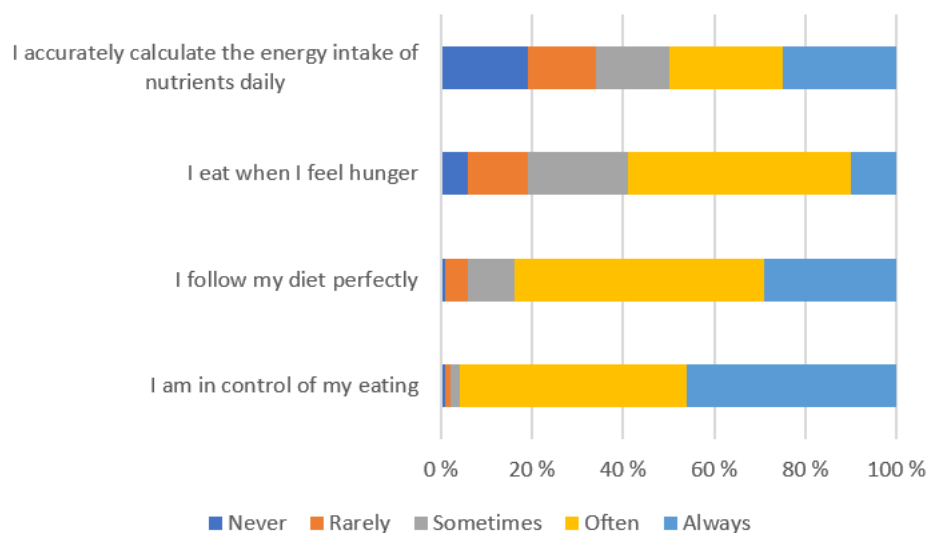


Figure 16 shows, that 13% (33) of the athletes thought “often or always” that, it would affect negatively to their competition success if they deviated from their diet plan. Most of the athletes answered to the statement that they felt that way “never or rarely”. A tenth of the

respondents felt that they are better than other people because of the strict diet, while a fourth felt that way “never or rarely. 5% (12) of the athletes told that eating stresses them often, but there were no “always” answers. Therefore, it can be stated that regarding these statements, a small group of the athletes experienced behaviour related to eating disorders. Nonetheless, a third of the respondents thought about food most of the time during the day and ate certain foods because they were healthier than others. A fourth got stressed if they had eaten something else than planned in their diet.

Figure 16

Eating behaviour (n= 253)

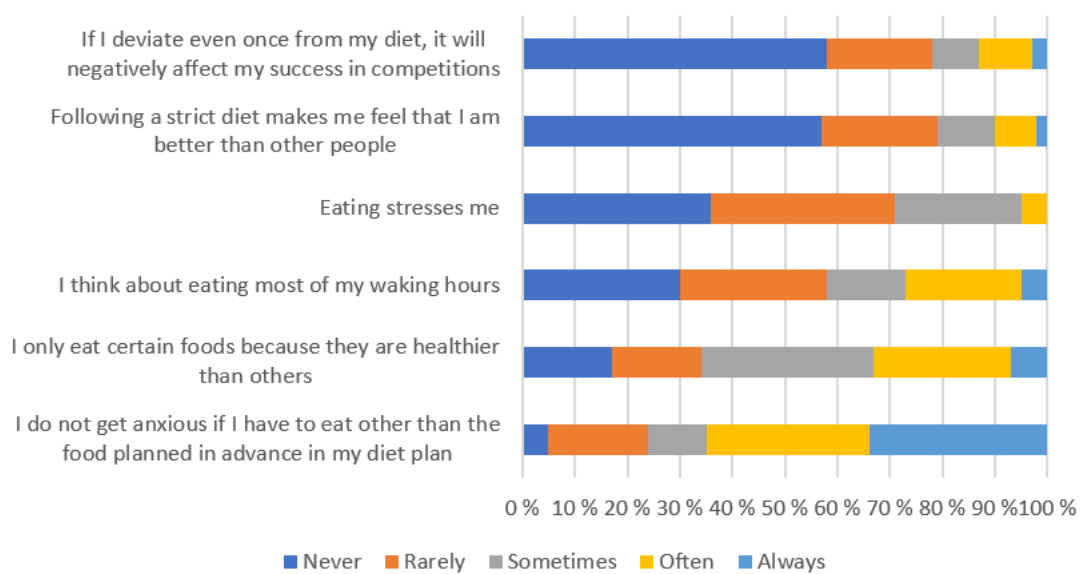


Figure 17 shows, that nearly a half of the athletes felt stressed about the possible diet failure, and not reducing the weight as planned. 40% (101) compared their own body to the fellow competitors, and a third were afraid of their weight increasing uncontrollably after the diet. These are quite big numbers for experiencing the symptoms of disordered eating.

