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original article

The impact of perfectionism traits on motivation in high-performance soccer athletes

O impacto dos traços de perfeccionismo na motivação de atletas de futebol de alto rendimento

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Abstract – This study investigated the impact of performance traits on self-determined motivation in high-performance soccer athletes. Participants were professionalized and non-professionalized athletes from a soccer club of the state of Paraná, totaling 182 subjects. Data were collected using the Sport Motivation Scale and the Multidimensional Perfectionism Scale through previous scheduling and the application of research instruments occurred through direct contact with subjects during practices, which were individually answered with average duration of 35 minutes. For data analysis, Mann-Whitney, Spearman correlation and Simple Regression were conducted ($p<0.05$). Results showed that professional athletes had higher levels in externally controlled motivation compared to non-professionalized ($p<0.05$) athletes, while non-professionalized athletes were more amotivated ($p=0.002$). Professionalized athletes had higher scores in the adaptive perfectionism domains compared to non-professionalized athletes ($p<0.05$). Adaptive perfectionism had significant impact ($p<0.05$) on the self-determined motivation regulations in professional athletes, while maladaptive perfectionism had an effect ($p<0.05$) on the external regulation of non-professionalized athletes. It was concluded that for athletes who reach professional level, adaptive perfectionism is an intervening element in the development of self-determined motivation. In addition, for non-professionalized athletes, maladaptive perfectionism may influence behavior regulated by external factors.

Key words: Motivation; Perfectionism traits; Sports.

Resumo – *Este estudo investigou o impacto dos traços de perfeccionismo na motivação autodeterminada de atletas de futebol de alto rendimento. Participaram da pesquisa, atletas profissionalizados e não-profissionalizados de um clube da primeira divisão do campeonato brasileiro de futebol, totalizando 182 sujeitos. Como instrumentos, foram utilizadas a Escala de Motivação para o Esporte e a Escala Multidimensional de Perfeccionismo. Os dados foram coletados por meio do contato direto com os sujeitos da pesquisa, em horários de treinamento, previamente agendados para a aplicação dos instrumentos de medida, que foram respondidos de forma individual com duração media de 35 minutos. Na análise dos dados, utilizou-se o teste de Mann-Whitney, correlação de Spearman e Regressão Simples ($p<0,05$). Os resultados evidenciaram que os jogadores profissionalizados apresentaram maior nível nas regulações de motivação autodeterminada, em comparação aos atletas não-profissionalizados ($p<0,05$), bem como os jogadores não profissionalizados se mostraram mais desmotivados ($p=0,002$). Os jogadores profissionalizados apresentaram escores superiores nos domínios de perfeccionismo adaptativo em comparação aos não-profissionalizados ($p<0,05$). O perfeccionismo adaptativo apresentou significativo impacto ($p<0,05$) nas regulações de motivação autodeterminada nos jogadores profissionalizados, enquanto o perfeccionismo mal-adaptativo apresentou efeito ($p<0,05$) sobre a regulação externa dos jogadores não-profissionalizados. Concluiu-se que, para atletas que atingem o profissionalismo, o perfeccionismo adaptativo é um elemento interveniente para o desenvolvimento da motivação autodeterminada. Por outro lado, para atletas em formação (não–profissionalizados), o perfeccionismo mal-adaptativo pode influenciar o aumento do comportamento regulado por fatores externos.*

Palavras-chave: *Esportes; Motivação; Traços perfeccionistas.*

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INTRODUCTION

How are athletes motivated in relation to the demands of the sporting context? Do athletes change their motivational orientation as they achieve high performance? Professionalized and non-professionalized athletes have different motivational orientations? These questions are extremely relevant in sports psychology, since motivation is directly related to performance and success in the sports career[1]. In this context, studies have shown perfectionism traits as an antecedent of motivation in sport[2]. However, there is no consensus in literature on the potential association between adaptive and maladaptive perfectionism in sport performance[3,4], especially regarding motivation in soccer players.

Inconsistent results about the relationship between perfectionism and motivation in sport suggest that this psychological process needs further investigations. An interesting theoretical approach to investigate such associations is the Self-Determination Theory \ SDT[5], which has shown evidence of complex relationships within sports psychology[6,7]. Specifically, studies in the field of sports science have shown the relationship between perfectionism and self-determined motivation[2,4]. However, our literature review points out this study as the first to address the prediction relationship between perfectionist orientations and motivation in soccer players.

