

# Degree of psychological commitment to exercise in young athletes<sup>1</sup>

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## DEGREE OF PSYCHOLOGICAL COMMITMENT TO EXERCISE

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ABSTRACT: The objective was to analyze the effects of affective, personal and demographic variables in the degree of psychological commitment to exercise (DPCE). 286 athletes aged between 10 and 19 years of both sexes participated in the study. We used the *Commitment Exercise Scale*, the *Body Shape Questionnaire* and the "Criterion of Economic Classification Brazil" to assess the DPCE, body dissatisfaction and socioeconomic status, respectively. The results showed significant effects for females ( $p = .001$ ). These same analyzes for males showed no significant effects. It was concluded that affective, personal and demographic factors promoted effects in DPCE only in females.

In young people that seek the integration to the sports practice, especially those who participate in competitions in the search for idealized victories, has often been observed crave for maximizing physical performance and the achievement of the condition of athlete (Fortes and Ferreira, 2011; Steinfeldt and Steinfeldt, 2012; Torstveit, Rosenvinge and Sundgot-Borgen, 2008). This longing, these young people can exceed their own limits, a fact which can be considered a psychological, physiological or social problem (Stirling, Cruz and Kerr, 2012).

In competitive environments, there are a range of requirements/charges, that may trigger factors harmful to youth health (Gomes, Martins and Silva, 2011; Schaal et al., 2011; Silva, Gomes and Martins, 2011; Stirling et al., 2012). It is not uncommon to find coaches, sponsors and even parents who require and demand the best results (Francisco, Alarcão and Narciso, 2012; Gomes et al., 2011; Peden, Stiles, Vandehey and Diekhoff, 2008). In this context, some athletes believe that to optimize their performance, they need to increase the time spent for physical training, as well as using inappropriate methods for the control and maintenance of body weight (De Bruin, Oudejans, Bakker and Woertman, 2011; Modolo, Antunes, Gimenez, Santiago, Tufik and Mello, 2011; Stirling et al., 2012), these attitudes that increase the risk of developing high degree of psychological commitment to exercise (DPCE) (Fortes, Almeida, Laus and Ferreira, 2012).

The DPCE refers to the maintenance of exercise in the face of adverse conditions and the level of interference that physical activity has on social commitments (Teixeira, Hearst, Matsudo, Cordás and Conti, 2011). According to Thein-Nissenbaum (2013), high daily volume of physical training can trigger many problems, such as thermal dysregulation, hormonal dysregulation, cardiac arrhythmia, loss of appetite, among others. Other symptoms of psychosocial origin are pointed out by Schaal et al. (2011) and include depression, anxiety, excessive worries about the body, overvaluation of the exercise at the expense of family, work and friends.

Some authors emphasize the hypothesis that the psychological addiction to exercise or DPCE can be modulated by affective factors (Daley and Welch, 2004; De Bruin et al., 2011; Fortes et al., 2012a; Niven, Rendell and Chisholm, 2008), personal (Modolo et al., 2011; Rosendahl, Bormann, Aschenbrenner, Aschenbrenner and Strauss, 2009) and demographic (Fortes, Miranda, Amaral and Ferreira, 2012).

In addressing the hypothesis about the DPCE, De Bruin et al. (2011) mention that dissatisfaction with body image may influence the early development of mental traits facing DPCE high. Dissatisfaction with body image refers to the depreciation with the weight and physical appearance (Fortes and Ferreira, 2011). Fortes, Paes, Amaral and Ferreira (2012b) emphasize the possibility of ethnic impact on the onset of attitudes toward physical activity deleterious to health. Authors suggest that