Figure 17

Causes of stress (n= 253)

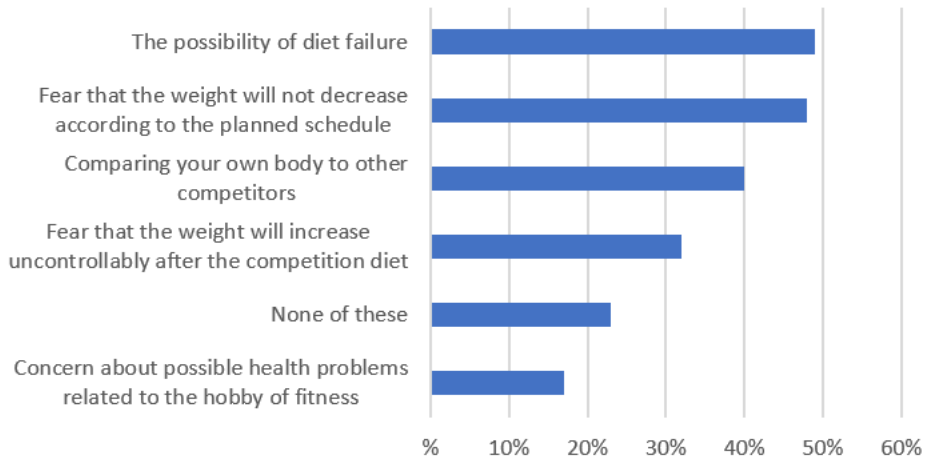


Figure 18 visualizes the amount of gym and aerobic training sessions as well as posing practicing per week. Fitness sports athletes performed an average of five gym training sessions per week. The average of aerobic training sessions and posing practicing was also five times per week.

Figure 18

How many training sessions athletes have per week (n= 253)

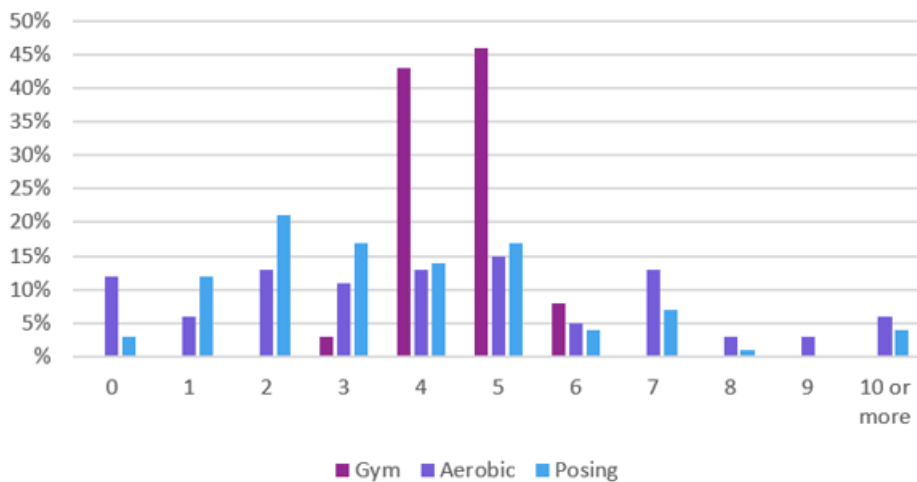


Figure 19 visualizes that a fifth of the athletes felt a compulsive need to train “always or often” and 39% (99) felt that way sometimes. Nearly all the respondents felt that training gave them good feeling “always or often” and all of them felt they had energy to train.

Figure 19

How the athletes felt about training? (n= 253)

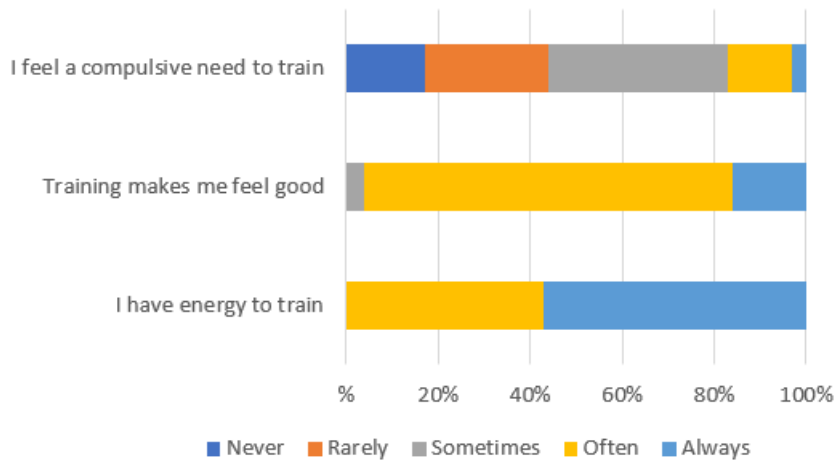
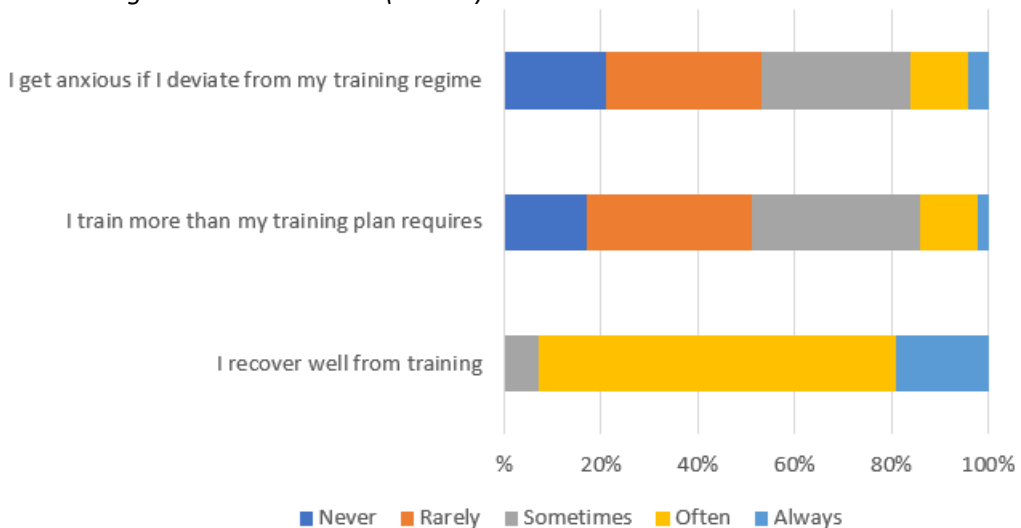


Figure 20 shows that 14% (34) athletes felt “always or often” anxious if they had deviated from their training plan and 31% (79) got anxious “sometimes”. Only 2% (4) of the athletes trained more “always or often” than required, and 35% (88) did it “sometimes”. Lastly, nearly all the athletes felt that they recovered well from the training sessions. It can be stated that most of the fitness sports athletes do not have training habits associated with eating disorder behaviour.

