
ANALYSIS OF PSYCHOLOGICAL VARIABLES ASSOCIATED WITH THE BURNOUT SYNDROME AND PERFORMANCE IN ADULT ATHLETES THROUGH THE ATHLETE BURNOUT QUESTIONNAIRE - ABQ

VARIÁVEIS PSICOLÓGICAS ASSOCIADAS À SÍNDROME DE *BURNOUT* E DESEMPENHO EM ATLETAS ADULTOS ATRAVÉS DO *ATHLETE BURNOUT QUESTIONNAIRE* - ABQ

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ABSTRACT

Recently, scholars have been sought to deepen research on a psycho-physiological phenomenon that can lead athletes to quit sports, known in the literature as sport-related burnout. The aim of the present integrative review study was to analyze psychological and performance variables associated with the burnout syndrome in adult athletes. Articles were searched on Pubmed, Web of Science, Scielo, Science Direct, Scopus and Apapsycnet electronic databases, using the following descriptors: burnout, sports and athletes, in both English and Portuguese. From the 15 selected studies, there was predominance of psychological variables associated with burnout over performance aspects. Negative correlations were found between burnout and basic psychological needs, intrinsic motivation and coping strategies. Positive correlations were found between burnout and competitive level, training volume, years of training, perfectionism and overtraining. There were no data on performance increase or decrease related to burnout in adult high-performance athletes, which shows a gap in the literature and encourages new investigations.

Keywords: Burnout. Athletes. Performance.

RESUMO

Recentemente, têm-se procurado aprofundar os estudos sobre o fenômeno psicofisiológico que pode levar atletas ao abandono de sua atividade esportiva conhecido na literatura como *burnout* no contexto esportivo. O objetivo do presente estudo de revisão integrativa foi analisar as variáveis psicológicas e de desempenho associadas à síndrome de *burnout* em atletas adultos. Buscaram-se artigos nas bases de dados eletrônicas *Pubmed*, *Web Of Science*, *Scielo*, *Science Direct*, *Scopus*, *Apapsycnet* através dos descritores *burnout* (burnout), *sports* (esportes) e *athletes* (atletas). Constatou-se que houve uma predominância das variáveis psicológicas associadas ao *burnout* em relação a aspectos de desempenho. Foram encontradas correlações negativas entre necessidades básicas psicológicas, motivação intrínseca, estratégias de *coping* e *burnout*, e correlações positivas com nível competitivo, volume de treinamento, tempo de treino, perfeccionismo, *overtraining* e *burnout*. Não foram encontrados resultados que inferissem aumento ou queda de desempenho em atletas de alto rendimento relacionados ao *burnout*, o que sucinta uma lacuna na literatura para novas investigações.

Palavras-chave: *Burnout*. Atletas. Desempenho.

Introduction

Several reasons justify sports drop-out or decreased performance in high-performance athletes. Burnout has contributed greatly to understanding an athlete's relationship with sports¹. However, due to the complex nature of this construct, there is no consensually accepted definition for burnout in sports. Investigations have sought to prioritize the identification of symptoms and conditions that come with burnout, its correlations with the athlete's personal characteristics and environmental conditions surrounding sports practice². Thus, one of the most accepted concepts reports burnout as an emotional response to situations of chronic stress. When it comes to the sports context, burnout has been referred to as a multidimensional syndrome caused by a complex interaction between multiple factors of intense demands, inadequate recovery and frustrations for unfulfilled expectations. As a

consequence, athletes lose motivation, pleasure, satisfaction, interest in playing sports, showing perception and attitudes in the sense that physical and mental efforts requested in training and in competitions do not make up for benefits eventually accumulated².

Thus, the model specifically adjusted and intended for athletes takes burnout as a multidimensional psychophysiological syndrome, based on three core components, which can be associated but are independent³: physical/emotional exhaustion; reduced sense of accomplishment; and sport devaluation.

Although research points to associations both positive and negative with the burnout syndrome, questions related to the dimensions of this construct are not yet well elucidated. Little is known, for instance, about the relationship of burnout with performance and other psychological variables that are important to sport performance. In view of such gaps in the scientific knowledge, the objective of this integrative review study is to assess psychological and performance variables associated with the burnout syndrome by applying the Athlete Burnout Questionnaire (ABQ) to adult athletes.

Methods

Integrative review studies comprehend the analysis of relevant research, supporting decision making and improving practice. They allow for the synthesis of state of knowledge in a given subject, besides flagging knowledge gaps that need to be filled with the conduction of new studies.