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Caucasian athletes seem to be more vulnerable to inappropriate behavior associated with sports training (Fortes and Ferreira, 2011; Pernick, Nichols, Rauh, Kern, Ji, Lawson and Wifley, 2006). In addition, Fortes and Ferreira (2011) point out that demographic factors such as socioeconomic status and the competitive level, usually promote effects on behavioral variables. Fortes et al. (2012b) argue that families of higher economic statements generate higher collections geared to athletes in the desire for better performance. Furthermore, Holm-Denoma, Scaringi, Gordon, Van Orden and Joiner (2009) argue that athletes competing at higher levels usually show higher frequencies considered abnormal attitudes related to physical exercise. These facts can be supported by the Social Cognitive Theory, developed by Bandura (1986). The Social Cognitive Theory explains the behavior using a model of human triadic reciprocity. In this model, conduct, internal personal factors (e.g., cognitive, affective and biological events) and the external environment act among themselves as interactive and reciprocal determinants. Thus, the individual creates, modifies, and destroys its surroundings. The individual becomes an agent and receiver situations occur and at the same time these situations will determine their thoughts, emotions and future behavior (Bandura, 1986).

Other variables that may interfere with understanding DPCE among athletes are related to age and adiposity. In fact, some findings indicate that younger adolescents or with a higher percentage of fat tend to have high DPCE (Fortes et al., 2012a). Soon, young athletes tend to be more committed to exercise when compared to older. Perhaps this is due to the young athletes to climb impress the coach, friends or parents, whereas older athletes already have enough to not engage in behaviors that can hurt your performance sports. Furthermore, evidence has shown body fat as derogatory aspect for athletes. In this sense, the athletes with the highest percentage of fat tend to use compensatory behaviors, such as excessive exercise, to reduce the amount of fat in their bodies.

When comparing to behavioral variables between groups with different characteristics may be that the result is resultant from the independent variables not isolated. Therefore, comparisons between athletes DPCE a function of independent variables only promote meaningless if the morphological attributes (lean or fat percentage) and age are equaled. Thus, researchers emphasize the importance of using morphological characteristics and age as covariates in the process of data analysis in investigations that seek to compare groups (Fortes and Ferreira, 2011, Fortes et al., 2012b).

Given the arguments presented, we find the need to conduct investigations that address the influence of affective, personal and demographic factors on the DPCE. It adds that, yet, no investigations were found in the South American context that had focused about the comparison DPCE according to dissatisfaction with body image, ethnicity, economic and competitive levels. In this sense, the objective of this study was to analyze the effects of affective, personal and demographic variables in DPCE athletes.

Anyway, some hypotheses were formulated: 1) athletes dissatisfied with the body present greater DPCE than satisfied; 2) athletes with higher socioeconomic levels are more psychologically committed to exercise when compared to the lower economic index; 3) athletes white ethnicity indicates higher DPCE when compared to other ethnicities and; 4) athletes

competing at high levels have higher DPCE compared low competitive levels.

## Materials and Methods

### Ethical aspects

The study was approved by the Ethics and Research Involving Human Subjects at the Federal University of Juiz de Fora with the opinion number 232/2010, in accordance with resolution 196/1996. The Statement of Informed Consent (IC), containing all the research procedures was signed by the heads of athletes and ensures anonymity to participants and maintain the confidentiality of the data.

### Participants

It is cross-sectional study conducted in 2011 in the cities of Rio de Janeiro/RJ and Juiz de Fora/MG - Brazil, with athletes of both sexes, aged between 10 and 19 years, competing in several sports. To participate in the research, the athlete should have a training frequency with a minimum of three days weekly, minimum duration of one hour per training session and had taken part in official competition in 2011 for their respective sport.

We contacted managers/coaches of four clubs in each city. However, only five of these (three of Juiz de Fora and two of Rio de Janeiro) authorized the data collection. Sampling was done for convenience. Only athletes who were present on the day of collection were evaluated. Thus, 305 youths participated, however, 19 subjects were excluded for not answering the questionnaire in its entirety or for not participating in anthropometric assessments. Thus, the final sample included 286 athletes with a mean age of  $14.95 \pm 2$  years and mean duration of training in their sport of  $3.75 \pm 1.12$  years. The sample consisted of 88 female and 198 males athletes belonging to the following modalities: basketball, soccer, handball, gymnastics, synchronized swimming, swimming, water polo, diving and volleyball, as shown in Table 1.