Figure 20

Did training stress the athletes? (n= 253)



Most of the athletes (239) had a coach, 13 of them are coaching themselves, and only one athlete did not have a coach as can be seen in Figure 21. The majority (94%, 238) of the ones who had a coach seems to trust their coach’s expertise. Ten athletes (4%) completely disagree with the statement “I trust my coach’s expertise”. Distribution of the answers were the same with

the statement “Co-operation with the coach runs seamlessly”. Figure 22 illustrates the parties that the athletes are supported by. 91% (230) of the athletes answered that their coach supported them. Also, friends (89%, 225) and family (83%, 210) supported the athletes. A minority (8%, 20) answered that “someone else” supported them. Most common alternatives referring to someone else supporting the athlete were co-workers and fellow athletes.

Figure 21

Did the athletes have a coach (n= 253)

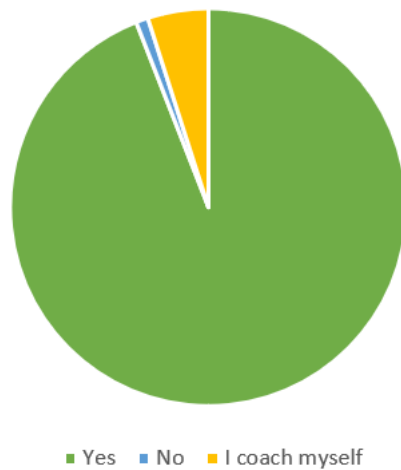
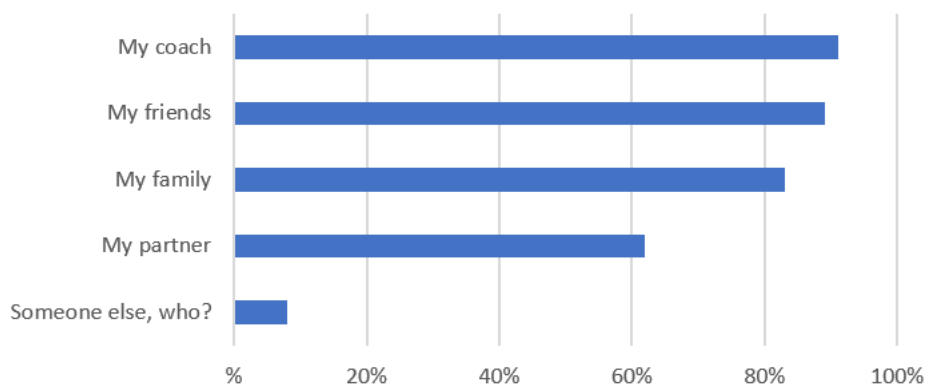


Figure 22

People who supported the athletes (n= 253)



Averagely 21% (53) of the fitness sports athletes had habits related to eating disorders “always or often”, and 18% (46) of them “sometimes”. It can be stated that according to this questionnaire that a majority of 61% (154) did not have any eating or training habits associated with eating disorders or they have them rarely.

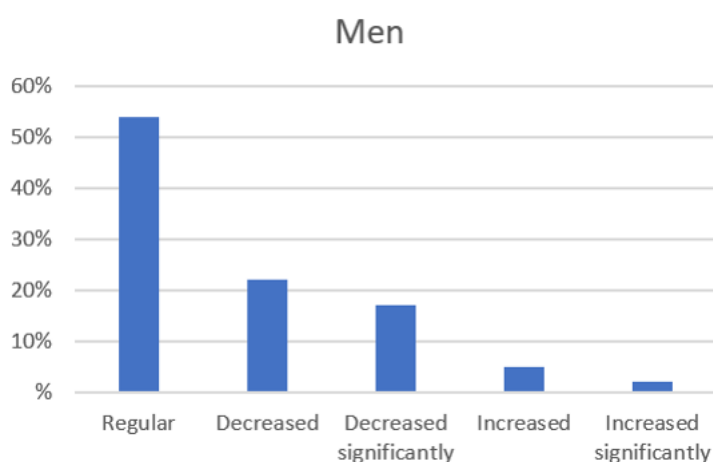
6.3 Are there differences between the genders when it comes to eating behaviour among competing fitness sports athletes?

The sections of the questionnaire that were used to gather the answers to this research question were the third and the fourth section which were about training and eating. The third section included nine questions and statements. The fourth section contained 22 questions and statements. The statements required an answer by using a Five-Point Likert-scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often 5 = always and 1 = totally disagree, 2 = partially disagree, 3 = neither agree nor disagree, 4 = partially agree, 5 = totally agree). The sections were used to clarify the possible differences between the genders regarding eating behaviour, and whether the athletes have training habits that are associated with disordered eating. Overall, anything alerting did not rise from the results when comparing the genders. However, small differences were discovered.

