

Fitness Without Extremes? Health Behaviours in Lower-Demand Competition Categories vs. Recreation

Fitness = Egészség? Női sportolók egészségtudatossága és énképe
a fitness világában



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Absztrakt: A kutatás célja az volt, hogy feltárja és összehasonlítsa az egészségtudatos viselkedést, a táplálkozási szokásokat, a táplálékkiegészítők használatát és a testképpel való elégedetlenséget alacsonyabb követelményszintű női fitnessversenyzők és rekreációs súlyozós edzést végző sportolók körében. A 199 fős mintában önállóan szerkesztett és validált kérdőívet (BSQ-34) alkalmaztunk. Eredményeink szerint, a versenyzők gyakrabban edzettek, étrendjük szezonálisan változott, míg a rekreációs sportolók egész évben kiegyensúlyozott táplálkozást folytattak. Bár mindkét csoport egészségtudatos, a versenyzők a teljesítményoptimalizálást, a rekreációs sportolók a hosszú távú egészséget helyezték előtérbe. A táplálékkiegészítők használata a versenyzőknél intenzívebb volt, míg a rekreációs sportolók inkább a természetes összetevőket részesítették előnyben. Meglepő módon a testképpel való elégedetlenség a rekreációs sportolók körében volt gyakoribb, feltehetően az esztétikai célok és a közösségi média hatásai miatt. Az eredmények rámutatnak arra, hogy még az alacsonyabb szintű versenykategóriákban is jelen vannak az egészséget veszélyeztető felkészülési módszerek.

Kulcsszavak: egészségtudatosság, fitnessversenyzők, rekreációs sportolók, étrend, testkép

Abstract: This study compared health-conscious behaviors, dietary patterns, supplement use, and body image dissatisfaction among amateur female fitness competitors in lower-demand categories and recreational gym users. A total of 199 participants completed a self-constructed and validated questionnaire (BSQ-34). Fitness competitors trained more frequently and followed seasonally variable diets, with stricter adherence during competition periods. Although both groups showed health awareness, competitors prioritized performance, while recreational athletes emphasized long-term well-being. Supplement use was significantly higher among competitors, who favored effectiveness over natural composition. Recreational athletes preferred natural ingredients and were more concerned about side effects. Despite healthier routines, recreational athletes reported greater body dissatisfaction, likely influenced by aesthetic goals and social media. Findings reveal that even in lower-demand categories, competition preparation involves health-compromising practices similar to bodybuilding. In contrast, recreational athletes maintain consistent health-oriented behaviors. These results highlight the need for education and support to promote sustainable health practices in fitness sport environments.

Keywords: health consciousness, fitness competitors, recreational athletes, diet, body image

1. Introduction

The relationship between women's health, lifestyle habits, and body image has emerged as a key public health concern, underscoring the relevance of examining fitness-related behaviours. In recent years, gym-based training has become one of the most widespread forms of recreational physical activity, while public and professional interest in fitness competitions has also been growing dynamically (Kairaitis et al., 2024). The increasing number of recreational athletes has contributed to greater attention toward competitive sports, leading to the structural expansion of competition categories. In addition to traditional bodybuilding divisions, new categories emphasizing aesthetic and functional aspects have emerged, such as bikini fitness, wellness fitness, and body fitness. These categories offer a lower demands for participation, as they do not require the same degree of muscle mass or extremely lean physique as classical bodybuilding disciplines (Vorobiova et al., 2019).

The issue of health consciousness has gained

prominence in research, particularly regarding the lifestyle, dietary habits, and mental health of fitness competitors. Empirical studies indicate that the use of dietary supplements is widespread among fitness athletes (Mazzilli et al., 2021; Filho et al., 2021). However, several studies also suggest that, although many follow healthy eating patterns, atypical nutritional behaviours can be observed in certain subgroups (Paaso-Rantala & Turvanen, 2023), and that limited professional knowledge and inadequate awareness often characterize supplement use (Mazzilli et al., 2021).