In accordance with the scheme of integrative review studies⁴, the first stage of the study defined the researchers, the problem and the objective of the research, which had burnout in adult athletes as the main theme and, as hypotheses, changes in performance and psychological aspects associated with burnout. The second stage consisted of choosing the research; the search was done in English, Portuguese and Spanish, considering the following terms: burnout (burnout, burnout), sports (*esportes*, *desportes*) and athletes (*atletas*, *atletas*), at Health Descriptors [*Descritores da Saúde*] (DECS), followed by searches on Pubmed, Web Of Science, Scielo, Science Direct, Scopus and Apapsycnet electronic databases. Subsequently, the terms “burnout and sports” were chosen to be used so that there would be no specification with terms related exclusively to track and field athletes.

This first search was carried out by two researchers at different times. The third stage was about the inclusion of original articles published between 2007 and 2017 to guarantee the currentness of the results found, totaling 2,468 articles. In addition, as inclusion criteria, this investigation considered only original articles involving researches conducted with adult high-performance athletes and which used the Athlete Burnout Questionnaire (ABQ) as a burnout measuring tool, available in the abovementioned databases and descriptors from January 1st, 2007 to October 30th, 2017. The fourth stage comprised analyses by title of articles, excluding 2,203 studies for not containing the term burnout.

Afterwards, 95 articles were removed, as they repeated in more than one database, totaling 170 studies for reading of abstracts at a consensus meeting. After this stage of the process, 151 papers were excluded, complying with the following criteria: 09 systematic reviews, 01 master's dissertation, 11 writings in languages other than English, Spanish or Portuguese, 01 book, 56 articles that did not contemplate the proposed theme, 01 research that was not conducted with athletes, 24 that did not use the ABQ as measurement instrument, 37 with young athletes, and 11 identified as repeated in this stage, resulting in a total of 19 studies. Then, the 19 papers were read in full and, at a consensus meeting, the last inclusion and exclusion criteria were defined based on the methodology used by the researchers. The procedures adopted in each of the steps described are shown in Figure 1.

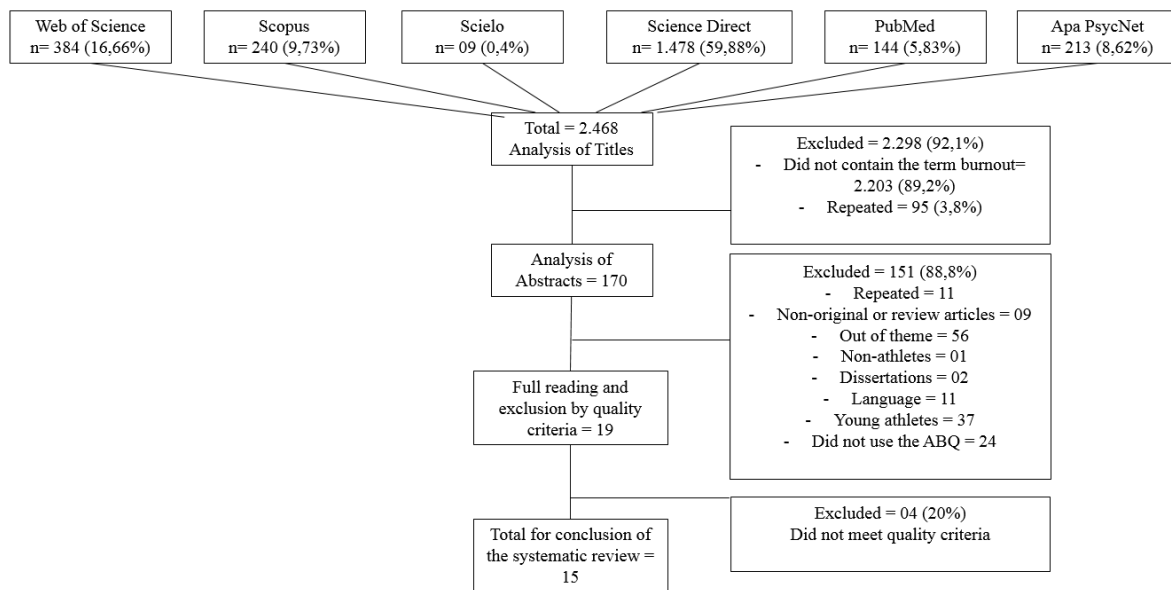


Figure 1. Systematic Review Stages

Source: The authors

The 19 articles selected were then analyzed as to methodological quality, following a protocol developed for this study. In this stage, four papers that did not contemplate at least three of the four specified quality criteria were excluded: (1) methodology compatible with the objectives, (2) sample description, (3) psychometric properties of the ABQ, (4) presentation of proper data treatment (Table 1).