Figures 23 and 24 state, that both genders had mostly regular hormone functioning. A little over a tenth of women had irregular flow and almost a half of the women did not have periods at all. Although almost a third did not have periods because they were on a birth control. Only 1% (4) of men were 40 years old or older. Around this age men's morning erections start decreasing because of hormonal changes such as fall of natural testosterone levels (Holland, 2023). Nevertheless about 40% (16) of men had experienced a decrease of morning erections. Very few had noticed an increase of morning erections.

Figure 23

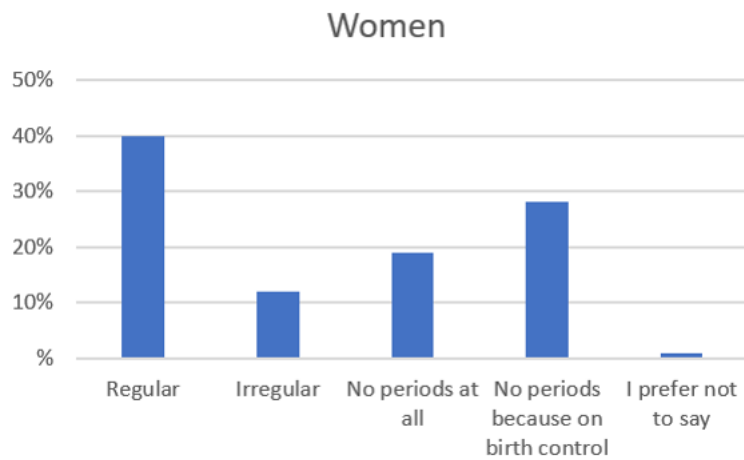
The regularity of men's morning erections (41)



Note. At the age of 40 or over, morning erections start decreasing because of hormonal changes such as fall of natural testosterone levels according to Holland (2023).

Figure 24

The regularity of women's menstruation (211)



Note. The length of a normal menstrual cycle is 24-38 days and flow lasts 2-8 days. (Tiitinen, 2022).

Table 2:

Women's and men's eating behaviour (n= 253)

Question/statement	Women	Men	p-value*
	Totally or Partially disagree / Neither disagree nor agree / Partially or Totally agree (%)		
I do not get anxious if I must eat else than included in my diet plan	23 / 11 / 66	29 / 14 / 57	ns
If I deviate even once from my diet plan it will negatively affect my competition success	79 / 10 / 11	71 / 5 / 26	ns
I think about eating most of my waking hours	57 / 15 / 28	64 / 12 / 24	ns

ns = non-significant, x2 -test

Table 3 shows that the gender has an impact to the eating behaviour because there can be seen a significant difference in four statements between men and women. Men felt more often uncontrollable urge to eat "always or often" than women. Yet, women chose the alternative "sometimes" more often than men. 36% (15) of men ate when they felt hunger while the percentage of women was twice as large. Men did eat certain foods because of health benefits, and men tend to avoid certain foods more often than women.

Table 3:*Women's and men's eating behaviour (n= 253)*

Question/statement	Women	Men	p-value*
	Never or Rarely / Sometimes / Often or Always (%)		
I feel an uncontrollable urge to eat	76 / 22 / 2	81 / 10 / 9	0,010
I weigh absolutely all my food	15 / 16 / 69	17 / 17 / 66	ns
I accurately calculate the energy intake of nutrients daily	36 / 14 / 50	26 / 24 / 50	ns
I eat when I feel hunger	17 / 19 / 64	31 / 33 / 36	0,003
I follow my diet perfectly	6 / 11 / 83	7 / 5 / 88	ns
Following a strict diet makes me feel that I am better than other people	79 / 12 / 9	76 / 7 / 17	ns
I only eat certain foods because they are healthier than others	37 / 33 / 30	17 / 36 / 47	0,019
Eating stresses me	72 / 23 / 5	69 / 29 / 2	ns
I avoid certain foods	53 / 30 / 17	40 / 24 / 36	0,023

ns = non-significant, χ^2 -test

Men had nearly twice more often a compulsive need to train compared to women, choosing the alternative “always or often”. Also, men tend to train more than their training plan requires. Table 4 shows that, men chose the alternatives “always or often” twice more often than women.

Table 4:*Women's and men's training habits (n= 253)*

Question/statement	Women	Men	p-value*
	Never or Rarely / Sometimes / Often or Always (%)		
I feel a compulsive need to train	48 / 37 / 15	26 / 50 / 24	0,033
I train more than my training plan requires	55 / 34 / 11	36 / 40 / 24	0,030
I get anxious if I deviate from my training plan	55 / 31 / 14	45 / 33 / 21	ns
I recover well from training	0 / 7 / 93	0 / 7 / 93	ns

ns = non-significant, χ^2 -test

Table 5:*Causes of stress in men and women (n= 253)*

Question/statement	Women	Men	p-value*
Does any of the following stress you?	No / Yes (%)		
Fear that my weight will increase uncontrollable after the competition diet	64 / 36	88 / 12	0,002
Fear that my weight will not decrease as planned	49 / 51	64 / 36	ns
Comparing my body to fellow competitors	59 / 41	64 / 36	ns
The possibility of diet failure	50 / 50	52 / 48	ns
Worry about possible health problems related to fitness sports as a hobby	82 / 18	86 / 14	ns
None of these stress me	78 / 22	74 / 26	ns

ns = non-significant, χ^2 -test

There were significant differences between men and women in 35% (7) of statements. Men tend to train more than required. They also had more often a compulsive need to train, and they seemed to feel more anxious than women if they had slipped from it. It seems that men are stricter with their diet, and they were the only ones choosing the alternative “always” when asked whether the athlete felt an uncontrollable urge to eat. Unlike men, women were concerned that their weight will increase uncontrollably after dieting. However, women seem to eat more often based on the feel of hunger.