A significant connection exists between a healthy lifestyle and the menstrual cycle (Waryasz et al., 2020). Research examining physical health shows that fitness competitors generally have more favourable body composition yet experience higher rates of menstrual irregularities and eating disorders (Gligoroski et al., 2023; Waryasz et al., 2020). The absence of menstruation is a frequent occurrence in this population, often associated with critically low body fat levels

and disruptions of the hypothalamic–pituitary–ovarian axis (Walberg & Johnston, 1990; Waryasz et al., 2020). Studies addressing mental health highlight the high prevalence of body image disturbances, eating problems, and anxiety (Steele et al., 2019; Mathisen & Sundgot-Borgen, 2019; Salvador et al., 2023; Monks et al., 2020). Altogether, these findings underline that fitness competition is not merely an aesthetic pursuit but also presents complex health challenges (Walberg & Johnston, 1990; Warren & Perlroth, 2001).

While in earlier decades the concept of fitness was almost exclusively associated with bodybuilding, the discipline has undergone significant transformation. Today, beyond aesthetic goals, increasing emphasis is placed on promoting a healthy lifestyle and mental well-being (Andreasson & Johansson, 2019). Nevertheless, there is a scarcity of data concerning the nutritional patterns and general health status of athletes entering the newer fitness categories. The growing popularity of competition attracts an increasing number of beginners who often lack adequate professional preparation. This deficiency may pose multiple physical and mental health risks, further aggravated by inadequate dietary practices, improper supplement use (Espeño et al., 2024), and extreme preparatory methods, such as dehydration or manipulation of electrolyte balance, which may lead to severe health consequences (Helms et al., 2014). Preliminary observations suggest that even outside competition periods, the physical condition of athletes in lower categories often deteriorates markedly. At the same time, studies examining the nutritional habits of recreational athletes remain limited, as the existing literature primarily focuses on competitive sport (Filho et al., 2021).

The aim of this research is to explore, analyse, and compare the health-conscious strategies of amateur female fitness competitors and recreational gym users who regularly perform resistance training. The competitive group includes only those athletes participating in categories with lower entry requirements (e.g., bikini fitness, wellness fitness, body fitness). It is assumed that in these divisions, health-oriented and moderate preparatory methods are more typical, allowing athletes to avoid the extreme interventions (e.g., severe dehydration, electrolyte manipulation) often characteristic of classical bodybuilding, which can negatively affect physiological function. The study pays particular attention to comparing training motivation and frequency, as well as mapping the nutritional health awareness of both groups. This includes examining healthy eating habits, potentially harmful dietary patterns, and the frequency of deviations from prescribed diets. Another objective is to assess the patterns of dietary supplement use, especially regarding changes between competition preparation and off-season periods. Finally, the research extends to comparing the prevalence of body image disturbances and menstrual cycle-related issues between the two groups.

2. Methods

The study was based on simple random sampling and targeted two groups: female fitness competitors and recreational gym users engaged in resistance training. The sample included a total of 199 participants, of whom 99 were active female competitors in lower-entry fitness categories (bikini fitness, wellness fitness, body fitness), and 100 were recre-

ational athletes performing regular gym-based resistance training. Inclusion criteria required at least two years of experience in resistance training, and, for competitors, active participation in one of the specified competition categories. Exclusion criteria included any regular physical activity not related to gym-based resistance training.

Data were collected through a questionnaire survey using both a self-constructed and a validated measurement instrument. The questionnaires were distributed nationwide in an online format via the Google Forms platform between 23 February and 9 March 2025.

The self-constructed questionnaire contained open-ended, closed-ended, and Likert scale items. The first section recorded sociodemographic data, while the second assessed general health consciousness. The third section focused on dietary awareness and included questions related to the characteristics of the menstrual cycle. The fourth section examined participants' dietary supplement consumption habits. Considering the importance of annual training planning (periodization) among female fitness competitors, members of this group answered the relevant questions separately for the competition season and the off-season, allowing for the identification of potential differences between these two periods. This approach enabled a comparative analysis of health consciousness, dietary habits, and supplement use across the two phases.