### Instruments

To determine the DPCE was applied *Commitment to Exercise Scale* (CES). The instrument was translated and adapted into Portuguese by Teixeira et al. (2011) and assesses the degree to which feelings of well-being are modulated by exercise, maintenance of exercise in the face of adverse conditions and the degree of interference that physical activity has on the individual's social commitments. This is a visual analog scale, consisting of 8 issues ranging from 0 to 155mm and therefore with a maximum score of 1240mm. Following recommendations Gapin and Petruzzello (2011), the median was used to classify groups of DPCE second CES scores. Thus, athletes who had scores equal to or greater than 678 and 724 for females and males, respectively, were included in the group with high DPCE (CES +). Furthermore, we calculated the internal consistency of the CES for the present sample, identifying Cronbach's *alpha* of .85 for girls and .88 for boys.

To evaluate the dissatisfaction with body image was used the *Body Shape Questionnaire* (BSQ). This is a test of self-report questionnaire with 34 questions that seek to evaluate the concern that the subject has with his weight and physical appearance. The version used has been validated for Brazilian adolescents (Conti, Cordás and Latorre, 2009) and analysis revealed an internal

consistency  $\alpha$  of .96 for both sexes and a correlation coefficient between the scores of test-retest significant, ranging .89 to .91 for girls and boys, respectively. The score is the sum of the items, which classifies the dissatisfaction about the body, as follows:

<80 points free of body dissatisfaction and  $\geq 80$  with some level of dissatisfaction with body image. We calculated the internal consistency of the BSQ for the present sample, obtaining a Cronbach's  $\alpha$  of .90 for girls and .92 for boys.

Sport	Sex			
	Female		Male	
	N	%	N	%
Basketball	16	18.2		
Soccer	93	47.0		
Handball	11	12.5	27	13.6
Gymnastics	14	15.9		
Synchronized Swimming	18	20.5		
Swimming	8	8.1	37	18.7
Water Polo			26	13.1
Diving	5	5.7	15	7.6
Volleyball	16	18.2		
Total	88	100.0	198	100.0

Table 1. Sample distribution according to gender and sport.

The economic classification was obtained by applying the "Brazil Economic Classification Criterion" developed by the Brazilian Association of Research Companies (BARC). The Criterion of Economic Classification Brazil, emphasizes its function to estimate the purchasing power of people and urban families, abandoning the pretense of classifying the population in terms of "social classes". This instrument measures the amount of comfort items (car, refrigerator, television, etc.) acquired, in addition to identifying the level of education of householder. He refers us to the following cutoff points in relation to economic class: A1 - 30 to 34 points, A2 - 25 to 29, B1 - 21 to 24, B2 - 17-20, C - 11-16 D - 6-10 ; E - 0-5, in descending economic level.

We applied a qualitative questionnaire to assess demographic data like age, sex, type of sport, training regimen (weekly frequency, duration of training session and practice time in years), ethnicity (white, black, yellow and others) and competitive level (regional, state and national). Although there were the "other" ethnicity in the item, the athletes reported only "white" "black" or "yellow."

The fat percentage was estimated by the doubly indirect method, measuring the triceps and subscapular skinfolds. We used the protocol of Slaughter, Lohman, Boileau, Hoswill, Stillman, and Yanloan (1988) to perform this estimation. These measurements were performed on a rotational and collected three times, considering the values average. These measurements were performed by the same rater (LSF) to improve the reliability of the assessment and performed the calculation of technical error measurements (TEM) proposed by Perini, Oliveira, Ornellas and Oliveira (2005), excluding data with variance greater than 10%.

