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Original Article

PREVALENCE OF *BURNOUT* IN SOCCER ATHLETES OF THE UNDER-20 CATEGORY OVER A SPORTS SEASON

PREVALÊNCIA DO *BURNOUT* EM ATLETAS DE FUTEBOL DA CATEGORIA SUB-20 AO LONGO DE UMA TEMPORADA ESPORTIVA

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RESUMO

Os objetivos deste estudo foram (a) construir uma tabela de referência para o *burnout* em atletas de futebol da categoria sub-20 e (b) verificar as oscilações individuais na percepção destes atletas em relação ao *burnout* ao longo de três períodos da temporada esportiva. Participaram 53 atletas de futebol da categoria sub-20. Foi utilizado o Questionário de *Burnout* para Atleta nos períodos de treinamento, competição e férias durante uma temporada esportiva. Foi construída uma tabela de referência do *burnout* para atletas de futebol da categoria sub-20 para cada período avaliado. Foram encontradas oscilações nos valores médios da frequência do *burnout* total dos atletas durante os 3 períodos: treinamento($\bar{x}$=1,35±0,13 e$\bar{x}$=2,11±0,19), competição ($\bar{x}$=1,26±0,13 e $\bar{x}$=2,27±0,24) e férias ($\bar{x}$=1,27±0,14 e $\bar{x}$=2,18±0,28).Baseado na tabela de referência e na classificação individual de cada atleta observou-se que 32 atletas apresentaram oscilações na percepção de *burnout* durante a temporada esportiva e 21 atletas não apresentaram oscilações nos sentimentos de *burnout* ao longo dos 3 períodos de avaliação. O período que teve o maior número de atletas (n=17) com alto nível de *burnout* foi o de treinamento. Conclui-se que não é possível estabelecer um comportamento único e coletivo a respeito das oscilações dos níveis de *burnout* em atletas da categoria sub-20 durante uma temporada esportiva e que a tabela de referência da categoria contribui para uma maior acertibilidade da avaliação do *burnout* em cada período da temporada.

Palavras-chave: Esgotamento profissional. Atleta. Psicologia do esporte.

ABSTRACT

The aims of the current study were: (a) to construct a reference table for *burnout* in soccer athletes of the U-20 category and (b) to verify the individual oscillations in the perception of these athletes in relation to *burnout* over three periods of the sports season. In total, 53 U-20 soccer athletes participated. The Athlete Burnout Questionnaire, Brazilian version, was applied to athletes during training, competition, and vacation periods of the sports season. A reference table was built for under-20 soccer athletes for each assessment period. Fluctuations were observed in the mean values of the total *burnout* frequency of the athletes during the 3 periods: training ($\bar{x}$=1.35 ± 0.13 and$\bar{x}$=2.11 ± 0.19), competition ($\bar{x}$=1.26 ± 0.13 and $\bar{x}$=2.27 ± 0.24), and vacation ($\bar{x}$=1.27 ± 0.14 and $\bar{x}$= 2.18 ± 0.28). Based on this table and the individual classification of each athlete, it was observed that 32 athletes presented fluctuations in the perception of *burnout* during the sports season and 21 athletes did not present fluctuations in feelings of *burnout* during the three evaluation periods. The period with the highest number of athletes (n = 17) with a high level of *burnout* was the training period. It is concluded that it is not possible to establish a single and collective behavior regarding the fluctuations in *burnout* levels in athletes of the U-20 category during a sports season, and that the category reference table contributes to greater accuracy of the *burnout* evaluation in each period in the season.

Key-words: Professional exhaustion. Athlete. Sport Psychology.

Introduction

The U-20 category of Brazilian soccer represents a defining moment for young athletes in their soccer career. Screening by a member of the coaching staff, especially the coach, can be decisive for the athlete's continuity or not in the training process in this category and consequently for the player's professionalization. The pressure that athletes experience to maintain a high level of performance over a season is related to factors such as stress, anxiety, worries, and uncertainties about the future[1,2]. All these factors make athletes more susceptible to the risk of manifesting *burnout*[1,2].