SDT points out that behavior is governed by three basic needs, skills, relationships and autonomy, working interdependently, determining the type of regulation the individual will be submitted to during sport activities[8]. Thus, satisfying his psychological needs for autonomy, competence and relationship, the individual becomes or remains autonomously motivated during the activity[5].

Autonomous motivation includes activities voluntarily performed by athletes, whether for pleasure reasons (Intrinsic Motivation (I.M.) to Know), satisfaction for achieving goals (I.M. to Accomplish Things), new experiences in the context (I.M. for Experience Stimulation) or for the internalization about the importance of such activity to the individual (Identified Regulation)[8]. On the other hand, controlled motivation involves behaviors that drive the subject to perform a certain task due to some intra-psychological pressure (Internalized Regulation) or interpersonal (External Regulation). While autonomous motivation reflects high level of self-determined motivation, controlled motivation is characterized as low self-determination[5].

Studies have found that unlike controlled motivation, autonomous motivation has positive association with different psychological variables such as self-esteem[9], persistence in sports[10], burnout[11], satisfaction[12] and perfectionism[13]. Although there are studies on motivation and perfectionism, investigations, these deserve further analysis, as perfectionism can be considered as a personality trait with strong influence on motivational orientation in sport[2]. Thus, the results of this study become quite relevant, providing parameters on relationships between adaptive and maladaptive perfectionism and motivation of professionalized and non-professionalized soccer athletes.

Perfectionism is a multidimensional personality trait related to the individual's desire to achieve optimal performance, seeking high achievement standards for himself or for his teammates[14,15]. From this perspective, perfectionism is important in sports psychology as a psychological trait associated with adaptive and maladaptive sport results[3,16], depending on the adaptation between high performance standards and excessive self-critical evaluation[17]. Adaptive perfectionist orientation involves high personal achievement standards[14], while maladaptive perfectionism is characterized with excessive concerns about errors, doubts about actions, socially prescribed criteria and excessive discrepancy between current performance and the establishment of high standards[18]. Thus, as a motivating factor for achievement, perfectionist orientation can influence the individual perception, emotional and behavioral processes of the subject in carrying out the task[13].

Therefore, this study aimed to investigate perfectionism traits and motivation of soccer players specifically seeking to examine prediction relationships between perfectionist orientation and motivation of professionalized and non-professionalized soccer players.

METHODOLOGICAL PROCEDURES

Subjects

Study subjects were all 182 athletes linked to the Training Center (TC) of a soccer club participating of the 1st Division Brazilian Soccer Championship. Subjects were categorized into two groups: a group called "professionalized" formed by paid full-time athletes residents in the Training Center (TC), who represent the club in national and international competitions, totaling 63 (sixty-three) players with average age of 17.59 ± 0.77 years; and the group of players called "non-professionalized" consisting of 119 participants of soccer schools accredited by professional club in various city of the state of Paraná, with average age of 14.01 ± 1.53. All athletes agreed to voluntarily participate in the study.

Instruments

Self-determined motivation was assessed using the Sport Motivation Scale (SMS)[19], validated for Portuguese language by Bara Filho et al.[20]. The scale consists of 28 items divided into seven dimensions: I.M. to Know; I.M. for Accomplish Things; I.M. to Experience Stimulation; Extrinsic motivation (E.M.) for External Regulation; E.M. for Introjection; E.M. of Identification; and Amotivation. The SMS was answered in a 7-point Likert scale where 1 ("does not correspond to anything") to 7 ("corresponds to exactly"). To check the factor structure of the instrument for the study sample, a confirmatory factor analysis (CFA) was conducted, revealing that items 01, 04, 22 and 26 did not saturate satisfactorily (factor loading <0.50) and were excluded. The 24-item scale showed acceptable set [$X^2(154)=260.391$;$p=0.001$; $X^2/df=1.69$; CFI=0.91; GFI=0.90; TLI=0.89; RMSEA=0.06; P(rmsea<0.05)=0.070].

To measure Perfectionism traits, the Portuguese version of the Multidimensional Perfectionism Scale (MPS)[14] adapted by Serpa, Alves and Barreiros[21] was used. The instrument consists of 35 items with 5-point Likert scale from (1) "strongly disagree" to (5) "strongly agree". The results are classified into six subscales: Concerns over Mistakes, Personal Standards, Parental Expectations, Parental Criticism, Doubts about Action and Organization. Two types of perfectionism were calculated: 1) Adaptive Perfectionism (personal standards and organization) and 2) Maladaptive Perfectionism (concerns over mistakes, doubts about action and parental criticism)[22]. The CFA of this instrument revealed that items 4, 17, 27, 29 and 34 did not saturate satisfactorily (factor loading <0.50) and were excluded. The 30-item scale showed acceptable factorial structure [$X^2(385)=545.11$;$p=0.001$; $X^2/df=1.42$; CFI=0.90; GFI=0.87; TLI=0.89; RMSEA=0.05; P(rmsea<0.05)=0.637].