For the examination of body image disturbance, the Body Shape Questionnaire (BSQ-34), a validated instrument developed by sports psychologists, was employed (Cooper et al., 1987). The questionnaire consists of 34 items assessing the degree of dissatisfaction with body shape. Responses are rated on a six-point Likert scale. The total score, ranging from 34 to 204, indicates the level of body dissatisfaction, with higher scores representing greater dissatisfaction. The interpretation ranges are as follows: ≤ 110 points: no or minimal body dissatisfaction; 111–140 points: mild body dissatisfaction; 141–170 points: moderate body dissatisfaction; ≥ 171 points: severe body dissatisfaction.

Data processing was performed using Microsoft Excel, applying descriptive statistical measures and frequency distributions.

3. Results

The sociodemographic data of the two examined target groups are presented in Table 1. Participants had the option to skip the question regarding their income. Among the recreational gym users, 11% ($n = 11$) chose not to answer this question, and 2% ($n = 2$) reported being dependents. Among the fitness competitors, 15.2% ($n = 15$) did not respond to the income-related question, and 4% ($n = 4$) of them were classified as dependents.

Category	Group	Recreational gym users (%)	Fitness competitors (%)
Age group (years)	21–25	39	48
	26–30	10	20
	31–35	14	16
	36–40	14	4
	40–45	23	12
Highest level of education completed	PhD degree	1	1
	Tertiary education	48	49
	Grammar school	28	28
	Vocational secondary school	15	18
	Vocational school	4	2
	Primary school	4	2
Place of residence	Town	38	36
	City with county rights	33	28
	Capital city	13	28
	Large village	7	1
	Village	9	7
Monthly net income (HUF)	0–200,000	19	7
	201,000–400,000	26	26
	400,001–600,000	34	36
	601,000–1,000,000	5	11
	1,000,000 above	3	1
	Dependent	2	4
	No response	11	15

Table 1. Distribution of participants according to their main sociodemographic characteristics / 1. táblázat: A vizsgálatban résztvevők megoszlása főbb szociodemográfiai jellemzőik szerint

3.1. Training Frequency and Training Motivation

Based on the questions assessing general health consciousness, it can be concluded that the training frequency of fitness competitors is higher than that of recreational gym users. More than half of the competitors train 5–6 times per week, while nearly half (40%) of the recreational group reported training only 3–4 times per week. The higher training frequency among competitors is presumably related to structured, competition-oriented training planning (Figure 1).

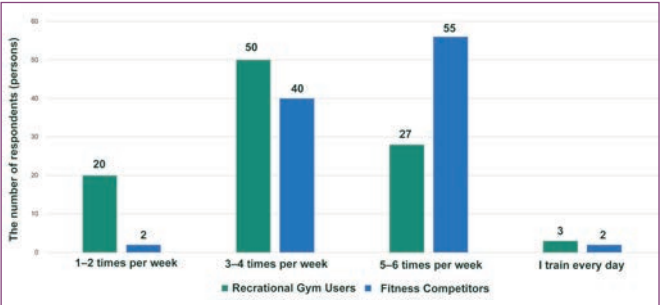


Figure 1. Training frequency among recreational gym users and fitness competitors
1. ábra: Edzésgyakoriság edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

Regarding training motivation, nearly half of both competitors and recreational gym users identified achieving a more muscular and leaner physique as their primary motivation, indicating that aesthetic goals play a significant role in both groups. However, while recreational athletes aim to achieve this goal

alongside maintaining their health (25%), fitness competitors are primarily driven by success-oriented objectives (Figure 2).