Burnout is understood as a process arising from excessive work demands and is strongly associated with human relationships[3,4]. In the sports context, Raedeke[5], and Raedeke and Smith[6] define *burnout* from the dimensions of physical and emotional exhaustion, a reduced sense of sport achievement, and sport devaluation. The physical and emotional exhaustion dimension is associated with the intense demands of training and competitions, the reduced sense of sporting achievement is related to dissatisfaction with sporting skill and dexterity, and the sporting devaluation dimension is interpreted as a negative and indifferent attitude towards something important in a given domain[6]. Review studies demonstrate the growth in investigations in *burnout* syndrome in sport in recent years, especially in athletes[7-11], however the majority of these investigations are cross-sectional evaluations, with little information regarding longitudinal studies.

In the practical context, there are few reports on the incidence of *burnout* in athletes. An analysis based on statistical evidence showed that between 1% and 7% of elite athletes may suffer from high levels of *burnout*, while another 15% may have moderate symptoms[12]. Gustafsson et al.[13] also identified the incidence of *burnout* in young athletes and pointed out variation between 2% and 6% in *burnout* symptoms of male athletes. Male athletes in team sports have a higher frequency of negative feelings in the dimensions physical and emotional exhaustion and sports devaluation than individual sports athletes[12,13]. Gustafsson et al.[13] attributed some explanations for this issue to training overloads, emotional stress, relationship conflicts, and interest of male athletes in collective modalities. Analyzing each collective modality separately, there is a reduced amount of evidence from studies with soccer athletes in the process of sports training, which does not allow deeper analysis of this problem throughout a sports season[1,10,11].

Another gap found in this area of investigation is associated with the construction of specific reference tables by modality, sex, and age group. Currently, the *burnout* tables are generic, which often causes misinterpretation of an athlete's feelings of *burnout*. An example of this type of evaluation is the study by De Francisco et al.[14] which showed that approximately 55% of athletes had a low risk of *burnout*, 28.7% a moderate risk, and 12.7% a high risk of manifesting *burnout.* However, these analyses and risk classifications were made using generic tables and did not take into account the specificities and competitive and socio-cultural contexts of each of the modalities. Furthermore, according to the same authors, approximately 4% of the athletes in the evaluated sample suffered from *burnout* in the training period.

There is evidence that the incidence of *burnout* syndrome may vary depending on the sport[2,7,13], sex[2,7,13], age group[7], and training volume[2] of the athlete and, given the lack of specific reference tables that consider these specificities, it is possible that there are problems of overestimated or underestimated assessments of the athletes' perception regarding the symptoms of *burnout* in performance sport[11].

In Brazil, Pires et al.[15]suggest that scores according to the *Likert* scale be used as references, for example, if an athlete obtains an average of 2.5 for the physical and emotional exhaustion dimension, it is considered that this individual frequently presents feelings related to this subscale of from rarely to sometimes. A review was recently carried out on the psychometric properties of the QBA[16]. Guedes and Souza[16] confirmed the structure of the QBA to measure *burnout* in young athletes and indicated the need to establish *burnout* cut-off points for the classification of young athletes in different modalities and performance levels, aiming at a more reliable evaluation. Thus, one of the contributions of the currents study is to propose a reference table capable of more safely classifying the frequency of feelings of *burnout* in U-20 athletes in Brazilian soccer.

It is known that the manifestation of *burnout* in athletes has been identified as a dynamic process that fluctuates according to the demands of stress and pressure during a

sports season[7,17,18]. Lai and Wiggins[19] compared the levels of this syndrome in soccer athletes aged 19 to 38 years over a sports season and found that the values of perception of *burnout* at the end of the season were higher than those obtained at the beginning. In Brazil, Bemfica et al.[20] evaluated the levels of *burnout* in male professional soccer players at two moments of the Brazilian Championship and identified a low and stable frequency of feelings regarding *burnout* at the beginning and end of this competition. Among the studies that investigated *burnout* longitudinally in athletes[18-23], few sought to verify the longitudinal oscillations of *burnout* in soccer[18-22], and there is a particular lack of information on athletes in training and from different base categories.

By monitoring and evaluating *burnout* longitudinally in young athletes in training, it will be possible to establish a parameter of behavior and oscillation in this syndrome throughout a sports season. In the base categories, vacation periods, training, and competition are marked by different demands and requirements during the athlete training process[16,20]. This study intends to advance this discussion and contribute to the construction of a specific reference table to evaluate *burnout* in U-20 soccer players, as well as to verify individual fluctuations in *burnout* symptoms in athletes over three periods of the sports season (vacations, training, and competition).

Thus, the objectives of this study were: (a) to build a reference table for *burnout* in U-20 soccer players and (b) to verify individual fluctuations in these athletes' perception of *burnout* over three periods of a sports season.