Overall, men and women have quite similar stance and thoughts considering eating and training. The men’s and women’s eating behaviour was 65% similar according to the tables two to five. However, six out of seven statements that had a significant difference between the genders, disordered eating behaviour traits occurred more among men. These tables included only the questions and statements that filled the Chi-Square -test criteria. According to Heikkilä (2014b), prerequisites for using the Chi-square test are the following: a variable with a nominal scale is sufficient as a variable, a maximum of 20% of the expected frequencies must be less than five, every expected frequency must be greater than one. The percentage will be shown after the test, and the program will report the Minimum Expected Count value.

7 Discussion

The purpose of this thesis was to study eating behaviour, and to clarify the current situation of disordered eating behaviour appearance in Finland among competing fitness sports athletes. Based on the research results, the hypotheses were proved to be correct. Competing fitness sports athletes' eating behaviour is food centric. Precise nutrition plays an important role in fitness sports' competition preparations. Some disordered eating behaviour traits did appear in a small group of the athletes, but overall, it can be stated that competing fitness sports athletes' eating behaviour is healthy. Even though, men and women have quite similar attitudes regarding eating and training, the results revealed some significant differences between the genders. Based on the Chi-Square -test results, men have more habits associated with disordered eating behaviour than women.

The thesis employed quantitative research. Webropol was used as a tool to collect data via an online questionnaire. A 20-30% response rate is considered terrific regarding online questionnaires where there is no previous relationship with the respondents. A realistic response rate estimation in this case would be 10-15%. (SurveyMonkey, n.d.) The link was sent to 544 fitness sports athletes who had purchased a competition license for the year 2023. The aim was to receive a minimum of 100 replies, which was reached within the first day. 253 of them participated, giving the questionnaire a response rate of 47%, which was in this case outstanding as the authors did not have a relationship with the sample group whatsoever. The total gender distribution of the 544 athletes who bought a competition license for year 2023 was 18% (99) men and 81% (445) women. This means men's response rate was 45% and the women's 47%. Reason for the high response rate may be that the topic was interesting. It seems that the topic is not interesting only for the athletes as it is widely discussed in the Finnish media among non-athletes as well. (Armero, 2022).

The research questions were the following: 1. "What is competing fitness sports athletes' eating behaviour like?", 2. "How common eating disorder behaviour is among competing fitness sports athletes?" and 3. "Are there differences between the genders when it comes to eating behaviour among competing fitness sports athletes?". The hypothesis of the first research question, based on the research done by Juntunen (2019), was that the athletes' eating behaviour might be food centric and disordered eating behaviour may appear. The second hypothesis was that eating disorder behaviour is not remarkably common, which was based on research done by Lepistö (2022).

The third hypothesis was that there are no remarkable differences in eating disorder behavior between the genders which was based on research done by Poikkimäki et al (2017a). Based on these previous studies used as background for the thesis, the results are aligned and supported the hypotheses.

The questionnaire was not perfect and human errors were made. However, the authors were able to recognize these mistakes for further critical review. It was unfortunate that only such a small group of men participated (42) compared to women (211). Therefore, it made it difficult to draw clear conclusion on men's eating behaviour as this gave space to chance. In addition, the questionnaire did not include a question asking about the athlete's next planned competition date. In the analysing phase of the process, the authors realized that this information would have been useful. Only two weeks after the questionnaire closed, Fitness Classic Vantaa was held in the first weekend of April 2023. The authors deduced that it is likely that some of the respondents participated in the competition. This means that they would have been on a very strict diet that close to the peak week that this may have affected the respondents' replying tone as the diet is commonly looser the further away the athlete is from participating in a competition.

Previous research has been mainly focused only on either men or women or on one of the fitness sports at a time. It seems that a sample group this size including men and women, has not been researched before in Finland considering any official fitness sports athletes' eating behaviour. A suggestion for further research could be discovering more men fitness sports athletes' eating behaviour in Finland. Another interesting further research suggestion could be a comparison of athletes' eating behaviour who represent different sports. For example, comparing cross-country skiers and fitness sports athletes.

7.1 Reliability

Reliability is an important aspect of research. It means that the results are repeatable, and not random. Reliability can be divided into two factors being conformity and stability. The research method reliability consists of conformity, accuracy, continuity, and of objectivity vs. subjectivity. (Heikkilä, 2014a.) The process started by finding academic work such as theses and articles from Theseus, Google Scholar and KAMK library.

One of the matters affecting the reliability of the thesis is, for example that in the sample there might be individuals with undiagnosed eating disorders. They might be detected based on the

answers given in the questionnaire. Although the questionnaire is filled anonymously, the authors cannot be entirely sure whether the answers are given in full honesty, as it is a sensitive matter. Some athletes may not be fully aware of their health status. This may have affected the sample's answers, and finally the results. A second affecting matter is that because this research is based only on the current situation, the conclusions may not be accurate, for example in 10 years of time.

The reliability of the thesis was established by choosing a large sample and requiring a minimum of 100 answers to the questionnaire created. These requirements were chosen to receive a broad overview of the commonness of eating disorders and eating disorder behavior at the competitive level of fitness sports.