In the last stage of the integrative review, after the selection of potential articles, the original was read (paired and individually) and quality was evaluated. Subsequently, the descriptive table was organized in higher score order, considering the following information: author, year of publication, journal, study objective, variables, sample description and methodology (Table 2).

Table 1. Methodological quality of selected articles

Articles	1	2	3	4	Total
Relationship between Leadership among Peers and <i>Burnout</i> in Sports Teams ⁵ .	x	x	x	x	4
A social cognitive approach to <i>burnout</i> in elite athletes ⁶ .	x	x	x	x	4
<i>Burnout</i> in elite rugby: Relationships with basic psychological needs fulfilment ⁷ .	x	x	x	x	4
Possible early signs of athlete <i>burnout</i> : A prospective study. Cresswell ⁸ .	x	x	x	x	4
Athlete <i>burnout</i> in elite sport: A self-determination perspective ⁹ .	x	x	x	x	4
Does typus melancholicus determine characteristics of athlete <i>burnout</i> symptom and its process among Japanese University Athletes? ¹⁰ .		x		x	2
Factors affecting the recovery-stress, <i>burnout</i> and mood state scores of elite student rugby players ¹¹ .	x	x	x	x	4
Perfectionism and <i>Burnout</i> in Canoe Polo and Kayak Slalom Athletes: The Mediating Influence of Validation ¹² .		x	x		2
Temporal Ordering of Motivational Quality and Athlete <i>Burnout</i> in Elite Sport ¹³ .	x	x		x	3
The Relationship Between Organizational Stressors and Athlete <i>Burnout</i> in Soccer Players ¹⁴ .		x	x		2
Análise da síndrome de " <i>burnout</i> " e das estratégias de "coping" em atletas brasileiros de vôlei de praia ¹⁵ .	x	x	x	x	4
<i>Burnout</i> em deportistas: Prevalencia del síndrome a través de dos medidas ¹⁶ .	x	x	x	x	4
Passion and Coping: Relationships With Changes in <i>Burnout</i> and Goal Attainment in Collegiate Volleyball Players ¹⁷ .		x	x		2
Self-Determined Motivation as a Predictor of <i>Burnout</i> Among College Athletes ¹⁸ .	x	x	x	x	4
Associação entre as cargas de treino impostas a jogadores amadores de rúgbi sevens e a síndrome de <i>burnout</i> ¹⁹ .	x	x	x	x	4
<i>Burnout</i> e coping entre jogadores de futebol: Antes e durante o torneio ²⁰ .	x	x		x	3
<i>Burnout</i> and pre-competition: A study of its occurrence in Brazilian soccer players ²¹ .	x	x	x	x	4
Motivation, overtraining, and <i>burnout</i> : Can self-determined motivation predict overtraining and burnout in elite athletes? ²²	x	x	x	x	4
Teammate social support, <i>burnout</i> , and self-determined motivation in collegiate athletes ²³ .	x	x	x	x	4

Legend: (1) methodology compatible with the objectives, (2) sample description, (3) psychometric properties of the ABQ, (4) presentation of proper data treatment. Note: *articles excluded for not meeting at least three quality criteria.

