



Does Exercise Addiction Exist Among Individuals Engaged in Team-Based Exercise? A Position Paper

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Abstract

Exercise addiction is a term used to describe dysfunctional exercise behavior characterized by the classic symptoms of addictions, which eventually result in physical, psychological, or social harm to the affected individual. While well over 1000 peer-reviewed papers on problematic exercise have been published, very few studies have explored the conceptual differences between team-based and individual-based exercise, and no previous study has critically addressed this issue. The rationale for this distinction is that team-based exercise is typically *organized and scheduled* by others with little or no control over its timing by the individual team member. On the contrary, individual-based exercise can be self-scheduled. Consequently, more (total) control over its timing facilitates the satisfaction of craving-induced urges characterized by an addiction. It is posited that exercise addicts, in general, are “lone wolves” in the context of their addiction. Therefore, being addicted to exercise in team sports is only possible if the individual resorts to *additional individually-controlled exercise* above and beyond team-based training. To support this position, the present paper briefly reviews the few studies conducted in this area and examines how their results match the diagnostic interpretation of “addiction.” The present position paper highlights that “control” over the addictive behavior, in this case, exercise, is an important marker in the potential for the risk of exercise addiction. Therefore, future studies should consider that team-based exercise assigns little control to the individual. However, the extent to which *additional individual-based exercise* occurs and poses a risk of addiction within team exercises merits further research attention.

Keywords Exercise addiction · Exercise dependence · Individual-based exercise · Problematic exercise · Team-based exercise

Overindulgence in uncontrolled and self-harming exercise is most frequently referred to as either “exercise addiction” (Szabo et al., 2015), “exercise dependence” (Hausenblas & Downs, 2002), or “compulsive exercise” (Dittmer et al., 2018). While several terms are used in researching this dysfunctional exercise pattern, as noted by Szabo and Demetrovics (2022), “addiction” may be the most appropriate term because it also includes both

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dependence and *compulsion*. In support of this viewpoint is the empirical evidence showing that studies using assessment tools for both exercise addiction and exercise dependence yield different prevalence rates, and are consistently higher for the former than the latter (Cunningham et al., 2016; Mónok et al., 2012). Nevertheless, a more general umbrella term, “morbid exercise behavior,” has been proposed (Szabo et al., 2018) and has already been adopted by some scholars (e.g., Alcaraz-Ibáñez et al., 2020).

Exercise addiction can be defined as a “pattern of behavior in which the habitually exercising individual loses control over his or her exercise habits and acts compulsively, exhibits dependence, and experiences negative consequences to health as well as in his or her social and professional life” (Szabo et al., 2015, p. 303). Although there is no clinically established recognition of the disorder, scholars have argued that excessive exercise can be an addictive behavior in some cases. Their argument stems from its consequences which include the “classic components,” or typical symptoms of all addictions (e.g., withdrawal symptoms, tolerance, mood modification, conflict, salience, and relapse) representing the foundation of the “components model” of addictions (Griffiths, 2005).

Many aspects of exercise addiction have been investigated over the past 50 years since the first paper on the topic emerged (i.e., Baekeland, 1970). Some examples are gender differences (e.g., Dumitru et al., 2018), personality correlates (e.g., Bircher et al., 2017), types of exercise (e.g., Di Lodovico et al., 2019), elite athletes versus others (Juwono et al., 2021), relationship with eating disorders (e.g., Alcaraz-Ibáñez et al., 2020), body-image disorders (e.g., Alcaraz-Ibáñez et al., 2021), scale development (e.g., Sicilia et al., 2021, 2022), and methodological issues (e.g., Alcaraz-Ibáñez et al., 2022; Szabo et al., 2015). However, one under-explored area is the fundamental dichotomies of exercise: individual-versus team-based.