#### Procedure

Data collection occurred between March and June 2011 in rooms provided by the clubs participating in the research. A week before the questionnaires and anthropometric measurements, Consent Forms were distributed to the heads of athletes authorize the collection of data. The small sample size for females (88 athletes) is justified for the following reason: there are few athletes this sex in clubs participating in the study. In Brazil women's participation in competitive sport appears to be about three times lower compared to males (Fortes and Ferreira, 2011), which explains the larger sample size of males (twice) when compared to females in the present investigation.

Therefore, the research was divided into two parts. At first, young people responded to the instruments (CES, BSQ and BARC), plus a qualitative questionnaire to identify demographic data (age, sex, frequency of weekly training, duration of the training session, practice time in years, ethnicity and competitive level). This step was performed in a group by a single researcher, who standardized verbal explanations in an attempt to avoid interference intra evaluators. The average time for completing the questionnaires was 30 minutes.

Then, the teenagers were led into another room, wearing minimal clothing. In this second stage skinfolds were measured individually, not being allowed to enter more than one athlete at the same time.

#### Data analysis

We used measures of central tendency (mean), dispersion (standard deviation) and frequencies to describe the study variables. In addition, we calculated the coefficient of skewness

("a") for the curve of the scores of CES, identifying  $a = .11$ . The kurtosis measure was also calculated ("c"), evidencing  $c = .298$ . Then, we conducted univariate analysis of covariance (ANCOVA) using age and body fat percentage as covariates to compare scores of the CES second body dissatisfaction, ethnic, economic and competitive levels. For this, the ratings BARC were grouped into A (A1, A2), B (B1 and B2) and C (C, D and E). We used the *post hoc* Bonferroni test to identify differences. Moreover, stepwise multiple linear regression was used to investigate the effects/influence of affective (body dissatisfaction) and demographic (ethnicity, socioeconomic level and competitive level) variables. Finally, when appropriate size effects were reported. All data were processed with SPSS 17.0, adopting a significance level of 5%.

## Results

The results showed 48.3% of female athletes and 66.1% of male high DPCE (CES +). Furthermore, 32.95% of girls and 17.39% of boys were dissatisfied with their body image according to the scores of the BSQ.

Regarding the comparisons DPCE, univariate analysis of covariance showed no statistically significant difference as a function of body dissatisfaction ( $F(1, 88) = 1.73, p = .19$ ), ethnicity ( $F(1, 88) = 1.59; p = .21$ ) and socioeconomic status ( $F(1, 88) = 1.09; p = .34$ ) for females. However, *post hoc* Bonferroni test indicated the athletes who competed in regional and state levels with DPCE higher when compared to athletes in the group "National" ( $F(1, 88) = 2.16; p = .04$ ), as can be seen in Table 2.

Variable	Commitment Exercise Scale	
	Female	
	Average	SD
BSQ		
Satisfied ( $n = 59$ )	684.78	27.96
Dissatisfied ( $n = 29$ )	721.89	40.82
Ethnicity		
Caucasian ( $n = 60$ )	685.36	24.17
Black ( $n = 17$ )	749.96	62.09
Yellow ( $n = 11$ )	712.45	77.81
Economic Level		
A ( $n = 22$ )	681.40	46.05
B ( $n = 52$ )	653.55	29.38
C ( $n = 14$ )	756.49	69.98
Competitive Level		
Regional ( $n = 15$ )	813.51	73.02
State ( $n = 13$ )	741.44	79.00
National ( $n = 60$ )	650.00 <sup>a, b</sup>	26.05

SD = Standard Deviation; BSQ = Body Shape Questionnaire; <sup>a</sup> $p < .05$  in relation to the group "Regional"; <sup>b</sup> $p < .05$  in relation to the group "State".

Table 2. Mean and Standard Deviation Commitment Exercise Scale in terms of affect and socio-demographic variables in young female athletes.