Source: The authors

Table 2. Objectives and methodology of reviewed articles

Author (Year)	Published Journal	Study Objective	Variables	Sample Description	Methodology
Torrado <i>et al.</i> ⁵	<i>The Spanish Journal of Psychology</i>	To verify the relationship between leadership in sports teams and burnout levels experienced by teammates.	Dependent: Burnout, Independent: Leadership scales: empathy, influence on decision making, sport values, social support, training orientation and competition	219 male Spanish athletes in football (n=132) and basketball (n=87) aged 17-38 years old, M=24.12 years, SD±5.04	To measure leadership, the Scale of Leadership for Sports was employed, which comprises 24 items grouped into 6 factors. To measure burnout, the ABQ - Athlete Burnout Questionnaire -was used, which comprises 15 items indicating Physical and Emotional Exhaustion, Sport Devaluation and Reduced Sense of Achievement. Data were analyzed by mean, standard deviation, asymmetry and kurtosis. There was also regression analysis and t-test for independent samples.
Lemyre <i>et al.</i> ⁶	<i>Scandinavian Journal of Medicine and Science Sports</i>	To investigate burnout in athletes from a socio-cognitive perspective, examining the relationship between social cognitive motivational variables at the beginning and signs of burnout in elite athletes at the end of a season.	Dependent: Burnout Independent: Achievement goals, perception of motivational climate, perceived capacity, perfectionism, cognitive assessment.	The study included 141 (81 men, 60 women, aged 17-32, M=20.1 years old, SD±4.79) divided into: 45 elite athletes, members of the current Olympic team, and 96 junior elite athletes attending national sports academies.	Participants completed a comprehensive early-season motivation assessment package and an end-season new burnout inventory. Mean values and standard deviations were calculated for each of the subscales.
Hodge <i>et al.</i> ⁷	<i>Journal of Sports Science</i>	To analyze the theory of self-determination as a framework for understanding burnout background in elite rugby athletes in New Zealand.	Dependent: Burnout Independent: Basic Psychological Needs	133 rugby elite athletes from New Zealand. The players' average age was 19.7 years (16-26 years old range).	Burnout in athletes was measured using the ABQ; basic needs of perceptions of autonomy, competence and socialization in athletes were assessed through eight items adapted from those used by Deci <i>et. al.</i> ²⁴ . Multivariate analysis of variance (MANOVA) was used to test differences between groups as to scores of basic psychological needs.
Cresswell ⁸	<i>Journal of Science and Medicine in Sport</i>	To examine whether the first signs of burnout measured mid-season were associated with end-of-season performance characteristics.	Dependent: Burnout, Independent: Competition phases (middle and end of season)	Professional male rugby players (n=183) aged 18-36 years old (M=25.19, SD±2.98)	Two General Linear Models were used to determine the effects of factors on the dependent variables: Burnout dimensions, and the factors of interest were "basic rugby hassles", "social support" and "money hassles". Only the participants who completed the questionnaire on both occasions were included in the analysis.
Lonsdale <i>et al.</i> ⁹	<i>Journal of Sports Science</i>	To investigate correlations between behavioral regulation and burnout, and to examine whether, through mediated self-determined motivation, there is correlation between satisfaction of basic needs and burnout in athletes.	Dependent: Burnout Independent: Basic psychological needs. Mediator: Motivation	201 athletes (121 women, 80 men; mean age of 22.9 years old, SD±7.2, range=14-61), affiliated with the Canadian Sport Centre Pacific.	Perceptions of autonomy, competence and relationship were assessed using three scales. For motivation, 24 items from the Behavioral Regulation in Sport Questionnaire (BRSQ ²⁵) were used, and the 15 items from the Athlete Burnout Questionnaire (ABQ ²⁶) for burnout.

Table 2. Objectives and methodologies of reviewed articles (continuing...)