The motivations for individual and team-based exercise appear to differ. For example, among many others, social and achievement motives differ between the two sports participation forms (Moradi et al., 2020). But control and dependence on others may be distinctive critical factors. Individual-based exercise can be performed alone without dependence on others. On the other hand, team-based exercise involves a group of individuals working towards completing a cohesive physical task, such as scoring a goal in a game (Blair & Cooper, 2022). It should also be noted that participants engaging in a track and field athletics team are engaging in individual-based exercise because the activity is accomplished individually—not unlike wrestling, boxing, weightlifting, and skiing. While these athletes are team members, their physical pursuits are individual. Alternately, those involved in sports such as soccer, American football, basketball, netball, baseball, rugby, and similar interacting athletic games fall under the team-based exercise category. Other sports can be a mixture of either individual- or team-based activity (e.g., rowing, tennis, badminton) although most who engage in such sports have a preference. Consequently, it can be speculated that different motivations for exercise are differentially related to development and maintenance of problematic exercise. However, the present authors are not aware of any clinical cases of exercise addiction in a team athlete. An addiction embodies *control over the addiction*, which is difficult, if not impossible, in a team or a group setting. Therefore, exercise addicts are more likely to be “lone wolves” (Menczel, 2016; Szabo & Egorov, 2016) and are likely to gravitate towards exercise forms that they can control.

In team physical activities or sports, no individual members can complete the task alone because they depend on interacting with their teammates (Anshel, 1991). Although several empirical research papers have compared team-based vs. individual-based exercise activities in relation to problematic exercise and yielded mixed results, there has arguably been no critical discussion of why the prevalence of exercise

addiction might differ across these forms of exercise. For instance, a sound theoretical rationale for why the existence or prevalence of exercise addiction in team sports might differ from individual-based exercises has not been previously posited. Therefore, the present position paper aims to fill this important gap in the literature.

In their recent review, Juwono et al. (2021) argued that the high prevalence of exercise addiction among athletes is an artifact. The argument appears logical because, on the one hand, athletes—like team exercisers—train by following a pre-set and often *externally-controlled schedule* that requires their personal life to be organized around their training regimen. On the other hand, urges and cravings that generally drive addictions cannot be scheduled. Therefore, elite athletes and team exercisers addicted to exercise would need to engage in *additional individual and self-controlled/scheduled forms of exercise* above and beyond their pre-organized team/athletic training. However, although over 1000 peer-reviewed papers have been published in this research area (Szabo & Kovacsik, 2019), the addiction issue in team-based exercises is still lacking. Noteworthy is that the term “exercise addiction” in most papers, including the present one, only refers to risk level or susceptibility to addiction since exercise addiction cannot be diagnosed in a lack of clinical criteria (Szabo & Demetrovics, 2022).

An important point of the present paper that must be clearly communicated is that while exercise addiction cannot be ruled out in team sports, its existence is tied to *individually controlled* “additional” exercise performed above and beyond team activities. Although studies often yield prevalence rates that could be considered high among team athletes, survey data merely reflect a potential risk (which may never become problematic), an unusually high commitment and/or a passion for exercise (Szabo & Demetrovics, 2022). Here, one should distinguish between the “risk” or assumed susceptibility and clinical concern in which a “harm” has occurred to the individual due to a morbid pattern of exercise. Therefore, exercise addiction research must separate survey-based nomothetic research results—assessing a presumed dysfunction risk—from clinically problematic, dysfunctional, and idiographic cases. In other areas of addictive behavior research, there are debates and discussions about the prevalence of online versus offline forms of potentially addictive behavior (i.e., the mode of gambling rather than the type of gambling). For instance, much research shows that the prevalence of online problem gambling in almost all studies is significantly higher than that of offline problem gambling. However, it has also been noted that nearly all online gamblers also gamble offline (Wardle et al., 2011). Moreover, studies have shown that problem gambling is lower among online gamblers than those who gamble only offline or both online and offline.

A similar argument may also apply to team-based exercise activities in relation to exercise mode. More specifically, in all the research that has examined differences between individual- and team-based exercise activities to date, it has been assumed by the researchers that team-based exercise equates to only exercising as part of a team. However, anecdotal evidence suggests that some individuals who engage in team-based training also engage in individual-based exercise activities in addition to their team-based sports. This tendency is particularly evident when sport becomes an elite activity. For instance, professional footballers, professional rugby players, and professional tennis players will also engage in other types of exercise (e.g., running, weight-training, swimming) to develop all-around body fitness to succeed in their chosen sport. In short, the categorizing of individuals as engaging in team-based sports in exercise addiction research has never considered that individuals classed as team-based sportspeople may also be engaging in as much individual-based exercise as they do a team-based activity, which could lead—on a *mastery path*—to exercise addiction as based on the interactional model (Dinardi et al., 2021; Egorov & Szabo, 2013).