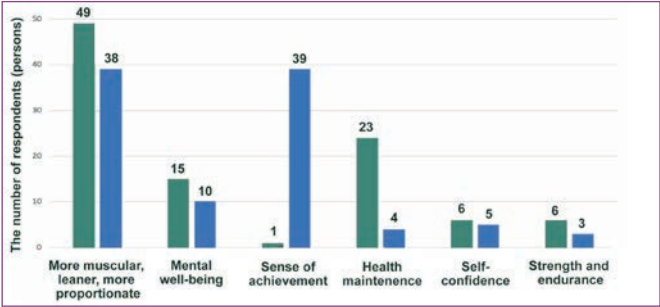


Figure 2. Training motivation among recreational gym users and fitness competitors
2. ábra: Edzésmotiváció edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

3.2. Dietary Habits

The degree of avoidance of unhealthy fats and empty calories was lower among competitors during the off-season (mean: 4.02 ± 1.12) compared to recreational gym users (mean: 4.22 ± 1.28), reflecting the health-conscious mindset of the recreational group. Among competitors, dietary strictness varied seasonally: during the competition season, self-discipline increased significantly (mean: 5.11), indicating adaptation to physique-oriented goals. Seventy-five percent of competitors reported consuming foods they considered unhealthy for aesthetic or performance purposes. In contrast, this proportion was lower among recre-

ational athletes (48.5%), with more participants in this group rejecting such compromises. This difference confirms that competitors are more inclined to subordinate health considerations to the pursuit of the desired physique.

The use of sweeteners was almost universal among competitors: 90% reported regular use, and 64% consumed them daily. This proportion further increased during the competition season. Although 40% of competitors considered sweeteners harmful, many still regarded them as essential for maintaining dietary adherence. Among recreational athletes, sweetener use was more moderate: 30% reported daily use, 30% occasional use, and another 30% avoided them entirely. Their overall perception of sweeteners was also more negative, reflecting a more health-conscious, natural-ingredient-based nutritional approach (Figure 3).

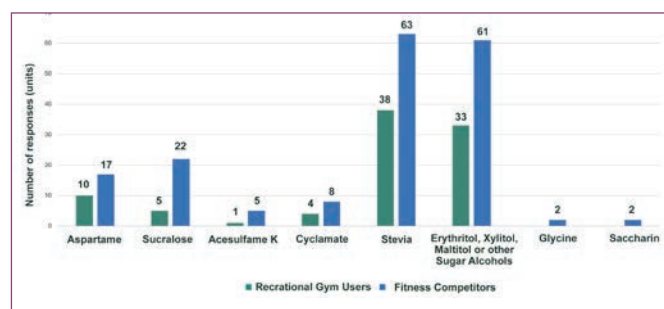


Figure 3. Sweetener consumption habits among gym-going recreational athletes and fitness competitors.

3. ábra: Édesítőszer-fogyasztási szokások edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

The frequency of dietary deviations showed significant differences between the two groups. During the off-season, 50% of competitors reported having “cheat days” once or twice a week, whereas during the competition season, 66% reported no deviation from their planned diet. In contrast, 33% of recreational athletes regularly included such meals. When examining the impact of festive and vacation periods, competitors’ responses indicated moderate dietary deviation (mean: 3.8 ± 1.52 ; median and mode: 4), while among recreational gym users, the deviation was slightly higher (mean: 3.52 ± 1.78 ; median: 4; mode: 5). Based on the responses of the recreational group, a combination of awareness and flexibility was characteristic: healthy eating was important to them, yet they prioritized enjoyment and social experiences during such occasions. In contrast, competitors tended to maintain strict dietary control even during holidays, aligning their eating decisions with their current training program and competition schedule (Figure 4).