Author (Year)	Published Journal	Study Objective	Variables	Sample Description	Methodology
Grobbelaar <i>et. al.</i> ¹¹	<i>South African Journal for Research in Sport, Physical Education and Recreation</i>	To compare stress-recovery in elite student rugby players, burnout and mood-state scores based on their game position, experience level and initial status.	Dependent: Stress-Recovery, Burnout and Mood States. Independent: Game Position, Initial Status, Level of Experience.	41 male rugby student players from a leadership club in South Africa (mean age of 21.87 SD \pm 1.39 years) participated in the first collection.	The Stress-Recovery Questionnaire ²⁷ (Athlete Burnout Questionnaire ²⁶) and the Stellenbosch Mood Scale ²⁸ were used several times over a five-month period.
Lonsdale & Hodge ¹³	<i>Medicine and Science in Sports and Exercise</i>	To examine the relationship between motivational quality and burnout in athletes over time.	Dependent: Burnout and Motivational Quality Independent: Time Ordering of Motivation	Elite athletes from New Zealand (n=119, mean age=24.74 years old, SD \pm 8.54 years).	Data collection occurred in two moments during a period of 4 months. Time 1 occurred in October 2004; time 2 was in February 2005. The BRSQ (Behavioral Regulation in Sport Questionnaire) and the Athlete Burnout Questionnaire (ABQ) were used for burnout.
Vieira <i>et al.</i> ¹⁵	Revista Brasileira de Educação Física e Esporte	To analyze the burnout syndrome and coping strategies used by athletes of both genders, in the under-21 and open categories, participating in the Brazilian beach volleyball circuit.	Burnout Syndrome and Coping Strategies	144 athletes from Banco do Brasil beach volleyball circuit, in the “under-21” and “open” categories, of both genders.	For general characterization of participants, a form containing data referring to gender, age, practice time, category and current ranking was used. QBA ²⁹ to analyze the burnout syndrome, and Athletic Coping Skills Inventory to analyze coping strategies ³⁰
De Francisco <i>et.al.</i> ¹⁶	<i>Cuadernos de Psicología del Deporte</i>	To know the prevalence of the burnout syndrome (psychopathological disorder) in a sport population with two instruments (IBD-R and ABQ).	Dependent: Burnout, Independent: Gender, age, competitive level and training volume	442 Spanish athletes, where 52.9% were men and 47.1% women, between 14 and 29 years old (mean age=18.86; SD \pm 2.65). 25.9% competed at local/regional level.	Two tools were used to measure the burnout syndrome in athletes, the IBD-R ¹⁶ and the ABQ ²⁶ ; in addition to socio-demographic and sports data, such as age, gender, popular sport, training load, etc.
Holmberg& Sheridan ¹⁸	<i>The Sport Psychologist,</i>	To examine the theory of self-determination as a framework for understanding potential burnout backgrounds in American college athletes. To investigate the relationship between the burnout dimensions and degree of self-determination among college athletes.	Dependent: Burnout Independent: Basic psychological needs.	(N=598) college athletes playing in eight teams from the National Collegiate Athletic Association (NCAA) Division I and West Coast Division III universities participated in this study.	The two instruments used in the study were the Behavioral Regulation in Sport Questionnaire (BRSQ ²⁵) and the Athlete Burnout Questionnaire (ABQ ²⁶).
Sobral <i>et.al.</i> ¹⁹ .	<i>Motricidade</i>	To investigate the presence of burnout syndrome symptoms in amateur Rugby players, and to verify possible correlations as to increased training intensity with the ABQ.	Dependent: Burnout Independent: Training Loads	9 male amateur players aged between 19 and 35 years old.	The athletes were assessed before and during their preparatory period as to fat percentage, nutritional status, stress state, aerobic power. The intensity of the training program was correlated with burnout through the ABQ ²⁶ .

Table 2. Objectives and methodologies of reviewed articles (continuing...)

Author (Ano)	Published Journal/Qualis	Study Objective	Variables	Sample Description	Methodology
Verardi <i>et. al.</i> ²⁰	<i>Revista Brasileira de Medicina do Esporte</i>	To assess burnout among professional and junior football players during pre-competition and competition phases.	Burnout and Coping Strategies	73 male football players were assessed, being 32 professionals (age=22; SD±4.14 years) and 41 amateurs (age=17; SD±0.94 years).	To assess burnout variables and coping strategies, the instruments Ways of Coping Scale (WOCS) and Burnout Questionnaire for Athletes (QBA) were used.
Verardi <i>et. al.</i> ²¹	<i>Revista de Psicologia del Deporte</i>	To identify the incidence of symptoms associated with the burnout syndrome; to analyze the incidence of vulnerability to exhaustion among professional and amateur football players during the pre-competition phase.	Dependent: Burnout Independent: Competition Level	A total of 134 male football players participated in the study, being 71 professionals (M=22.77; SD ± 3.98 years) and 63 amateurs (M=17.18; SD ± 0.84 years).	It is a prospective study. The procedure chosen was intentional. Players responded to the Athlete Burnout Questionnaire (ABQ), and a univariate statistical analysis was performed.
Lemyre <i>et al.</i> ²²	<i>European Journal of Sport Science</i>	To determine whether the quality of self-determined motivation at the beginning of the competitive season in elite athletes and overtraining symptoms can predict burnout propensity in athletes at the end of the season.	Dependent: Overtraining and Burnout Independent: Self-Determined Motivation	141 athletes (81 males, 60 females) aged 17-32 years old (mean of 20.1; SD+4.8 years) competing in Nordic skiing, alpine skiing, biathlon, speed skating and Nordic combined.	At the start of the season, athletes responded to a self-motivation questionnaire, and at the end of the season, in March, they answered questions to assess overtraining and burnout symptoms. Descriptive (MANOVA), correlation and regression analyses were used.
DeFreese& Smith ²³	<i>Psychology of Sport and Exercise</i>	To examine how specific components of perceived social support associate with burnout and self-perceived motivation in athletes, and whether they correlate with psychological well-being.	Dependent: Burnout and Self-Determined Motivation Independent: Social Support from the Team	235 college athletes, representing 63 teams and 11 fall or winter modalities (variation of 1 to 12 athletes per team). Among the participants, 88 were male and 144 female athletes (3 unspecified). Aged ranged from 18 to 25 years old (M=19.8; SD+1.4).	A cross-sectional study involving the application of a battery of online questionnaires was conducted to measure focal variables. After approval, contact was made with the study participants to start data collection, which lasted approximately two weeks before and no more than a weekend after the competitive season.