Variable	Commitment Exercise Scale	
	Male	
	Average	SD
BSQ		
Satisfied ( $n = 164$ )	686.85	22.77
Dissatisfied ( $n = 34$ )	664.38	95.49
Ethnicity		
Caucasian ( $n = 90$ )	680.72	26.98
Black ( $n = 47$ )	699.84	41.50
Yellow ( $n = 41$ )	650.26	33.88
Economic Level		
A ( $n = 52$ )	646.97	45.42
B ( $n = 82$ )	690.41	29.14
C ( $n = 44$ )	722.34	54.94
Competitive Level		
Regional ( $n = 45$ )	699.90	35.09
State ( $n = 43$ )	638.64	57.89
National ( $n = 90$ )	688.12	33.24

SD = Standard Deviation; BSQ = Body Shape Questionnaire.

Table 3. Mean and Standard Deviation Commitment Exercise Scale in terms of affect and socio-demographic variables in young male athletes.

Regarding these analyzes in males, the results showed no differences in scores of CES second body dissatisfaction ( $F(1, 198) = 0.5; p = .82$ ), ethnicity ( $F(1, 198) = 0.57; p = .56$ ), economic level ( $F(1, 198) = 0.60; p = .55$ ) and competitive level ( $F(1, 198) = 0.41; p = .66$ ), as shown in Table 3.

Regarding the influence of the independent variables of this research on DPCE, the regression model showed significant effects for females ( $F(4, 88) = 6.43; p = .001$ ) (Table 4). Thus, body dissatisfaction ( $F(1, 88) = 9.86; p = .002$ ), ethnicity ( $F(3, 88) = 3.56; p = .05$ ), socioeconomic status ( $F(3, 88) = 8.90; p =$

.004) and competitive level ( $F(3, 88) = 9.29; p = .003$ ) explained 10%, 4%, 9% and 9%, respectively, the variance of the scores of CES.

Regarding these same analyzes for males, the findings of this study showed no significant effects ( $F(4, 198) = 0.82; p = .51$ ) (Table 5). In this sense, the body dissatisfaction ( $F(1, 198) = 0.68; p = .41$ ), ethnicity ( $F(3, 198) = 0.05; p = .82$ ), socioeconomic status ( $F(3, 198) = 2.06; p = .15$ ) and the competitive level ( $F(3, 198) = 0.07; p = .78$ ) did not modulate the variance of the scores of the CES.

Variable	Block	B	R	R <sup>2</sup>	R <sup>2*</sup>	p
BSQ	1	2.82	.32	.10	.09	.002
Ethnicity	2	127.00	.20	.04	.03	.05
EL	2	13.56	.30	.09	.08	.004
CL	2	102.39	.31	.09	.09	.003
All	-	68.01	.49	.24	.20	.001

R<sup>2\*</sup> = R<sup>2</sup> adjusted; CES = Commitment Exercise Scale; BSQ = Body shape questionnaire; EL = Economic Level; CL = Competitive Level.

Table 4. Multiple linear regression using BSQ, Ethnicity, BARS, competitive level as explanatory variables on the variance of CES in young female athletes.

Variable	Block	B	R	R <sup>2</sup>	R <sup>2*</sup>	p
BSQ	1	0.90	.08	.006	.003	.41
Ethnicity	2	9.08	.02	.001	.009	.82
EL	2	6.41	.14	.02	.01	.15
CL	2	6.44	.02	.001	.009	.78
All	-	25.54	.18	.003	.006	.51

R<sup>2\*</sup> = R<sup>2</sup> adjusted; CES = Commitment Exercise Scale; BSQ = Body shape questionnaire; EL = Economic Level; CL = Competitive Level.

Table 5. Multiple linear regression using BSQ, Ethnicity, BARS, competitive level as explanatory variables on the variance of CES in young male athletes.

## Discussion

The present investigation had as objective to examine the effects of affect, personal and demographic variables on DPCE in athletes. According to previous studies (Fortes et al., 2012b; Modolo et al., 2011), no research has been developed so far in ascertaining the impact of affective, personal and demographic factors on DPCE in Brazilian athletes. Thus, some comparisons of these findings with the scientific literature were not viable during this session.