Procedures

The study was approved by the Ethics Committee for Research Involving Human Beings of the State University of Maringa (Process No. 085/08). Initially, the board and technical committee of the soccer club selected was contacted in order to obtain permission for data collection. Then, the informed consent form was sent to athletes or guardians (under age athletes). Data were collected through direct contact with the subjects during training previously scheduled for the application of measuring instruments, which were individually answered with an average duration of 35 minutes.

Data analysis

Data distribution analysis was performed using the Kolmogorov-Smirnov test. As data were not normally distributed, Median (Md) and quartiles (Q1, Q3) were used. To compare groups, the "U" Mann-Whitney test was used. These analyses were conducted with SPSS software version 19.0. To examine the relationship between self-determined motivation and perfectionism, the Spearman correlation matrix was used, represented by the network analysis method. Analyses were conducted with the R language program using the qgraph package.

To check the effect of perfectionism traits on the athletes' motivation, a regression model was conducted with variables that had correlation above 0.40 (moderate). The existence of outliers was assessed by the Mahalanobis square distance (D^2) and the univariate normality of variables was evaluated by the asymmetry coefficients (iSKI <3) and univariate and multivariate kurtosis (IKuI <10). As data were not normally distributed, the Bollen-Stine bootstrap technique was used to correct the value of coefficients estimated by the maximum likelihood method implemented in the AMOS software version 18.0. There were no DM^2 values indicators of the existence of outliers or sufficiently strong correlations between variables that indicate problems with multicollinearity (Variance Inflation Factors <5.0). Based on Kline recommendations[23], the interpretation of the regression coefficients had as

reference: little effect for coefficients <0.20, average effect for coefficients up to 0.49, strong effect for coefficients> 0.50 (p <0.05) .

RESULTS

It was found that professionalized athletes were closer to self-determined motivation (Table 1), as they showed increased levels in regulatory styles of I.M. to experience stimulation (p = 0.008) and I.M. for accomplish things (p = 0.003) compared to non-professionalized athletes. Furthermore, it was observed that non-professionalized athletes were more amotivated (p = 0.002).

Table 1. Comparison of regulatory motivation styles of professionalized and non-professionalized soccer players

Regulatory styles	Professionalized			Non- Professionalized			p
	Md	Q1	Q3	Md	Q1	Q3	
Amotivation	1,25	1,00	2,50	2,00	1,25	3,25	0,002*
E.M. for External Regulation	4,00	3,00	5,25	4,00	3,00	5,00	0,570
E.M. for Introjection	4,50	2,75	5,25	4,50	3,50	5,25	0,594
E.M. for Identification	3,75	2,50	5,25	4,00	3,00	5,25	0,605
I.M. for Accomplish Things	5,25	4,25	6,25	4,50	3,50	5,50	0,003*
I.M. for Experience Stimulation	5,75	4,75	6,50	5,25	4,25	6,00	0,008*
I.M. to Know	5,25	3,75	6,00	5,00	4,00	5,75	0,375

* Significant difference (p <0.05).

Regarding perfectionist orientations (Table 2), it was observed that professionalized athletes had higher adaptive perfectionism compared to non- professionalized athletes (p = 0.010). Specifically, it was found that professionalized athletes were more organized (p = 0.008) and had higher levels of personal standards (p = 0.029), which are specific domains of adaptive perfectionism. In contrast, non-professionalized athletes had higher scores in relation to parental criticism (p = 0.001), which is a specific domain of maladaptive perfectionism.