Given that addiction relies on constant reinforcement and rewards a priori, it would be expected that the rates of exercise addiction among individual-based sports would be much higher than team-based sports because (theoretically) an individual could exercise many hours on their own every day, but this would be improbable in a team-based scenario. This observation may also explain why those who engage in team-based sports can sometimes have prevalence rates of exercise addiction that are as high as those among individual-based exercise activities because team-based sports players may also be involved in individual forms of exercise. Alternately, another plausible explanation is that the items on the psychometric instruments assessing exercise addiction developed with recreational athletes are interpreted differently by competitive (including team-based) exercisers (Szabo et al., 2015).

Literature Overview

To evaluate the extant literature, the present authors relied on *Google Scholar*. Given that this is a position paper and not a systematic literature review, the authors were confident that this academic search engine would identify almost all empirical studies examining individual vs. team-based exercise. After reading the title, abstract, and, in case of relevance, the complete text, the present authors included all studies that used exercise addiction or dependence in conjunction with terms like teams or team sport(s), team physical activity(ies), or team exercise(s). The authors also consulted the samples studied in papers included in recent literature reviews. It has been shown that *Google Scholar* locates 95% of citations in 252 subjects (Martín-Martín et al., 2018). Therefore, it is a comprehensive database. Furthermore, any empirical studies were missed (which is emphasized in the limitations); it is unlikely that their results would influence the message of the present position paper. The studies identified were then allotted into one of three categories: (i) no differences in exercise addiction between individual- and team-based sports; (ii) lower exercise addiction among team-based sports than individual sports; and (iii) higher exercise addiction among team-based sports than individual sports. These findings are briefly discussed below.

No Differences in Exercise Addiction Between Individual- and Team-Based Sports

Few studies have investigated exercise addiction among individuals engaged in team-based exercises (see Table 1). Therefore, a brief overview of their specific findings is warranted. First, we looked at the studies that found no difference in exercise addiction prevalence rates between team-based and individual-based exercise. For example, Lichtenstein et al. (2014) investigated exercise addiction among team sports players. Using the Danish version of the Exercise Addiction Inventory (EAI; Terry et al., 2004), their study compared the prevalence of exercise addiction among 98 Danish football (team sport) players and 176 Danish fitness (individual sport) exercisers. They reported exercise addiction prevalence rates of 7.1% among footballers and 9.7% among fitness exercisers (but this was not a statistically significant difference). They also noted differences in motivation, with fitness exercisers participating for health and weight reasons, whereas the footballers played for competition and enjoyment. Health-related reasons for exercising appear to be more closely related to exercise addiction than other reasons. For example, De La Vega et al. (2020) found that in a large sample (> 1000

Table 1 Summary of research examining exercise addiction in team exercises

Author (year)	Participants	Exercise Form	Instrument	Results	Conclusions
Pierce et al. (1993)	102 females	Ballet, running, field hockey	Negative Addiction Scale	Exercise addiction was lowest in field hockey players	Team-based exercise was associated with lower exercise addiction than individual exercise
Lichtenstein et al. (2012)	590 (355 men and 235 women)	Fitness exercisers, footballers	Danish Exercise Addiction Inventory	The exercise addiction scores were similar in fitness exercisers and football players	Team-based exercise was not associated with different exercise addiction scores compared to individual exercise
Szabo et al. (2013)	242 athletes (164 men and 78 women)	Various university sports and ultra-marathon runners	Spanish Exercise Addiction Inventory	Excluding ultra-marathon runners, exercise addiction was higher in team sports practicing university athletes	Team-based exercise was associated with higher exercise addiction than individual exercise
Lichtenstein et al. (2014)	274 men	Fitness exercisers, footballers	Danish Exercise Addiction Inventory	Exercise addiction scores were lower (7.1%) in football players than in fitness exercisers (9.7%), but the results were statistically not significant	There was a non-significantly lower prevalence of risk of exercise addiction in team-based exercise versus individual exercise
Costa et al. (2015)	262 (51% men)	Various team sports	Italian Exercise Dependence Scale	Leisure time physical activity is a predictor of exercise dependence scores	Supported the notion that those addicted to exercise train above and beyond their team exercises
García et al. (2015)	255 (43 women and 212 men)	127 in team sports and 128 in individual sports	Spanish Exercise Dependence Scale	No significant differences in exercise addiction were found between the team and individual sports	Exercise addiction risk appeared not to differ between the team- and individual sports

Table 1 (continued)