Source: The authors

Results

Main results regarding possible associations of: intrinsic motivation, basic psychological needs, coping strategies, analysis of two instruments, competition period, social support and overtraining with burnout will be presented.

About psychological variables, negative correlations were found among self-determined athletes who are intrinsically motivated and burnout dimensions, reduced sense of accomplishment ($r = -.54, p < .05$), physical and emotional exhaustion ($r = -.26, p < .05$), and sport devaluation ($r = -.53, p < .05$)¹³.

Negative correlations between burnout and basic psychological needs, such as autonomy ($r = -.84, p < .05$), competence ($r = -.76, p < .05$) and social relations ($r = -.39, p < .05$) were also found in the studies by Hodge *et. al.*⁷. Likewise, in the studies by Lonsdale *et. al.*⁹, results show negative associations for autonomy ($r = -.43, p < .05$), competence ($r = -.54, p < .05$) and social relations ($r = -.29, p < .05$).

In addition, positive relation with extrinsic motivation was found as well for burnout, reduced sense of accomplishment ($r = .58, p < .05$), physical and emotional exhaustion ($r = .44, p < .05$), and sport devaluation ($r = .66, p < .05$)¹³ dimensions.

Main findings in the study by Vieira *et. al.*¹⁵ have indicated that beach volleyball athletes with higher burnout rates are those who use less frequently coping strategies and are among the worst ranked. From the coping strategies that most correlate with the syndrome, we can highlight maximum performance under pressure ($r = -.25, p < .01$), confrontation with adversity ($r = -.37, p < .01$), concentration ($r = -.27, p < .01$), and confrontation in sport index ($r = -.28, p < .01$). As for ranking, athletes above the 9th position had the highest frequencies of behaviors related to reduced sense of accomplishment ($M = 2.50, SD \pm 0.84$), sport devaluation ($M = 2.50, SD \pm 2.0$) and total burnout ($M = 2.16, SD \pm 1.04$).

Through two instruments, IBD-R¹⁶ and ABQ²⁶, results of approximately 4% of burnout rates and associations with competitive level and training volume were found¹⁵.

About “level of competition”, the same study pointed out that there were also no statistically significant differences for total burnout, only for two dimensions. Athletes with scores in national and international competitions have lower indexes for the “reduced sense of accomplishment” dimension compared to athletes of lower competitive levels observed through the Sheffé Test (IBD-R; difference between measures = $-.21, p < .05$ and ABQ; difference between measures = $-.30$, local group and $-.28$ autonomous group, $p < .05$).

Regarding training volume, there were statistically significant differences in the group formed by athletes who train more than eighteen hours per week in relation to the groups that train less than 3 hours per week (difference between means = $.44, p < .05$) and to the group that trains between three and seven hours per week (difference between means = $.50, p < .05$), measured again by the Sheffé test¹⁶.

A study by Torrado *et. al.*⁵ found a statistically significant negative relationship between perceived leadership capacity and burnout experience levels in basketball and football athletes in Spain. For the authors, the higher the level of perceived leadership capacity, the lower the levels of burnout. A multiple regression analysis was performed with burnout as dependent variable, and social orientations and leader tasks as predictors, showing standardized regression coefficients of $-.241$ ($p = .010$) and $-.076$ ($p = .413$), respectively, for leader tasks and social orientations, with effect size equal to $.089$ ⁵.

Perceived motivation measures were associated with total burnout, “performance climate” ($r = .23, p < .01$), and “mastery climate” ($r = -.30, p < .01$). Perfectionism dimensions also presented associations with total burnout, “personal standards” ($r = -.22, p < .01$), “doubts about action” ($r = .27, p < .01$), “parental criticism” ($r = .21, p < .05$)⁸.