Methods

Participants

A sample calculation was performed using the equation[24] $n = [(1-r^2) \times (t\alpha; gl) .^2 / r^2] +2$, where: n = number of individuals, r = correlation, t = value found in the table t, α = level of significance, and gl = degrees of freedom, resulting in a minimum number of 45 soccer players in the U-20 category for the sample of this study. In total, 53 federated soccer players of the U-20 category participated in this study (mean age 19.20 ± 0.96 years; time of competitive experience 5.22 ± 2.47 years), born in five regions of Brazil. These athletes had work contracts with four soccer clubs in the A series of the Brazilian Championship and at the time of the study they were competing for the U-20 Brazilian Championship of the category for their respective associations. All 20 clubs that had the right to compete in this competition were invited to participate in the three phases of the study, but only 04 clubs (20%), 02 from the south region and 02 from the southeast region, agreed to release their athletes for this longitudinal evaluation throughout the sports season.

Instruments

The *Burnout* questionnaire for athletes (QBA) was used, validated for Brazilian athletes[15,16]. The instrument is made up of three dimensions: physical and emotional exhaustion, reduced sense of sports achievement, and sports devaluation, evaluated through 15 questions, with question number 1 -" I'm doing a lot of worthwhile things in sports" and question number 14-" I feel successful in the sport" computed with inverted values. The QBA contains a Likert scale of 5 points varying from 0 (almost never) to 5 (almost always), and should be completed based on the situations experienced by the athlete. To calculate the total *burnout* score, the arithmetic mean of the responses attributed to each dimension of *burnout* is calculated. The overall internal reliability of the QBA was calculated by period: training α=0.70, competition α=0.70, and vacation α=0.74. In addition to this instrument, a demographic data questionnaire was applied during the 3 periods of the sports season

(vacations, training, and competition) in order to collect information about the profile and characteristics of the sample.

Procedures

The study was approved by the ethics committee of the Federal University of Minas Gerais under number CAAE-29062614.0.0000.5149. The application of the QBA was carried out during three periods of the season (training, competition, and vacation) according to the national competitive calendar of U-20 soccer teams in 2014. The collections took place in reserved places in the training centers or in rooms/auditoriums of the hotels where the athletes were staying during the Brazilian U-20 Soccer Championship.

To analyze *burnout* over the course of a season, three collections were carried out, the first during the training period (August/September), the second during the Brazilian U-20 Soccer Championship (December), and the third after returning from vacation (February/ March).

The collection during the training period was characterized by the absence of official games and competitions. The goal of the athlete in this period was the training and development of technical, tactical, physical, and psychological skills. In total, 96 U-20 soccer players from four Brazilian A-series professional soccer clubs participated in this stage. The second collection took place the day before the last decisive game of the first phase of the Brazilian U-20 Championship and characterized the competitive period of this sample. In total 71 athletes were reassessed. The final collection was performed on the first day the athletes returned to the club after the vacation period. The vacation period of all athletes who participated in this collection varied from 15 to 30 days; on this occasion 53 athletes were evaluated. As an inclusion criterion to compose the sample of this study, only the 53 athletes who participated in all three collections denominated training, competition, and vacation were selected.

Statistical analysis

To analyze the overall internal consistency of the QBA instrument, *Cronbach's alpha* test was used. The normality of the data was verified by the Shapiro Wilk test. As the data collected did not present normal distribution ($p=0.043$), the *Kruskal-Wallis* and *Friedman* non-parametric tests were used.

For interpretation and evaluation of the *burnout* values of the study sample, a reference table was built and validated for each period (training, competition, and vacation) in which the values of frequency of feelings of total *burnout* presented by the athletes were grouped into three levels: low, moderate, and high. This grouping by level followed the recommendations established by Maslach and Jackson[25] and Gustafsson et al.[13] In addition, to guarantee the differences between the classifications (low, moderate, and high) by period, the *Kruskal-Wallis* test was performed, with *Bonferroni's post-hoc* test, in order to verify whether the three created groups differed from each other.

After verifying the statistical differences between the classifications, a reference table was built with each of the 53 athletes being classified by period of the sports season in relation to their perception of sports *burnout*: high, moderate, and low.