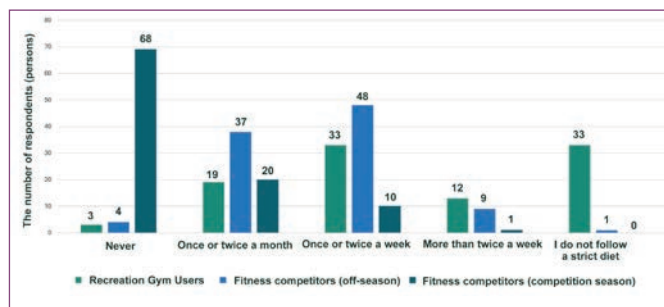


Figure 4. Frequency of dietary deviations among recreational gym users and fitness competitors.

4. ábra: Csalóétkészés gyakorisága edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

When examining the effects on the menstrual cycle, two-thirds of recreational athletes reported no change, while 6% noted milder PMS symptoms or reduced menstrual pain. This suggests that moderate training loads and a balanced diet may have a favourable impact on hormonal balance. Among competitors, however, the preparation period resulted in significant physiological effects: 37% reported complete cessation of menstruation, 13% experienced irregular cycles, and only 38% reported no changes. These findings are consistent with the literature, which indicates that extreme training loads, low body fat levels, and strict caloric deficits can lead to dysfunction of the hypothalamic–pituitary–ovarian axis (Gligoroski et al., 2023; Waryasz et al., 2020; Walberg & Johnston, 1990). Therefore, protecting female athletes’ health is of utmost importance, especially in sports where body composition plays a central role (Figure 5).

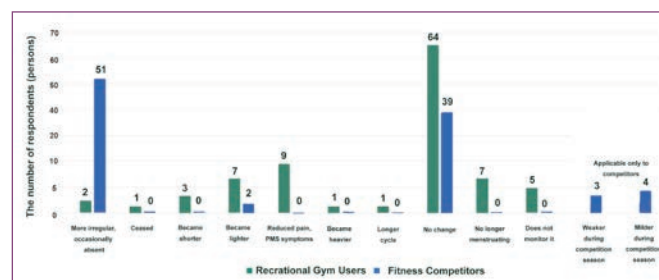


Figure 5. Effects of lifestyle on menstruation among recreational gym users and fitness competitors

5. ábra: Edzés hatása a menstruációra edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

The consumption of non-vitamin and non-mineral dietary supplements was widespread in both groups. Among competitors, 92% reported using such products, more than half on a daily basis, and 39% used them even more intensively during the competition season. Among recreational athletes, 61% consumed supplements, 41% of them daily. These data indicate that although supplement use among competitors is more goal-oriented and intensive, nutritional strategies related to training also play a significant role among recreational gym users (Figure 6).

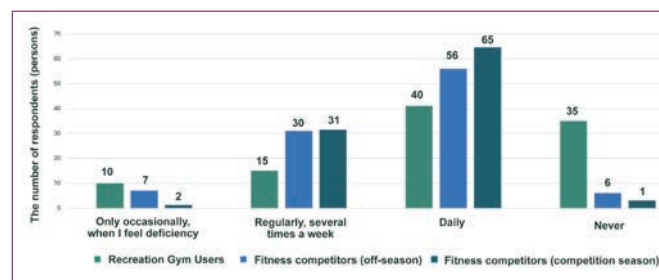


Figure 6. Dietary supplement consumption habits among recreational gym users and fitness competitors

6. ábra: Táplálékkiegészítő-fogyasztási szokások edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

The reasons behind supplement use include their practical nature, rapid absorption, and their roles in performance enhancement and recovery (Mazzilli et al., 2021; Paaso-Rantala & Turvanen, 2023). Virtually all competitors reported using protein powder, and frequent use was also observed for creatine, BCAA/EAA, glutamine, collagen, pre-workout formulas, caffeine, fat burners (e.g., L-carnitine, thermogenics), citrul-

line, beta-alanine, ashwagandha, and plant-based steroids (e.g., ecdysterone).

According to the responses, 27% of competitors used certain supplements exclusively during the competition season. These included diuretics (e.g., Watercut, Animal Cuts), HMB, and stimulant-containing pre-workout formulations. Recreational athletes also used dietary supplements but within a narrower range—mainly protein powder, creatine, collagen, and occasionally glutamine, BCAAs, and L-carnitine. When selecting supplements, effectiveness was identified as the most important factor by 44% of fitness competitors and 33% of recreational athletes. However, the latter group showed a greater preference for products containing natural ingredients.