With respect to social support, burnout has a statistically significant negative correlation with “availability of perceived support” ($r = -.29, p < .01$) and “support satisfaction” ($r = -.27, p < .01$).

Discussion

After analysis of psychological and performance variables related to the burnout syndrome in adult athletes, strong associations were found between burnout and psychological variables, making it difficult to infer on an increase or decrease in sport performance.

On the negative correlations between intrinsic motivation and burnout dimensions, Lonsdale; Hodge¹³ state that efforts to promote autonomous regulation skills and improved basic psychological needs are necessary to decrease rates in the burnout and total burnout dimensions. The authors suggest that the reasons that lead athletes to start playing sports can help in the identification of burnout as the progression of this practice occurs, thus leading to an internalization of motivation and consequent decrease of the syndrome.

Negative correlations between burnout and coping strategies were found by Vieira *et al.*¹⁵; confrontation with adversity seems to be the most important coping strategy used by athletes to cope with stressful situations, considering that it correlated with all burnout and total burnout dimensions.

For the authors, the inverse relationship between coping and burnout strategies is supported by the idea that people who perceive stressful situations more positively possess cognitive and behavioral coping resources, deal better with factors that could generate chronic stress and, consequently, are less likely to develop burnout. As for ranking, worst ranked athletes may be those who face more stressful situations, are more susceptible to making mistakes, have greater limitations of capacities and skills, being more pressured for results, which makes them feel more likely to have their expectations frustrated and, consequently, present higher burnout values¹⁵.

Still on coping and burnout strategies, about football players, there were significant differences between amateur and professional athletes only in the pre-competition phase; in the competitive period this significant difference did not exist²⁰. According to the authors, the hypothesis that players with higher burnout values present different ways of coping with problem situations was confirmed during the competition phase. The results evidenced a behavior contrary to that of the pre-competition phase, especially in relation to the reduced sense of accomplishment subscale. One of the most used coping strategies was search for religious practices, fanciful thoughts, being strongly associated with the highest burnout score.

The difficulty that the athlete experiences in being among the best explains those with national and international results having lower indexes for the “reduced sense of achievement” dimension. Regarding training volume, individuals who train more are more likely to be affected by the burnout syndrome, taking into account that components of emotional effort must be added to achieve sport success¹⁶.

Defreese; Smith²³ point out that future research is necessary to assess the relationship between burnout and support factors in the prediction of satisfaction of social needs; the availability of perceived support, for instance, can be responsive to social variables such as behavior of coaches, proximity of relations between teammates, among others.

“Training intensity” and “aerobic power” did not correlate with burnout and total burnout dimensions²¹. Total burnout indexes were $M = 2.3, SD \pm 0.5$, showing that the investigated athletes obtained quite low values during the preparation period. For the authors,

the increase in intensity occurred in a constant, linear way, was capable of improving aerobic power, but was not capable of influencing, in the preparatory period, the presence of burnout traits in rugby athletes in Brazil.

For Lemyre *et. al.*²⁰, the correlation between overtraining and burnout symptoms is still imprecise. Although positive associations are found, the mechanisms for this association are still not very clear, leaving an important gap in the literature for further investigations on the subject.

Results obtained by Torrado *et.al.*⁵ are consistent with Defreese; Smith²³, Smith *et.al.*³¹, who correlated good climate among peers and peer relationship with lower levels of burnout, which suggests that the greater the cohesion of the team, the lower the levels of burnout among its members.

Conclusion

With the present integrative review study, it was possible to verify strong associations of burnout, assessed by the ABQ, with psychological variables, but it is not possible to infer on influence on sport performance. Negative correlations were found between burnout, basic psychological needs, intrinsic motivation, coping strategies. Positive associations for competitive level, training volume, training time, perfectionism and overtraining were reported. Gender, game position, social support subscales and burnout dimensions are variables that deserve to be further elucidated.

Future studies should include other descriptors such as the Athlete Burnout Questionnaire (ABQ) instrument itself, which proved to be relevant throughout the investigation, and contemplate studies with a better use of descriptors, inclusion criteria such as assessing burnout in the sport context and relating the syndrome to the real performance of athletes through objective measures of performance.

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Received on Dec, 17, 2016.

Reviewed on Dec, 11, 2017.

Accepted on Feb, 18, 2018.

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