Author (year)	Participants	Exercise Form	Instrument	Results	Conclusions
Bingol and Bayansalduz (2016)	777 (313 women, 464 men)	Various sports	Turkish Exercise Dependence Scale	A statistically significant difference was noted between individual and team sports	Greater exercise dependence risk occurred in endurance sports and weight sports in contrast to team sports
De La Vega et al., (2016)	313 (204 men, 109 women), 244 in individual sports, 69 in team sports	17 different sports	Spanish Exercise Addiction Inventory	Team sports athletes reported greater harmonious and obsessive passion, but not different exercise addictions, than participants in individual sports	While no differences in exercise addiction in the team and individual sports were seen, the former group's addiction scores may comprise the passion for sport
Reche et al., (2015, 2018)	449 (320 men and 129 women)	Various sports, 325 in team sports, 124 in individual sports	Spanish Exercise Dependence Scale	No significant differences in exercise addiction were noted between the team- and individual sports	Exercise addiction risk appeared not to differ between the team- and individual sports
Maselli et al. (2019)	427 (229 men, 198 women)	Various individuals sports and seven interacting team sports	Exercise Dependence Scale	The risk of exercise dependence was highest among endurance sports (10.3%), followed by team sports (6.3%), fitness activities (5.9%), and esthetic sports (5%)	Statistically, none of the included sports were different in terms of the risk of exercise dependence
Karademir (2020)	410 (150 women and 260 men)	Gym and fitness center attendees	Turkish Exercise Dependence Scale	The lowest rate of exercise dependence was found among team sports and the highest among bodybuilding and fitness exercisers	Team-based exercise was associated with lower exercise addiction than individual exercise

Table 1 (continued)

Author (year)	Participants	Exercise Form	Instrument	Results	Conclusions
Kovacsik et al. (2020)	190 college athletes (78 men and 112 women)	Cheerleading, soccer, basketball, and (n=92) and gymnastics, running, and kettlebell (n=98)	Hungarian Exercise Addiction Inventory	The levels of risk for exercise addiction were identical (15%) in the team and individual sports	Exercise addiction risk appeared not to differ between the college team- and individual sports
Lichtenstein et al. (2021)	417 athletes (51% women)	15 different sports	Danish Exercise Addiction Inventory	Exercise addiction was higher in weight sports than ball sports, but endurance and esthetic exercisers reported even lower scores	Some types of individual sports might differ from team sports in terms of exercise addiction, but these were only tendencies

participants), among those at risk of exercise addiction, 79.3% exercised for a health-related reason, 13.4% for skill-related reasons, and 7.3% for a social reason.

An earlier study by Lichtenstein et al. (2012) validating the Danish EAI among footballers and fitness exercisers ($n=590$) reported that 5.8% were at risk of exercise addiction and that there was no difference between the two groups. A later study by Lichtenstein et al. (2021) assessed the prevalence of exercise addiction among Danish elite athletes ($n=417$) from 15 different sports disciplines using the EAI. The prevalence of high-risk exercise addiction was 7.6%. The prevalence concerning the type of sport engaged in showed inconsistency and non-significant differences: endurance/gravity sports, 5.5%; weight sports, 13.0%; esthetics, 3.0%; and other sports, including team sports, 8.9%. The total sample of elite athletes had the highest scores on salience, conflicts, and withdrawal symptoms.

Szabo et al. (2015) provided examples of how the items of the EAI can be interpreted differently by those addicted to exercise and competitive athletes. Therefore, the higher prevalence rates among football and handball players might be associated with different interpretations when scoring the EAI. Indeed, the original EAI (Terry et al., 2004) was neither intended nor developed to be used by athletes. However, studies have not followed up on the perceived meaning or interpretation of scale items among elite athletes and recreational exercisers.

In another study using the revised Spanish version of the Exercise Dependence Scale (EDS; Downs et al., 2004), García et al. (2015) examined the prevalence of exercise addiction among 255 Spanish college athletes (127 in team sports and 128 in individual sports). They reported a prevalence rate of 6%, and no significant differences existed between those engaged in team-based and individual-based sports. Similarly, Reche et al., (2015, 2018) examined the prevalence of exercise addiction among 449 Spanish athletes (72.4% engaging in team sports) using the revised EDS. They reported a prevalence rate of 8.7%. Like in García et al.'s study, there were no statistically significant differences between those who engaged in team- and individual-based sports.