Subsequently within each period, the number of athletes was transformed into percentage numbers (%). To compare the general distribution of the frequency of feelings of *burnout* at different periods of the season, the *Friedman* test ($p < 0.05$) was used, with *Dunn's post-hoc*. The calculation of the effect size (ES, effect size) adopted for all comparisons was carried out following the recommendations of Field[26] with the ES reference values; small

(≤0.3), medium (> 0.3 and <0.5), and large (≥0.5). All analyses were performed using SPSS® software (21.0) and the significance level adopted was 5%.

Results

Table 1 presents the reference values of the levels of frequency of feelings of *burnout* for Brazilian soccer athletes in the U-20 category. A significant difference was found between the values of frequency of feelings of *burnout* (low; moderate; high p = 0.001) for each period of the season.

A high effect size was identified for the observed differences, with the frequency of *burnout* feelings being classified as low and moderate (ES=0.87), low and high (ES=0.89), and moderate and high during the vacation period. (ES=0.74); low and moderate (ES=0.84), low and high (ES=0.91), moderate and high (ES=0.79) in the training period; and low and moderate (ES=0.87), low and high (ES=0.94), and moderate and high (ES=0.93) in the competition period.

Table 1. Reference table for the classification of Brazilian U-20 soccer players in relation to total burnout for vacation, training, and competition periods

	Training			Competition			Vacation		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
BT	≤1.47*	>1.47 - <1.93*	≥1.93*	≤1.46*	>1.46 - <2.07*	≥2.07*	≤1.40*	>1.40 - <2.00*	≥2.00*
M	1.35	1.71	2.11	1.26	1.72	2.27	1.27	1.71	2.18
SD	0.13	0.10	0.19	0.13	0.13	0.24	0.14	0.11	0.28

Note: *Burnout* total (BT); Mean (M); Standard Deviation (SD); (*) significant p≤ 0.05. The total *burnout* represents the construct in its entirety. The mean and standard deviation values are references of the analyzed sample and were used to calculate the effect size between the low, moderate, and high values of each period of the season.
Source: The authors

According to the indicators in Table 1, the 53 athletes evaluated were classified according to levels of perception (high, moderate, and low) in each of the three periods of the sports season (training, competition, and vacation). Table 2 shows that the training period was the one with the highest number of athletes (n=17) with high levels of feelings of *burnout*.

Table 2 presents the classification and incidence of the frequency of feelings of *burnout* individualized for each athlete throughout the sports season. From the data, it is possible to analyze the number of times that each athlete presented low, moderate, or high levels of *burnout* in the three analyzed moments (training, competition, and vacation).

Table 2. Distribution of Brazilian soccer players in the U-20 category by levels and incidence of *burnout* throughout the sports season

Levels*	Training	Competition	Vacations	Incidence	Number of athlete
High	17 athletes	15 athletes	15 athletes	3	9,18,23,25,32,35,47
				2	1,15,22,24,28,42,50
				1	4,7,12,13,14,26,29,34,36,41, 45,51
Moderate	22 athletes	25 athletes	22 athletes	3	3,5,6,8,16,17,21,30,43
				2	4,7,12,13,14,29,34,36,40,44, 45, 46,48,51,53
				1	2,11,15,19,20,28,33,38,39, 42, 49,50
Low	14 athletes	13 athletes	16 athletes	3	10,27,31,37,52
				2	2,11,19,20,26,33,38,39,41,49
				1	1,22,24,40,44,46,48,53
Total	100% (53 athletes)	100% (53 athletes)	100% (53 athletes)		

Note: * Levels = classification of *burnout* according to the frequency table (low, moderate, high); * Incidence = number of times the athlete repeated that level of *burnou*t throughout the season
Source: Study data

Regarding the stability of the feelings of *burnou*t throughout the sports season, it was observed that 21 athletes (39.62%) demonstrated stability in frequency of feelings of *burnout* throughout the season, that is, in the three evaluation periods (training, competition, and vacation) they maintained the same perception about their feelings, split into 07 athletes (13.20%) who maintained high levels of frequency of feelings; 09 athletes (16.98%) remained at moderate levels and 05 athletes (9.43%) remained at low levels.

Figure 1 presents, for periods of the season, the percentage of athletes who presented low, moderate, and high levels of frequency of feelings for *burnout*. Comparisons were made between the frequency of feelings of *burnout* and the periods of the sports season.