Table 2. Perfectionism traits of professionalized and non professionalized athletes

Perfectionism Characteristics	Professionalized			Non-professionalized			P
	Md	Q1	Q3	Md	Q1	Q3	
Concern over Mistakes	2,89	2,33	3,33	2,89	2,22	3,44	0,816
Doubts about Action	2,75	2,50	3,25	3,00	2,50	3,50	0,053
Parental Expectations	2,60	2,20	3,40	3,20	2,60	3,60	0,004*
Parental Criticism	2,00	1,50	2,50	2,50	2,00	3,25	0,001*
Personal Standards	3,71	3,29	4,14	3,57	3,00	4,00	0,029*
Organization	4,00	3,67	4,33	3,83	3,50	4,33	0,008*
Adaptive Perfectionism	50,00	46,00	54,00	47,00	42,00	52,00	0,010*
Maladaptive Perfectionism	45,00	38,00	51,00	49,00	39,00	56,00	0,051

* Statistically significant difference (p ≤ 0.05)

By analyzing the correlation between motivation and perfectionism

traits of professionalized athletes (Figure 1), it was observed that adaptive perfectionism showed a positive and moderate correlation (r> 0.40) with I.M. to know (r = 0.42), I.M. for accomplish things (r = 0.53), I.M. to experience stimulation (r = 0.56) and external regulation (r = 0.42). The specific domain of adaptive orientation of personal standards showed moderate correlation with I.M. to Know (r = 0.46), I.M. for accomplish things (r = 0.48), I.M. to experience stimulation (r = 0.53) and External Regulation (r = 0.41), and organizations domain showed correlation with I.M. to experience stimulation (r = 0.42).

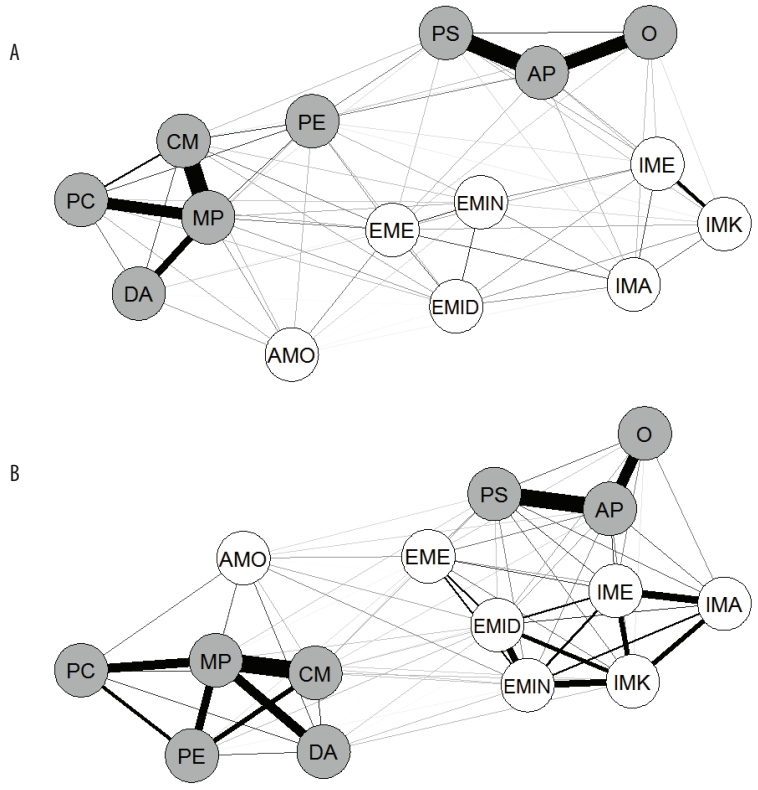

Figure 1. Network correlations between perfectionism dimensions and self-determined motivation of a) non-professionalized b) professionalized soccer players
Note: CM - Concern over Mistakes; DA - Doubts about Action; PE - Parental Expectations; PC - Parental Criticism; PS - Personal Standards; O - Organization; AP - Adaptive Perfectionism; MP - Maladaptive Perfectionism. AMO - Amotivation; EMER - Extrinsic Motivation for External Regulation; EMIN - Extrinsic Motivation for Introjection; EMID - Extrinsic Motivation for Identification; IMAT - Intrinsic Motivation for Accomplish Things; IMES - Intrinsic Motivation to Experience Stimulation; IMK - Intrinsic Motivation to Know. Bars representing correlations with magnitudes above 0:20.

For non-Professionalized athletes, it was found that only two perfectionism domains (concern over mistakes: r = 0.40, and maladaptive perfectionism: r = 0.41) showed significant and moderate correlations with variable E.M. for external regulation. To check the effect of adaptive and maladaptive perfectionist orientations on motivation, after the correlation analysis, a regression model was conducted between perfectionism subscales (adaptive and maladaptive) and motivation that showed moderate correlation. It was found that (Figure 2) adaptive perfectionism showed significant effects (p

<0.05) on variability for external regulation (17%) of I.M. for accomplish things (26%), I.M. to experience stimulation (31%) and I.M. to know (18%). For non-professionalized athletes, it was observed that maladaptive perfectionism explains 16% of variability for External Regulation.