Overall, 253 answers were received which was 153% more than the minimum expectation. This means that the response rate was 47% as the questionnaire was sent to 544 athletes. The gender distribution of the respondents was that the 17% (42) were men and 83% (211) were women. This affects to the reliability of the research because it was not possible to receive as comprehensive picture of the male athletes' current eating behaviour situation as of female athletes' situation.

7.2 Ethics

Ethics is part of the philosophy, and it is used to study right, wrong, good, and bad. Research ethics is part of a good scientific practice. To produce sustainable information and treat the research group well, the researcher must follow certain research methods. The research group needs to be respected, their privacy must be protected and any kind of harms and risks for the group must be avoided. (Vuori, n.d.) The research group has a right to know the realistic aims of the research and the possible disadvantages when participating to the research. (TENK, 2019). Ethics of the research were taken into consideration in every stage of the research. The authors deepened their knowledge regarding privacy policy to secure the gathered information. The authors respected ethics by sealing the identities of the respondents.

7.3 Competence development

The authors' competences required by Kajaani University of Applied Sciences [KUAS] increased expectedly. The thesis process required applying and improving previously acquired skills and working responsibly and independently. The authors' source criticism and critical thinking and work life skills, developed. The authors used material from various sources which illustrates the ability to recognize reliable sources. Sources used were global and in different languages. (KAMK, n.d.)

The co-operation with the commissioning party as well as between the authors worked seamlessly throughout the process. The thesis process enabled to connect with experienced experts of sports field. Organizing time for the meetings to write the thesis as well as respecting the schedule was easy. Therefore, organizational, co-operational skills were improved as well. These improvements increased the competences of the authors.

The authors were able to develop previous knowledge in sports especially in fitness sports, target group being athletes at the competitive level. The thesis required fundamental and common knowledge of health promotion, physiology, coaching, and training as well as organizational, co-operational and pedagogical skills. Researching the relationship and its effects between the athlete and the coach gave the authors the perspective to look at the matter from a pedagogical point of view. Understanding of the sport and its character gave the authors an advantage to deepen and internalize the information and data obtained.

7.4 Conclusion

Finnish Fitness Sport Association was the commissioning party for the thesis. The main job of the association is to maintain and develop the hobby of fitness and bodybuilding sports in Finland. It is also the official representative of IFBB in Finland. The aim of the thesis was to provide beneficial information for the commissioning party that could be used for improving and developing coaching. It can be stated that eating behaviour of competing fitness athletes is food centric but the fundamentally healthy. The prevalence of disordered eating behaviour is not alerting although it is present. Differences between men and women were discovered but eating behaviour between the genders was mainly similar. This research provided valuable information about the current state of wellbeing and health of the competing fitness athletes. The thesis brought new research

data into light which made it possible to respond to previous research proposals. However, the research may be continued by comparing the eating behaviour of fitness sports athletes and athletes of other sports. Also, the research of eating behaviour of Finnish male fitness sports athletes should be continued as previous research has been focused on only female fitness sports athletes.

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The original questionnaire in Finnish



**KAMK • University
of Applied Sciences**

Fitnessurheilijoiden syömiskäyttäytyminen

Pakolliset kysymykset merkitty tähdellä (*)

Opinnäytetyö: Ronja Paaso-Rantala ja Sofia Turvanen, Kajaanin Ammattikorkeakoulu, Liikunnanohjaaja

Kyselyyn vastataan täysin anonyymisti.

Tämän kyselyn tarkoituksena on kartoittaa millaista kilpailevien fitnessurheilijoiden syömiskäyttäytyminen on.

Kyselyyn vastaaminen vie keskimäärin 10 minuuttia. Kysymykset ovat helppoja ja nopeita monivalintakysymyksiä.

Meidän tutkimuksen tulokset auttavat selvittämään muun muassa sitä, että esiintyykö fitnessurheilussa syömishäiriökäyttäytymistä. Autathan meitä selvittämään ja tuomaan esille asian oikeellisuuden.

Tarkoituksenamme on saada mahdollisimman moni 2023 kilpailulisenssin ostaneista vastaamaan kyselyyn, joten autathan meitä saamaan mahdollisimman laadukkaan tutkimuksen aikaiseksi

Yleisiä ohjeita kyselyyn vastaamiseen:

- Kysely koostuu terveystottumuksiisi ja ruokavalioosi liittyvistä kysymyksistä ja väittämistä.

-
- Lue kysymykset ja väittämät huolellisesti.
 - Valitse kussakin kysymyksessä ja väittämässä Sinua parhaiten kuvaava vaihtoehto.
 - Joidenkin kysymysten kohdalla voit valita useamman vastausvaihtoehdon.
 - Vastaa kyselyyn Sinulle sopivana ajankohtana, kuitenkin 19.3.2023 mennessä.

Kyselylomakkeen avulla kerätty tieto käsitellään luottamuksellisesti, eikä lomakkeella kerätä henkilötietoja. Tulokset käsitellään siten, ettei yksittäinen henkilö ole tunnistettavissa vastauksista. Kenenkään vastaajan tiedot eivät paljastu tuloksissa.

Mikäli kyselyn täytössä ilmenee ongelmia tai haluat tarkempaa tietoa tutkimuksesta, ota yhteyttä sähköpostitse ronjapaaso-rantala@kamk.fi tai sofiaturvanen@kamk.fi.