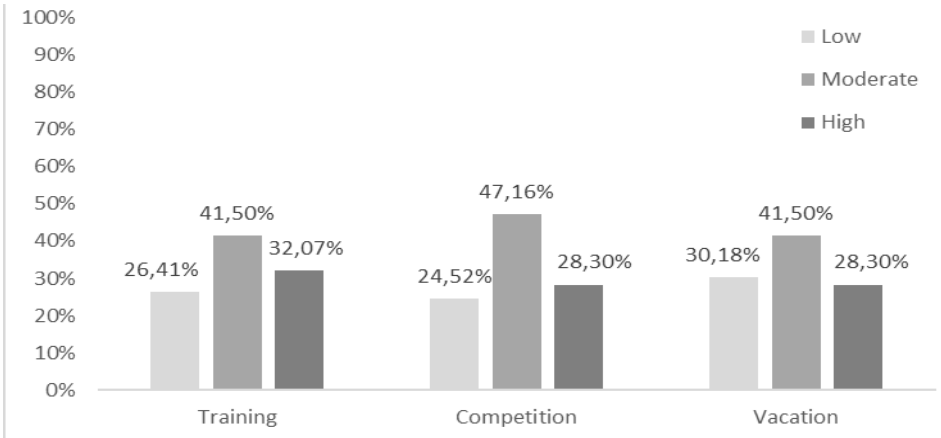

Figure 1. Percentage distribution of the frequency levels of *burnout* feelings of athletes by period of the season
Source: The authors

It is observed that moderate levels of frequency of feelings of *burnout* were the most commonly reported by athletes during the three periods of the season. During the training

period, moderate levels of *burnout* were more frequent in the perception of athletes than the frequency of high levels (p=0.001; ES=0.78 high) and low levels (p=0.001; ES=0.83 high).

In competition, the moderate frequency of feelings remained the most perceived among athletes, being significantly different from the incidence of the frequency of high (p=0.001; ES=0.82 high) and low frequency (p=0.006; ES=0.87 high).

In the basal period of return from vacation, the frequency of moderate feelings of *burnout* remained the most commonly perceived by athletes. Significant differences were found between moderate and high frequency levels (p=0.004; ES=0.78-high) and between moderate and low levels (p=0.012; ES=0.40 medium). It was observed that 90.53% (n=48) of the athletes presented high and moderate values of perception of *burnout* in at least one period of the sports season (Table 2). After the vacation period, 69.81% (n=37) of the athletes presented moderate or high values of frequency of feelings of *burnout*. This fact is alarming since the athletes are returning from a period of recess from sports activities in the clubs.

Discussion

The objectives of this study were to build a *burnout* reference table for U-20 soccer players and to verify the individual fluctuations in the perception of *burnout* of these athletes over three periods of the sports season. The construction of a specific reference table for the U-20 category of Brazilian soccer provides a more reliable analysis of the *burnout* of these athletes, with less interpretation error, in addition to being a low-cost tool, that is easy to apply and allows coaches and members from the technical commission to more accurately control the *burnout* indicators of the athletes in their squad throughout the season.

In Brazil, previous studies on *burnout* in soccer athletes did not use specific reference tables to assess the levels of frequency of feelings of *burnout*[18,20,21]. In summary, the search for a specific reference table for a given category and sport modality contributes to a new level of scientific demand, precision, and reliability of *burnout* behaviors, as well as enabling a more rigorous and precise evaluation, which will result in more effective interventions with athletes by professionals.

In general, the results showed that during the soccer sports season, seven athletes (13.20%) presented high levels of frequency of feelings of *burnout* during the 3 periods evaluated (Table 2). When comparing this result with the few findings in the literature that analyzed *burnout* individually in athletes, it was observed that the results are very similar in relation to the percentage of athletes affected with high levels of *burnout*[21,27,28].

Pires et al[27] and Hill et al.[28] evaluated *burnout* in soccer athletes and indicated that although most of the athletes analyzed presented moderate to low levels for the dimensions of *burnout*, considering the values of the dimension Reduced Sense of Sports Achievement and Physical and Emotional Exhaustion, a small percentage of athletes could be exhibiting more extreme thoughts and feelings related to the syndrome. De Francisco et al.[14] evaluated 442 athletes from 34 sports and indicated a mean level of frequency of feelings of 2.18 for total *burnout* and a percentage ranging from 3.4 to 3.8% of athletes manifesting the syndrome.