De La Vega et al. (2016) also reported no difference in the prevalence of exercise addiction among Spanish competitive athletes and non-competitive leisure exercisers ($n=313$), with 69 engaged in team-based sports and 244 involved in individual-based sports. They also reported that compared to those engaging in individual-based sports, team-based sports athletes reported greater obsessive and harmonious passions (a finding also reported by Vallerand et al. [2003]). De La Vega et al. noted:

A partial explanation for this finding is that in addition to the physical and psychological characteristics of the athletic activity found in individual sports, the team sport also involves a social context that may impact both forms of passion. For example, winnings and celebrations, good cooperation, or coordination and motivation may be linked to harmonious passion, while expectations from others, training tasks and challenges, perceived athletic roles, and responsibilities may be associated with higher levels of obsessive passion. (p.329)

Using the EDS, Maselli et al. (2019) examined the prevalence of exercise dependence and its relationship with the drive for thinness among those engaging in four different types of sports and physical activities comprising Italian participants from endurance sports ($n=116$), esthetic sports ($n=100$), fitness activities ($n=101$), and team sports ($n=110$). The prevalence rate of exercise dependence on the EDS was highest among endurance sports (10.3%), followed by team sports (6.3%), fitness activities (5.9%), and esthetic sports (5%), but these differences were not statistically significant.

More recently, Kovacsik et al. (2020) examined the relationship between exercise addiction, harmonious passion, and obsessive passion in 190 Hungarian athletes (individual versus team sports). They found that harmonious and obsessive passion were significant predictors of exercise addiction. Obsessive passion accounted for 25% of the variance in team-based sports and 50% in individual-based sports, respectively (whereas harmonious passion added very little). However, the exercise addiction scores did not differ between individual-based and team-based sports participants.

Lower Exercise Addiction Among Team-Based Sports than Individual Sports

An early study by Pierce et al. (1993) used the Negative Addiction Scale (Hailey & Bailey, 1982) to compare the levels of exercise addiction among 44 ballet dancers, 39 female runners, and 16 female field-hockey players. Dancers scored higher than runners. However, as expected, and adhering to the argument of Juwono et al. (2021), the authors found that team sport players scored significantly lower on exercise addiction than dancers and runners.

Similar results were obtained by Bingol and Bayansalduz (2016), who studied exercise dependence among Turkish athletes in various sports ($n=777$). They found that the risk of exercise dependence was greater in individual sports (19.26%; endurance sports and weight training) compared to team-based sports players (13.31%; football, volleyball, basketball, and handball). Again, these findings align with the conjecture that the risk of exercise addiction is lower for those engaged in a team than individual-based exercise.

Finally, Karademir (2020) examined the prevalence of exercise dependence among 410 Turkish participants who had accessed gyms or fitness centers for at least 24 months (including 108 team sports players). A prevalence rate of 6.8% exercise dependence emerged for the total sample, with the lowest rate (not explicitly reported) among those who engaged in team sports and the highest among those who engaged in bodybuilding and fitness sports. The author speculated that the social interactions and friendships between team players might be a factor that inhibited exercise dependence development.

Higher Exercise Addiction Among Team-Based Sports than Individual Sports

Using the Spanish version of the EAI, Szabo et al. (2013) examined exercise addiction among three different groups of Spanish athletes: university team sports players ($n=57$), university non-team sports exercisers ($n=90$), and elite ultra-marathon runners ($n=95$). The risk of exercise addiction was higher among sports team athletes than individual athletes, which they concluded could be an artifact. They justified their reasoning with the following statements:

Since addiction, as a psychological morbidity, cannot be lived out in an organized manner (training), it is possible that athletes in team sports interpret some items of the EAI in a confounding way. Indeed, the current results call for a systematic re-investigation of the validity of the EAI in team sports. (p.251)

Costa et al. (2015) examined exercise dependence among Italian team sport athletes ($n=262$) using the Italian version of the revised Exercise Dependence Scale (EDS; Downs et al., 2004). The participants were from nine team sports (football, futsal, volleyball, basketball, softball, handball, hockey, rugby, and water polo). They reported that 18.3% of team sport athletes were at risk of exercise dependence. In accord with the possibility of

exercise addiction in organized sports, these authors also reported a statistically significant relationship between leisure time physical activity and exercise dependence. While this study only examined team-based sports and did not compare findings with participants engaged in individual-based sports, it has a significant contribution in showing that leisure time physical activity among team-based exercisers is a predictor of exercise addiction.