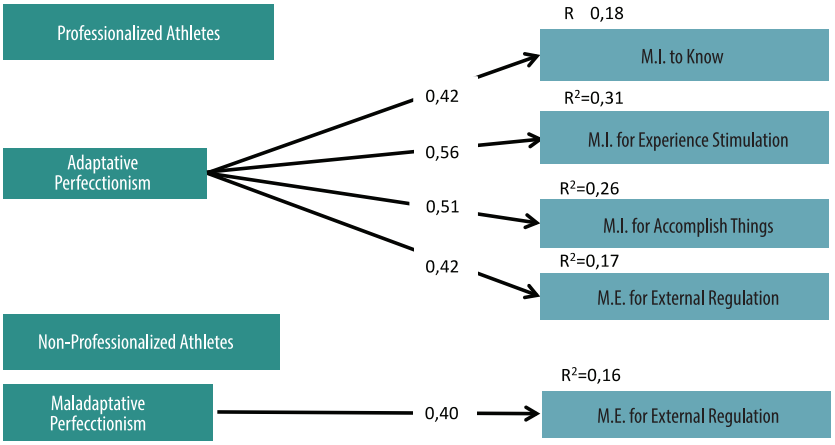

Figure 2. Regression model of the effect of perfectionist orientations on the motivation of soccer players

Regarding the individual trajectories of the regression model for non-professionalized athletes (Table 3), it was found that increased perfectionism had strong effect (β> 0.50) on intrinsic regulations for accomplish things (0.51) and to experience stimulation (0.56), and a moderate effect (β> 0.20) on the Intrinsic Regulation to Know (0.42) and for External Regulation (0.42). For non-professionalized athletes (Table 3), it was found that increased maladaptive perfectionism has a moderate effect (β> 0.20) on External Regulation (0.40).

Table 3. Regression analysis between variables with moderate correlation for professionalized and non-professionalized soccer players

Variable Outcome	Predictor variable	r	β	R^2	Standard Error	Critical Ratio	P
Professionalized							
I.M. to Know	Adaptive Perfectionism	0.42	0.42	0.18	0.37	3.63	0.001*
I.M. for Accomplish Things		0.46	0.51	0.26	0.31	4.72	0.001*
I.M. to Experience Stimulation		0.55	0.56	0.31	0.29	5.29	0.001*
E.M. for External Regulation		0.42	0.42	0.17	0.36	3.59	0.001*
Non-Professionalized							
E.M. for External Regulation	Maladaptive Perfection-ism	0.42	0.40	0.16	0.18	4.76	0.001*

Simple univariate (non-professionalized) and multivariate regression (professionalized). * P <0.05.

DISCUSSION

The results of this study may provide new parameters for research involving perfectionism and motivation in the sporting context. By analyzing the effect of perfectionist orientations on the motivating of soccer players, it was found

that adaptive perfectionism (personal standards and organization) was related to regulatory styles of autonomous motivation in professionalized athletes. In contrast, maladaptive perfectionism was a predictor of behaviors regulated by external factors in non-professionalized athletes (Figure 1).

The combination of adaptive perfectionism (personal standards and organization) with regulatory styles of autonomous motivation in professional athletes seems to reveal parameters that support the understanding of the adaptive nature of the establishment of high performance standards in the high-performance sporting context [22] mainly because the same pattern of association was not identified in non-professionalized athletes. These results suggest that the athlete that performs a given task voluntarily establishes high standards of achievement for his own performance[3,14]; probably he feels motivated to be satisfied and valued by increasing the interest in staying practicing such activity, thus approaching self-determination[24].

In addition, athletes with adaptive perfectionism and autonomous motivation have better ability to overcome the stressful demands of the environment, directing more effort for everyday tasks, reflecting the positive aspects of adaptive perfectionism orientation[17]. Thus, the association between adaptive perfectionism and self-determined motivation in the high-performance sporting context can be a key aspect for maintaining optimal performance level, and is considered the basis for growth, psychological integrity and group cohesion[3].

Such evidence supports findings of previous investigations[13,25], which verified positive relationship between adaptive perfectionism orientation, self-determined motivation and coping, regardless how athletes feel competent in a particular sport.