TAUSTATIEDOT

1. Ikä *

2. Paino (kg) *

3. Pituus (cm) *

4. Sukupuoli *

- Female
- Men
- I prefer not to say

5. Mikä on korkein suorittamasi koulutus? *

- Peruskoulu
- Ammattikoulu tai lukio

-
- Alempi korkeakoulututkinto (ammattikorkea tai kandidaatti)
 - Ylempi korkeakoulututkinto (YAMK tai maisteri)
 - Tohtoritutkinto tai lisensiaatti

6. Onko sinulla lääkärin diagnosoima syömishäiriö *

- Ei
- Ei enää, mutta on ollut aiemmin
- Kyllä, on tällä hetkellä
- En halua vastata

7. Mikä sai Sinut aloittamaan fitnessurheilun? Voit valita useita. *

- Kisaamisen mahdollisuus iästä riippumatta
 - Kontrollin tunne omaan syömiseen ja treenaamiseen
 - Suosio sosiaalisessa mediassa
 - Ympäristön vaikutus (esim. "kun muutkin, niin minäkin")
 - Oma kiinnostus lajia kohtaan
 - Jokin muu, mikä?
-

8. Mikä on lajisi? Voit valita useita. *

- Acrobatic fitness
- Artistic fitness
- Bikini fitness
- Body fitness
- Fit model
- Wellness fitness
- Women's physique
- Men's physique
- Classic physique
- Classic bodybuilding
- Bodybuilding
- Men's wheelchair bodybuilding

En ole varma

9. Kuinka moneen kehonrakennus- tai fitness-kilpailuun olet tähän mennessä osallistunut? *



Jos et ole vielä koskaan osallistunut kilpailuihin, siirry kysymykseen 11.

10. Milloin viimeisimmät kilpailusi olivat? Vastaa vuosi ja vuodenaika (esim. kevät 2022)

11. Missä vaiheessa harjoittelukauttasi olet nyt? *

- Harjoittelukaudella ja kehityn kohti seuraavia kilpailuja
- Olen kilpailuun valmistavalla dieetillä
- Palaudun edellisistä kilpailuista
- En harjoittele kilpailuja varten tällä hetkellä

12. Vain naiset vastaavat.

Kuukautiseni ovat tällä hetkellä (normaalin kuukautiskierron pituus on 24-38 vrk ja vuoto kestää 2-8 vrk)

- Säännölliset
- Epäsäännölliset
- Minulla ei ole kuukautisia ollenkaan
- Käytän ehkäisyvalmistetta, jonka vuoksi minulla ei ole kuukautisia
- En halua vastata

13. Vain miehet vastaavat.

Aamuerektioni ovat (nuorilla aikuisilla alle 40v. lähes joka aamu ja yli 40v. alkaa vähenemään)

-
- Säännöllisiä
 - Vähentyneet
 - Vähentyneet merkittävästi
 - Lisääntyneet
 - Lisääntyneet merkittävästi
 - En halua vastata

VALMENNUS

14. Onko sinulla valmentaja? *

- Kyllä
- Ei
- Valmennan itse itseäni

Jos sinulla ei ole valmentajaa, siirry kysymykseen 19.

15. Kuinka monta vuotta valmentajasi on valmentanut kehonrakennus- tai fitnessurheilijoita?

- 0-3
- 4-7
- 8-11
- 12-15
- 16-19
- 20 tai enemmän
- En tiedä

16. Valitse seuraavista valmentajasi tietotaitoa kuvaavat kohdat. Voit valita useita.

- Valmentajani on auktorisoitu personal trainer (käynyt koulutuksen, joka oikeuttaa APT- tai EREPS -rekisteriin)
 - Valmentajani on Suomen Fitnessurheilu Ry:n virallinen valmentaja
 - Valmentajallani on henkilökohtainen kehonrakennus- tai fitnesskilpailutausta
 - Liikuntaneuvoja (LPT)
-

-
- Alempi korkeakoulututkinto (Liikunnanohjaaja (AMK) tai liikuntatieteiden kandidaatti)
 - Ylempi korkeakoulututkinto (Liikunnanohjaaja (YAMK) tai liikuntatieteiden maisteri)
 - Ei mikään edellisistä
 - Muu mikä? esim. fysioterapeutti
-

Vastaa seuraaviin väittämiin valitsemalla parhaiten Sinua kuvaava vaihtoehto.

17. Luotan valmentajani ammattitaitoon

- Täysin eri mieltä
- Jokseenkin eri mieltä
- Ei samaa eikä eri mieltä
- Jokseenkin samaa mieltä
- Täysin samaa mieltä

18. Yhteistyö valmentajan kanssa sujuu saumattomasti

- Täysin eri mieltä
- Jokseenkin eri mieltä
- Ei samaa eikä eri mieltä
- Jokseenkin samaa mieltä
- Täysin samaa mieltä

19. Minua kannustavat ja tukevat seuraavat henkilöt. Voit valita useita. *

- Valmentajani
 - Perheeni
 - Kumppanini
 - Ystäväni
 - Joku muu, kuka?
-

LIIKUNTA

20. Kuinka monta kertaa harjoittelet kuntosalilla viikon aikana? *



21. Kuinka monta aerobista harjoitusta teet viikon aikana? *



22. Kuinka monta kertaa harjoittelet poseerausta viikon aikana? *



23. Tunnen pakonomaista tarvetta harjoitella *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

24. Harjoittelu tuo minulle hyvää mieltä *

- Ei koskaan
- Harvoin
- Joskus
- Usein
- Aina

25. Jaksan harjoituksissa hyvin *

- En koskaan

-
- Harvoin
 - Joskus
 - Usein
 - Aina

26. Liikun enemmän kuin harjoittelusuunnitelmani vaatii *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

27. Ahdistun, jos poikkean harjoitussuunnitelmastani *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

28. Palaudun harjoittelusta hyvin *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

SYÖMINEN**29. Mistä ruokavaliosuunnitelmasi on peräisin? ***

- Valmentajalta
- Itse tehty

-
- Laillistetulta ravitsemusterapeutilta
 - Internetistä
 - Minulla ei ole ruokavaliosuunnitelmaa
 - Jostakin muualta

30. Käytätkö ravintolisiä? *

- Kyllä
- Ei

Jos vastasit "ei", siirry kysymykseen 33.