What the Research Suggests

The first noteworthy observation from Table 1 is that the included studies used three different psychometric instruments to assess exercise addiction in six languages and nations. Their sample size varied from 102 to 777. The type of exercise/sports activities investigated in these studies comprised at least 17 types. The question then is whether the mixed findings in the final column are surprising considering the significant heterogeneity in sample size and type of exercise examined as well as instruments used to assess exercise addiction. The observation from Table 1 suggests the need for some systematic grouping or classification of exercise addiction research. Instead of a specific form(s) of exercise, some more general grouping, such as team vs. individual exercise/sport, competitive vs. non-competitive physical activity, recreational vs. professional exercise/sport, or organized vs. self-scheduled physical activity, is worth considering. The present position paper examined team-based versus individual exercise. However, the former may include “additional” self-scheduled training. The latter can be organized or self-scheduled, which should be considered in future research because these factors influence control, as discussed below. Control or freedom over addictive behavior is essential in satisfying reoccurring urges and cravings in all addictions.

Findings in Table 1 suggest that the bulk of research could not report differences in the risk of exercise addiction between team-based and individual-based exercisers and implied a lower overall prevalence of exercise addiction/dependence among the team-based exercisers than individual-based exercisers. The latter would be logical, considering that addiction is not a group phenomenon. However, individuals addicted to exercise in team sports might abuse exercise for two reasons based on the interactional model (Dinardi et al., 2021; Egorov & Szabo, 2013). One is the mastery path, in which the affected exerciser does not recognize physical limitations and pushes training until they experience injury (and re-injury), creating physical and psychological health damage. The other path reflects a means to escape from significant life stress in which exercise is used as a coping method. For example, team athletes may choose further exercise to deal with stress because it is an unstigmatized means, unlike substance abuse, that would jeopardize their training performance. In brief, we posit that exercise addicts are “lone wolves” whether they engage in team- or individual-based sports.

Additionally, based on the components model (Griffiths, 2005), some classic symptoms of addiction are likely controlled or repressed in team-based exercises. For example, tolerance can only surface in team sports if individuals perform *additional exercise* alone (to suit their dose-dependent addictive needs) above their usual training in the team. Withdrawal symptoms could also be alleviated similarly. However, team sport participation may align with salience (even through passion), mood modification (due to performance, mastery, or social factors), and conflict (training demands could interfere with educational, occupational and/or social obligations). In terms of relapse, given that an individual has little or no control over the timing and volume of training in team-based exercises, it can

naturally occur after injury or off-season training. Alternately, it may mirror addictive tendencies if the individual engages in additional exercises that could interfere with the regular training (fatigue, burnout, etc.). Despite attempts to cut down on these individual training episodes, the individual always reverts to the previous volume of additional training. Consequently, researchers face a dilemma concerning the self-evaluation of the classic symptoms in the components model as pertaining to healthy or unhealthy exercise.

Nomothetic Versus Idiographic Studies

While scales used in surveys (i.e., nomothetic approach) assesses a specific “level of risk” regarding exercise addiction, case studies (idiographic approach) portray the subjectively experienced problematic nature of too much training. However, there are very few published cases in the literature (Szabo & Demetrovics, 2022). Juwono and Szabo (2021) reviewed and classified 100 testimonials on exercise addiction retrieved from non-academic literature (i.e., internet resources) to compensate for this shortage in academic publications. They found that *every single case of exercise addiction stemmed from individual exercisers* (Juwono & Szabo, 2021). They also found that 80% of the recorded cases involved women. This finding may be related to women being more open about disclosing their problematic exercise than men (Juwono & Szabo, 2021). However, an important question is why the exercise mode was exclusively individual in Juwono’s and Szabo’s study. The most likely answer is that co-acting or interacting for a reason is difficult in all forms of addiction. An individual must have complete control over the timing, volume, and mode of their addictive behavior.

Prevalence Ranges of Exercise Addiction in Team Sports

A recent systematic review by Di Lodovico et al. (2019) examined which sports were most associated with exercise addiction. They examined all studies ($n=48$) using the Exercise Dependence Scale (EDS) and Exercise Addiction Inventory (EAI) (of which 26 used the EDS, 20 used the EAI, and two used both the EAI and EDS). Using the sports categories developed by Caselli et al. (2015), they reported that exercise addiction, as gauged with the EDS and EAI, was 15.3% and 10.4% for team-based ball games, 10.7% and 6.4% in power disciplines, 6.0% and 8.2% in health and fitness exercises, 3.5% and 14.2% in endurance sports, and finally 1.9% and 3.0% in the general population. The discrepancy in prevalence rates might be due to EDS assessing dependence while EAI assesses addictive symptoms.