These data reinforce that the behavior of *burnout* needs to be assessed individually, especially in collective modalities, such as soccer, so that one does not make the mistake of neglecting athletes with high values of *burnout* and who need special and individualized attention to deal with the syndrome. Previous studies have pointed out that in collective team evaluations, athletes who are part of a group presented a higher risk of *burnout* during the base-professional transition period[13,29,30]. High *burnout* indicators affect not only an athlete's sports performance, but also other spheres of their personal and social life[5,22,31,32].

The results of the current study showed a percentage of 16.98% of athletes with moderate levels of frequency of feelings of *burnout* throughout the sports season (Table 2).

The result reinforces that these individuals are not fully recovering from stress factors throughout the season and is an indication that stress, a fundamental variable for the emergence of *burnout*[32], is being maintained in a chronic way.

In summary, in the current study it was identified that 30.18% of the soccer athletes evaluated in the U-20 category did not present oscillations and maintained high and moderate levels of *burnout* throughout the sports season. It should also be noted that all 04 teams participating in the study included athletes with high and moderate levels of *burnout*. These data allow us to infer that the problem is not located in one team, but in the entire U-20 category.

It is important to highlight that 9.43% of the soccer athletes remained stable with no oscillations throughout the season with low levels of frequency of feelings of *burnout*, indicating remote possibilities of manifestation of the syndrome. Evidence shows that low levels of *burnout* are associated with effective coping strategies[11,31,33], self-directed perfectionism[10,11], passion for sport[10], and also for the ability of these individuals to deal with the stress, pressures, demands, and uncertainties existing in this category throughout the season, in relation to the final stage of promoting the base category towards the professional team.

According to the literature, athletes who fluctuate between high and moderate levels of *burnout* throughout the season may be involved with thoughts and feelings of uncertainty regarding their future and performance, frustration, demotivation, or lack of perception of success[6,18,29-31]. In Brazilian soccer, the transition process from U-20 to professional athletes is very intense and difficult. Estimates point out that from a list of 30 athletes belonging to the U-20 category, between 1 and 3 athletes will have real chances of becoming professional in the team in which they trained. As shown by Soares et al.[34], in soccer, the desire for promotion in sport is more potent than the concrete opportunities offered, which increases the possibility of *burnout* due to problems such as the devaluation of sport and the reduced sense of sporting achievement.

This rigorous selection process in which most athletes do not receive the opportunity in the training club itself to pursue a professional career as a soccer athlete ends up producing countless frustrations and disappointments, both on and off the field, in the lives of these individuals. It also causes alterations in the personal, family, and professional lives of these athletes[30], as in many cases they will have to try to continue their sports career by looking for a new club, moving to another city, and moving away from family members and their social cycle. All of these factors combined contribute to a higher probability of manifestation of *burnout*[31-33,35], especially in the U-20 category, which is the last divider between amateurism and professionalization, which reinforces the need for individualized monitoring and the establishment of specific benchmarks for this category.

Only 5 athletes presented low levels of perception of *burnout* throughout the season, the other athletes evaluated showed moderate and high levels in at least one period of the sports season, which allows us to hypothesize that the vacation period was not enough for them to achieve full physiological, emotional, and social recovery. In addition to this process, in the U-20 category, there is uncertainty throughout the season as to whether the efforts made during training and matches will be sufficient for these young athletes to be approved and utilized in the professional category.

It is worth noting that in the training period the record with the highest percentage of athletes was 32.07% (17 soccer athletes) with high levels of frequency of feelings of *burnout*. The explanation for this problem may be related to the high demand from training loads in this period associated with excessive demands for the improvement of the athletes' performance by the members of the coaching staff. The probability that an athlete has high levels of *burnout* is associated with a conflicting relationship of expectations between what

the athlete is able to produce with respect to the sport at that time, to the detriment of the needs and demands of the club and the coaching staff[10,31].

All these signs of *burnout* due to the training period are documented in the literature[11,13]. During the training period, there will usually be an increase in the training load aiming to improve the athlete's technical, tactical, physical, and psychological skills, resulting in improvement in sports performance. However, the athlete is not always able to deal with all the psychophysiological and social demands of the training period and, when this occurs, it generates a feeling of fatigue and physical and emotional exhaustion in the athlete, aligned with the frustration of not being able to reach their goal, triggering symptoms of low self-esteem and a reduced sense of sports achievement[27].

Added to this is the fact that during the training period, especially in the U-20 category of soccer, the coach and entire technical team are closer to the athletes and in daily contact within the training center, since most athletes live on the club's premises and are invited to participate in training with the professional team, at which time they are evaluated both by the members of the technical committee of their respective category, as well as by members of the professional team. In summary, this is a period when they are in the training centers of their respective clubs, are required to give the maximum of their sports productivity, and are evaluated daily in training by different people who are responsible for defining the future of these athletes and their continuity or not in the club.