An examination of attitudes toward side effects revealed that 45% of competitors considered the severity of side effects the decisive factor, while 42% prioritized long-term health. In contrast, more than three-quarters of recreational athletes regarded long-term health as their primary concern.

The use of vitamin and mineral supplements was also widespread: 91% of competitors and 75% of recreational athletes reported taking such products. The most frequently used micronutrients in both groups were vitamin C, vitamin D, and magnesium. Competitors additionally reported frequent use of multivitamins, omega-3 fatty acids, zinc, iron, calcium, B-complex vitamins, and various natural active compounds, such as ashwagandha, turmeric, berberine, inositol, chasteberry, coenzyme Q10, as well as liver and joint-support supplements. These products were also used among recreational athletes, though to a lesser extent and in fewer varieties.

In terms of conscious supplement selection, effectiveness was the primary factor for fitness competitors (44%), while for recreational athletes (33%), natural composition was a stronger consideration. When asked about their attitude toward potential negative side effects, especially in cases where supplement use could clearly enhance performance or physique, nearly half of competitors (45%) stated that the severity of side effects would be the decisive factor, whereas only 42% prioritized long-term health. By contrast, more than three-quarters of recreational athletes reported that preserving long-term health was their foremost concern (Figure 7).

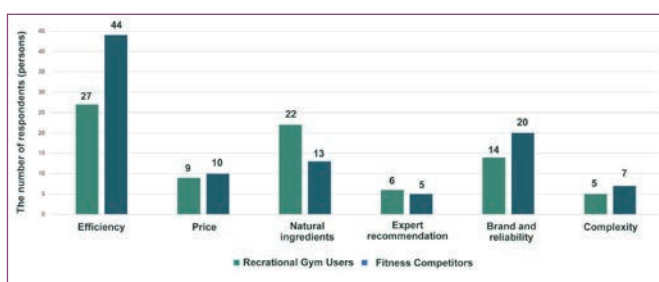


Figure 7. Main criteria for dietary supplement selection among gym-going recreational athletes and fitness competitors

7. ábra: Táplálékkiegészítők kiválasztásának legfontosabb szempontjai edzőterembe járó rekreációs sportolók és fitneszversenyzők körében

3.3. Body Image Dissatisfaction

The level of body image dissatisfaction was found to be higher among recreational gym users than among fitness competitors. In the recreational group, only 38% of participants fell into the lower categories of the BSQ scale (no concern or mild concern with body shape), whereas this proportion was 61% among the competitors. This difference may stem from distinct motivational factors: recreational athletes often begin training for aesthetic or health-related reasons, whereas

competitors pursue targeted development and competition preparation. Competitors tend to regularly monitor their bodies (e.g., through mirrors, photos, or body composition assessments), which contributes to maintaining a more realistic body image. In contrast, recreational athletes are more prone to idealization, particularly under the influence of social media, which may lead to frustration or body image disturbances (Salvador et al., 2023).

An interesting contrast emerged: while fitness competitors are generally aware of the artificial nature of social media body ideals and accept the seasonal fluctuations of their physique, recreational gym users may experience more severe forms of body dissatisfaction. Notably, 1% of competitors and 6% of recreational athletes fell into the most severe dissatisfaction category, a finding that also holds clinical significance (Figure 8).