In a narrative review paper, Godoy-Izquierdo et al. (2021) reported that the prevalence rates of exercise addiction were between 7% and 28% among football (soccer) players. They also argued that other studies partially supported these findings (e.g., Scott et al., 2020, 2021) and that there was reduced disordered exercise behavior because of team connectedness and the relationships individuals had with their teammates. Indeed, Scott et al., (2020, 2021) suggest that positive teammate relationships, or solid social cohesion within a team, protect against eating disorders and exercise-related psychopathologies. Karademir (2020) also made a similar suggestion. Therefore, the protective role of social cohesion in team-based exercises deserves future empirical attention.

Addiction Cannot Be Scheduled

Juwono et al. (2021) argued that elite and team sports, whether competitive or recreational, are organized sports scheduled independently of an individual's urges and cravings for exercise. Hausenblas and Downs (2002) defined exercise addicts as having an insatiable craving for their adopted exercise, which might compromise their health. Such cravings cannot be satisfied on pre-determined schedules set by those external to the individuals themselves. Therefore, those in team sports, if addicted to exercise, must commit to additional self-scheduled exercise or leisure time physical activity on an individual basis to assert control over the timing of an urge-driven exercise. This conjecture does not mean that exercise addiction does not exist among team exercisers, as discussed earlier. It simply highlights that the affected individual, in this case, is still a "lone wolf" who has to control and satisfy exercise-related urges independently of team exercise activities. Indeed, research shows that leisure time physical activity predicts the risk of exercise addiction among individuals engaged in team-based sports (Costa et al., 2015). The main proposition of the present position paper is that in team-based exercise—if the individual reports no additional self-scheduled training—the study of exercise addiction may be futile. Furthermore, in individual sports or exercises that are not self-organized and scheduled, the likelihood of addiction is very low in lieu of 'additional' self-controlled training.

Limitations

One limitation of the present position paper is that it was unable to separate self-organized and club or athletic organization-level organized individual and team-based activities. This shortcoming is mainly due to the lack of reporting on this aspect in the studies reviewed. Therefore, those working in this field are urged to report this aspect of their samples' exercise behavior in future research because it is crucial in terms of "control" which is a critical aspect in addictive behaviors. Another limitation is that the papers reviewed were identified using *Google Scholar* only, which based on the findings of Martín-Martín et al. (2018) misses approximately 5% of relevant studies. However, the present authors believe that the main proposition of the paper (i.e., that in team-based exercise—if the individual reports no-additional self-scheduled training—the study of exercise addiction may be futile) would not have changed, even if any relevant studies had been omitted.

Conclusions

The concept of exercise addiction within the team-exercise context is under-researched and remains relatively unclear. The present position paper stresses that exercise addiction (like all addictions) is a personal phenomenon irrespective of the usual exercise environment. This conclusion is consistent with the widely accepted clinical, interactional model of exercise addiction (Egorov & Szabo, 2013). The model purports that each case is individual and has an antecedent engraved in a "black box" containing numerous personal and situational interactions that lead to addictive exercise.

The key rationale of the present authors' position is that an individual must control the addictive behavior (i.e., avoid withdrawal, adapt to the need for more exercise, and satisfy

sudden and unpredictable urges and cravings) that cannot be done within an organized or interacting group setting. Studies discussing addiction in team exercises are based on survey findings, which may reflect an above-average commitment and passion for sports and the team's social environment (Szabo & Demetrovics, 2022). Therefore, in future studies examining team-based or individual-based exercise forms, researchers are advised to gauge the “extra” leisure time or freely-scheduled physical activity among team-based exercisers to identify the possibility of exercise addiction. If problematic exercise is identified in this context, treatment should proceed as in individual exercisers. Addiction is unique to the individual and always requires personalized attention. This consideration is especially important among team-based exercisers since the additional exercise performed to fuel addiction could be detrimental to athletic performance and could even result in career termination due to injury, re-injury, or burnout.

Declarations

Ethical Approval Not applicable.

Informed Consent Not applicable.

Conflict of interest The authors declare no competing interests.

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