The increase in the frequency of feelings of *burnout* during the sports season, that is, the greater incidence of the syndrome during periods of training and competition, is also explained by the reason that the majority of these athletes have made numerous sacrifices regarding the aspects of leisure and social coexistence due to their sporting careers and the dream of becoming a professional soccer athlete[36,37]. In Brazil, young people are often removed from their family relationships to live in training centers where they are also subjected to an intense training routine with strict schedules to wake up, sleep, and eat, which favors social isolation and little contact with other social groups outside the soccer environment[20,34,37].

Garcés de los Fayos and Mojena[38] showed that, especially during a competitive period, the relationship of chronic stress associated with the high number of competitions, trips, absence of family members, and strong pressure for victory can influence the increase in feelings related to physical and emotional exhaustion. These conditions are sources of stress that require large coping skills from athletes during the season[6,21].

Another finding that deserves attention in the current study is the percentage of 28.30% (15 athletes) who maintained high levels of frequency of feelings of *burnout* after the vacation period. Garcés de losFayos and Mojena[38] and Costa et al.[39] stated that the balance between training loads and athlete recovery is one of the ways to prevent *burnout*. Thus, it is possible to verify that for some of the athletes evaluated in the current study, the period of recovery from stress and pressure from the previous season was insufficient and they returned to activities partially recovered, a factor that may increase the risk of the manifestation of *burnout* in subsequent seasons.

Only 16 athletes (30.18%) in the study sample presented low frequency levels of feelings for the syndrome after the vacation period. It is speculated that in this period these athletes were able to recover physically and psychologically from all the wear and tear of the previous season. According to Kellmann et al.[40], since the problems of *burnout* syndrome are often related to an insufficient recovery process, it is necessary to insert biopsychosocial regenerative processes in training and competition periods.

Preventive measures could contribute to the reduction in *burnout* levels and also prevent other psychological problems such as depression and sports drop out[11,22]. It is also important to have a rational structure of training throughout the sports season that allows

athletes free time for leisure, social activities, school activities, and rest. This time works as a physical, mental, and social recovery mechanism that helps to prevent *burnout*[38].

The athlete's lack of contact with their family, especially parents and siblings, is also a factor that increases the likelihood of the appearance of *burnout.* In Brazil, the majority of the athletes who are staying and training in their respective clubs do not come from that city or state[34], since it is a country with continental dimensions and due to the sporting calendar, during a season athletes usually have few opportunities to live with their families. Information collected in the sample demographic questionnaire points out that some athletes spend more than six months of the year without having a physical encounter with their families. In addition, many athletes in this category are absent from school and end up having friendship relationships only with teammates[36]. Thus, the vacation period is essential for the contact of these young people with their hometown, their family, friends, and people from their childhood and adolescence affective cycle.

It is worth mentioning, as limitations of this study, that the training, match, and recovery loads, as well as the activities that the athletes performed during the vacation period and in their free time during the training and competition periods were not controlled. Despite these limitations, the results of this study are pioneering and provide unprecedented information about the levels of frequency of feelings of *burnout* in U-20 soccer players. The reference table provides a practical contribution for coaches and fitness trainers who wish to monitor the *burnout* of their athletes during the season.

Conclusions

It is concluded that *burnout* is a dynamic syndrome that fluctuates between periods of training, competition, and vacation during a sports season for most soccer players in the U-20 category. It was also found that *burnout* affected each athlete differently. Some athletes demonstrated stable behaviors during the three monitoring phases while others showed fluctuating behaviors with a decrease or increase in *burnout* throughout the season. These conclusions reinforce a recommendation in the literature of the need to individualize the monitoring and control of *burnout* in athletes throughout their training process in the base categories, aiming to preserve the physical, mental, and social health of young athletes who are in the phase of human and sports development.

The reference table built specifically for the U-20 category in soccer is an advance that allows the identification of the *burnout* syndrome in this category in a more objective way. It is also noteworthy that it is a low-cost tool, which is easy to access and allows more reliable interpretation of the *burnout* levels of athletes throughout different moments of the sports season. This table also makes a practical contribution for professionals who work with soccer and who are co-responsible for the sporting and human formation of these young athletes.

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