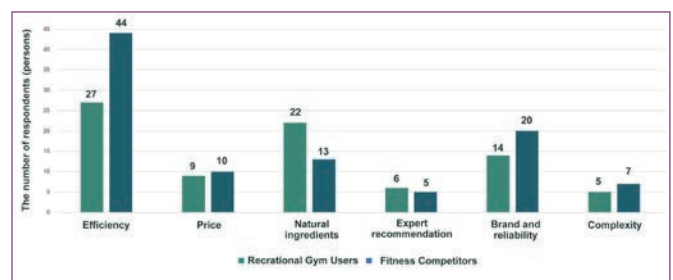


Figure 8. BSQ-34 body image assessment among gym-going recreational athletes and fitness competitors

8. ábra: BSQ-34 testképpel kapcsolatos vizsgálatok edzőterembe járó amatőr sportolók és fitneszversenyzők körében

4. Conclusions

Based on the results of the questionnaire survey, it can be concluded that the primary motivation of recreational gym users is health maintenance, whereas among fitness competitors, competition preparation and success-oriented goals predominate. Although both groups display health consciousness, its focus differs: for recreational athletes, the key aspects are quality of life, prevention, and long-term health preservation, while for competitors, a healthy lifestyle primarily serves performance optimization, for instance, through maintaining hormonal balance.

The analysis of dietary habits revealed that recreational athletes consistently avoid unhealthy fats and empty calories throughout the year, whereas the dietary strictness of competitors varies seasonally, being more relaxed during the off-season and significantly stricter during the competition season. This indicates that competitors' nutrition adapts to their immediate goals, while recreational athletes tend to follow a "clean eating" approach as a general mindset.

The effects on the menstrual cycle also showed sharp differences. Two-thirds of recreational gym users reported no changes, and some experienced milder PMS symptoms, suggesting the positive effects of moderate training load and balanced nutrition. In contrast, more than one-third of competitors experienced amenorrhea, which can be associated with critically low body fat levels and dysfunction of the hormonal axis. This finding supports previous research (Walberg & Johnston, 1990; Waryasz et al., 2020) and underscores the importance of protecting female athletes' health, particularly in sports that emphasize body composition.

Dietary supplement use was widespread in both groups but considerably more intensive and targeted among competitors. The most commonly used supplements included

protein powders, creatine, BCAA, glutamine, and various stimulants, typically related to competition preparation. Recreational athletes used a narrower range of supplements and more often preferred natural ingredients. For competitors, effectiveness was the main selection criterion, whereas for recreational athletes, long-term health preservation played a more prominent role.

The findings related to body image disturbance were particularly noteworthy. A higher prevalence of body dissatisfaction was observed among recreational gym users than among competitors. This may be linked to aesthetic motivations, exposure to idealized body images on social media, and expectations of rapid results. Competitors, on the other hand, tend to have a more realistic body image, regularly monitor their body composition, and are aware that the competition physique is only temporarily sustainable. This awareness supports self-acceptance and helps them manage seasonal fluctuations.

It is important to emphasize that the present study focused exclusively on female athletes competing in lower-demand fitness categories, based on the assumption that their competition preparation process is healthier compared to that of bodybuilders or higher-level competitors examined in earlier studies. However, our findings indicate that even within these categories, a genuinely healthy lifestyle is not achieved: extreme preparation methods, hormonal disturbances, and dietary compromises are still present. This stands in sharp contrast to the balanced lifestyle of recreational athletes, who maintain healthy nutrition and training routines year-round, thereby supporting their physical and mental well-being.

Our results partly contradict the findings of Mazzilli et al. (2021), who reported no significant differences between the nutritional habits of competitors and recreational athletes. In our study, supplement use was markedly higher among competitors, reflecting their goal-oriented approach associated with competition preparation. Conversely, the results concerning body image disturbance differ from those of Mathisen and Sundgot-Borgen (2019), as binge-eating episodes were not significant in either group.

Based on these findings, it is recommended to promote attitude change among fitness competitors, particularly regarding healthy lifestyle and nutrition. One potential approach would be for sports federations to organize educational programs and to link the acquisition of coaching qualifications to health-consciousness competencies. Furthermore, competitors should be encouraged to more confidently embrace and represent natural body forms on social media, thereby reducing the risk of body image disturbance stemming from idealization among recreational athletes.

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