Moreover, it was observed that the personal performance standards and organization may reflect a less adaptable perfectionism orientation (Figure 2), once adaptive perfectionism had a significant impact on controlled motivation (E.M. for External Regulation). Controlled motivation involves behaviors motivated by internal psychological pressures such as efforts to stay in high performance or to achieve goals[26]. Such findings corroborate findings of recent studies that relate the dimensions of adaptive perfectionism with controlled motivation[2] and concerns about self-esteem[9].

It was observed that high personal standards and organization can develop not only autonomous behaviors in elite athletes, but can also motivate adherence and permanence in sports for external reasons, reward or punishment[5], unchaining both positive and negative results[2].

Regarding non-professionalized athletes, it was observed that maladaptive perfectionism had impact on behaviors governed by external factors (Figure 2), showing association between negative perfectionism dimensions (concern about errors, doubts in action and parental criticism) and controlled motivation. Thus, non-professionalized athletes show fear of making mistakes, do not feel confident about their ability or care about parental expectations[27], so these athletes play soccer motivated by external pressures and are away from self-determination[28]. Similar results were found in

research with sporting talents[2,29], emphasizing that non-professionalized athletes tend to have greater influence from maladaptive perfectionism orientation, since by being in personal and athletic training process, they do not have the same psychological resources that adult athletes use to overcome obstacles of the sporting career.

Comparing regulatory motivational styles (Table 1) between professionalized and non-professionalized athletes, it was found that non-professionalized athletes were more amotivated for soccer, indicating that they have behavior regulated by something beyond their control, showing no intention in the practice of sports[24]. This result is worrying for the development of sporting talents, as these are not self-determined forms of motivation and can cause negative consequences for the athletic development of young people, in some cases causing the sport abandonment[30].

Moreover, professionalized athletes are oriented by intrinsic factors and play soccer without external influences, which become factors that may affect athletic development. These athletes have more autonomous behavior to play soccer compared to non-professionalized athletes, as they participate voluntarily for satisfaction and pleasure in "apparent" absence of external pressures[28].

Important evidence was found when comparing perfectionist orientations between groups (Table 2). It was observed that professionalized athletes have greater orientation on adaptive perfectionism dimensions, a result that corroborates regression analysis data (Figure 1). This observation is recurrent in high-performance athletes, as they have a tendency to establish high personal standards and are extremely organized[14,15]. In contrast, non-professionalized athletes have higher scores in relation to parental criticism (Table 2), which is a specific domain of maladaptive perfectionism, showing that they interpret the behavior of parents as overly critical in relation to their performance[26].

Despite the contributions of the findings of this research for literature, limitations need to be highlighted, among them the sampling restriction to only one professional soccer team, which does not represent the reality of the country's soccer players. However, the study sample can be considered special because athletes from an important club of the 1st Division Brazilian Soccer Championship were analyzed. With regard to the relationship between perfectionism and motivation, the results are based on cross-sectional data, not allowing causal inferences. Thus, future studies should explore the relationship between perfectionist orientations and self-determined motivation in the sporting context, analyzing players from other regions and the use of longitudinal models in order to provide new parameters of these relationships over time.

CONCLUSIONS

The results suggest that in professionalized soccer players, adaptive perfectionism orientations have a positive impact on intrinsic motivation and

can be considered an important personality trait to develop autonomous behavior. On the other hand, in non professionalized athletes, maladaptive perfectionism orientation proved to be an intervening factor for the development of extrinsic motivation behaviors, showing that for athletes in early sporting career, concerns about errors, doubts in action and parental criticism boost the athlete's controlled behavior.

These findings provide some practical implications for professionals working with soccer. First, the psychological counseling of young athletes can help them to develop their personality traits positively so that they practice their sports activity autonomously motivated, without an apparent need for external rewards. In addition, it is important that coaches and psychologists are aware of the high achievement standards and organization in professional sports, as despite influencing mainly autonomous motivation, adaptive perfectionism can also generate controlled behaviors.

Finally, the results indicate changes in the psychological behavior of players selected from initiation soccer centers, who stay full time in training centers (TCs). Professionalization as understood in this study seems to help internalize the role of the "athlete" that associated with "confinement", favors adaptations both in motivation as in perfectionism traits, adjusting to standards expected for high-performance athletes. Therefore, it is suggested that the psychological counseling of these athletes in this reclusion environment and commitment with sports practice will avoid psychological processes undesirable to professional training.

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