The results of this investigation showed marked prevalence of high DPCE (CES +) for both sexes, especially for males (66.1%). It is important to note that regular exercise can substantially contribute to physical and psychological health. However, when performed in an excessive or compulsive, can be

extremely self-destructive in the physical, psychological and social (Modolo et al., 2011; Schaal et al., 2011). In this context, as a practical implication of this study, it is highlighted the importance of Physical Education teacher and professionals in mental health therapy and monitoring of young athletes in sports clubs. Although exercise can be healthy, you need attention and awareness of psychological issues in this context, which can often be overlooked or obscured.

Despite the findings of this study concerning DPCE, Modolo et al. (2011), in contrast, identified a prevalence of approximately 30% for athletes psychologically dependent on the physical training. Perhaps this discrepancy is the result of the peculiarities of the samples used in both surveys. On the one hand, in the present study, the sample was consisted by adolescent athletes. Secondly, Modolo et al. (2011) used a sample of adult athletes.



In this sense, some authors point out that younger athletes tend to feel more pressure to maximize their performance in sports (De Bruin et al., 2011; Fortes and Ferreira, 2011). Thus, adolescent athletes may increase the time spent on physical training in order to improve athletic performance. Moreover, young athletes are more dissatisfied with the body (Silva et al., 2011), which could result in increased of physical training volume because of the desire to reduce or change body weight. In contrast, evidence suggests that younger athletes tend to devote themselves more to physical exercises for the purpose of loss/ maintenance weight specific to their sport (Costarelli and Stamou, 2009; Gomes et al., 2011). Regardless of the reason it seems that younger athletes may be more likely to develop strong traces of DPCE high, which makes this group as being at risk for developing psychological disorders, supporting the argument that this population must be under the focus and care health professionals.

Regarding the scores of the BSQ, the results of this survey showed 33% and 17% of female and male athletes, respectively, with body dissatisfaction. Other studies corroborate these findings for both females (Peden et al., 2008; Torres-McGehee et al., 2009) and for men (Costarelli and Stamou, 2009; Fortes and Ferreira, 2011). Thus, it is evident that the frequency of preoccupation with weight and body image in girls is usually higher when compared to their peers boys (Fortes and Ferreira, 2011, Gomes et al., 2011). Similarly, evidence suggests that athletes may be more affected by such feelings in the general population (Rosendahl et al., 2009; Schaal et al., 2011).

Concerning comparisons of scores on the CES function of body dissatisfaction in females, the ANCOVA showed no difference. Contrary to what the literature recommends (De Bruin et al., 2011), this result indicates that the DPCE was similar among athletes satisfied and dissatisfied with their body image. Perhaps, the depreciation of the weight and physical appearance is not a precursor of DPCE increase in the population of female athletes. However, it is noteworthy that the not difference found may be reflective of the type of statistical test used. Univariate analysis of covariance seeks to reconfigure the scores of the dependent variable, in this case at CES, from the recalculation of independent factors. It is also noted that this is the first investigation in Brazil to make this type of analysis with behavioral variable. Therefore, the results should be interpreted with caution.

Regarding the DPCE according to ethnicity and socioeconomic status among females, again the results of ANCOVA showed no differences. These findings indicate that the DPCE was similar in girls athletes, regardless of ethnicity and socioeconomic status. Fortes and Ferreira (2011) mention that personal factors such as ethnicity may not develop targeted behavioral effects on the economic variables, such as the DPCE. Adding, Gomes et al. (2011) argued that demographic factors such as socioeconomic status did not have an impact on variable psychological nature related to physical activity. Thus, these results are consistent with the notes of the above authors.

In contrast, *post hoc* Bonferroni test showed a higher DPCE girls who competed at the regional and state when compared to athletes who participated in competition at "national". Thus, it seems that athletes with lower competitive levels seek undertake more training in order to improve athletic performance. However, according to Thein-Nissenbaum (2013), high daily volume of sports training can trigger many problems, such as thermal dysregulation, cardiac arrhythmia, loss of appetite, among others.