31. Kuinka monta lisäravinnevalmistetta Sinulla on päivittäisessä käytössä?**32. Mitä ravintolisiä käytät? Voit valita useita.**

- Proteiinilisä
- Hiilihydraattilisä
- Aminohapot, kuten BCAA
- Rasvanpolttajat
- Vitamiinit
- Rasvahapot
- Kreatiini
- Maitohappobakteerit
- Ennen treeniä otettavat piristävät tai suoritusta parantavat ravintolisät, kuten Pre-Workout
- Kofeiini

33. Oletko joutunut luopumaan jostakin ruoka-aineesta fitnessharrastuksen vuoksi? *

- En
-

Kyllä, mistä?

34. Syötkö jotakin ruoka-ainetta vain sen takia, että valmentajasi käskää? *

- En
 Kyllä, mitä?
-

Vastaa seuraaviin väittämiin valitsemalla parhaiten Sinua kuvaava vaihtoehto.

35. Välttelen tiettyjä ruoka-aineita *

- En koskaan
 Harvoin
 Joskus
 Usein
 Aina

36. Yritän oksentaa tai oksennan, jos olen syönyt liikaa *

- En koskaan
 Harvoin
 Joskus
 Usein
 Aina

37. Tunnen kontrolloimatonta halua syödä *

- En koskaan
 Harvoin
 Joskus
 Usein
 Aina

38. Punnitsen aivan kaikki ruokani *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

39. Tunnen hallitsevani syömiseni *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

40. Lasken päivittäin tarkasti ravintoaineiden, kuten energian, proteiinin tai hiilihydraatin saannin *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

41. Syön silloin kun tunnen itseni nälkäiseksi *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

42. Noudatan ruokavaliotani täydellisesti *

- En koskaan
-

- Harvoin
- Joskus
- Usein
- Aina

43. Tarkan ruokavalion noudattaminen saa minut tuntemaan itseni paremmaksi kuin muut ihmiset *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

44. Syön jotakin ruoka-ainetta vain sen vuoksi, että se on selvästi terveellisempi kuin muut *

- En koskaan
- Harvoin
- Joskus
- Usein
- Aina

45. Syöminen stressaa minua *

- Ei koskaan
- Harvoin
- Joskus
- Usein
- Aina

46. Aiheuttaako jokin seuraavista stressiä Sinulle? Voit valita useita. *

- Pelko, että paino nousee hallitsemattomasti kisadieetin jälkeen
- Pelko, että paino ei laske suunnitellun aikataulun mukaisesti

-
- Oman vartalon vertailu muihin kilpakumppaneihin
 - Dieetin epäonnistumisen mahdollisuus
 - Huoli mahdollisista fitnessharrastukseen liittyvistä terveyshaitoista
 - Ei mikään näistä

47. En ahdistu, jos joudun syömään muuta kuin ruokavaliossani ennalta suunniteltua ruokaa *

- Täysin eri mieltä
- Jokseenkin eri mieltä
- Ei samaa eikä eri mieltä
- Jokseenkin samaa mieltä
- Täysin samaa mieltä

48. Olen pitänyt taukoviikkoja tai vapaasyöntipäiviä kilpailudieetilläni *

- Kyllä. Kuinka usein? _____
- En

49. Jos poikkean kerrankin ruokavaliostani, se tulee vaikuttamaan negatiivisesti menestykseeni kilpailuissa *

- Täysin eri mieltä
- Jokseenkin eri mieltä
- Ei samaa eikä eri mieltä
- Jokseenkin samaa mieltä
- Täysin samaa mieltä

50. Ajattelen syömistä suuren osan valveillaoloajastani *

- Täysin eri mieltä
 - Jokseenkin eri mieltä
 - Ei samaa eikä eri mieltä
 - Jokseenkin samaa mieltä
 - Täysin samaa mieltä
-

Sports distribution of the respondents and the number of participated competitions

What is your sport?	Frequency	Relative frequency %
Acrobatic fitness	1	0,4 %
Artistic fitness	2	0,8 %
Bikini fitness	92	36,4 %
Body fitness	82	32,4 %
Fit model	4	1,6 %
Wellness fitness	35	13,8 %
Women's physique	7	2,8 %
Men's physique	23	9,1 %
Classic physique	10	4,0 %
Classic bodybuilding	11	4,3 %
Bodybuilding	1	0,4 %
Men's wheelchair bodybuilding	0	0 %
I am not sure	0	0 %

Number of participated competitions	Frequency (n=253)	Relative frequency %	Cumulative frequency	Relative cumulative frequency %
0	120	47,4%	120	47,4%
1	36	14,2%	156	61,6%
2	22	8,7%	178	70,3%
3	20	7,9%	198	78,2%
4	10	3,9%	208	82,1%
5	10	4,0%	218	86,1%
6	9	3,6%	227	89,7%
7	7	2,8%	234	92,5%
8	4	1,6%	238	94,1%
9	2	0,8%	240	94,9%
10 or more	13	5,1%	253	100%
Total	253	100%		