Therefore, a finding of central importance in this study shows that girls athletes who compete in regional and state level need for monitoring therapeutic arising from health professionals. Thus, the athletes of lower competitive levels would be less vulnerable to psychophysiological syndromes caused by excessive physical training.

Referring to the male, comparisons of scores on the CES function of affective, personal and demographic factors showed no statistically significant differences. Thus, the findings indicate that the DPCE was similar between boys athletes second body dissatisfaction, ethnicity, economic level and competitive level. Just as was elucidated for females, the results of this investigation with respect to body dissatisfaction for male athletes are in line with what is recommended in the literature (Fortes et al., 2012a; Modolo et al., 2011). De Bruin et al. (2011) point out that athletes unhappy with their bodies can use the strenuous physical activity as a strategy for loss/control weight. However, the results concerning ethnicity, economic level and competitive level corroborate other authors (Fortes et al., 2012b; Fortes and Ferreira, 2011). Gomes et al. (2011) point out that personal and demographic factors can not cause effects on psychological variable nature related to physical exercise. In this sense, it seems that DPCE in young male athletes is determined by other variables.

The regression model showed the influence of all variables affect, personal and demographic study on DPCE in females. However, it should be noted that dissatisfaction with body image was the main determinant of the scores of the CES. Thus, these findings support the investigations of De Bruin et al. (2011) and Fortes et al. (2012a). Furthermore, significant effects of demographic variables in DPCE reinforce the limitation Holm-Denoma et al. (2009), which, studies show that the competitive factor is to change the habits related to physical training in athletes. Similarly, Fortes et al. (2012b) argue that the economic power of the families of young athletes influence behaviors deleterious to health. These authors point out that families of higher economic statements tend to charge more athletes in the desire for better performance. Therefore, it is likely that these athletes develop inappropriate attitudes directed to exercise.

Regarding the multiple regression model for males, the results were controversial to those for girls in the preceding paragraph. Thus, the findings did not suggest the influence of affective, personal and demographic factors in DPCE among boys. In this sense, these findings contradict what some authors tend to emphasize (Fortes et al., 2012a; Holm-Denoma et al., 2009). For example, Fortes et al. (2012b) argue that dissatisfaction with body image and competitive level can be decisive factors for the triggering of inappropriate behavior associated with exercise. Adding, other researchers point out that personal variables, because of genetic predispositions, attitudes may be predictive of deleterious health (Modolo et al., 2011, Rosendahl et al., 2009).

This study had some limitations that deserve mention. The main one was the use of tools such as self-reported assessment instruments. Researchers stress that the measured reliability may not respond to questionnaires, because they deal with subjective responses that are likely to be circumvented (Schaal et al., 2011; Torstveit et al., 2008). However, Fortes and Ferreira (2011) emphasize that in a population-based research or large samples, interview held with easy to use tools, such as questionnaires, are perhaps the most viable method to be used. Furthermore, the CES has not been validated for the target population of this study,

which represents an important limitation. In the validation study of the CES (Teixeira et al., 2011), conducted with young adults of both genders, the authors identified internal consistency of .79, showed no difference in scores between test and retest (range 15 days), plus meet single factor structure for CES. Considering the guidelines of psychometrics (Sartes and Souza-Formigoni, 2013), it can be stated that the CES had good psychometric properties. We emphasize in particular that although the CES has been validated for adult public, the high internal consistency of this instrument among adolescents participating in this research provide evidence of good psychometric qualities of the scale also among this population. Another limitation was the cross-sectional design. Thus, it was not possible to infer causality. This means that there is no way to assess the degree of intensity and direction of the associations found between the outcome of the study and the independent variables. Also noteworthy is the small sample size. Thus, there is no way to infer the results to the population of athletes. However, being a pioneer in the evaluation of the influence of some factors on the DPCE among athletes, it is believed that this research has provided results that include part of the knowledge gap in the area and therefore deserve to be discussed in future studies.

Finally, considering the findings of the study, the coaches could direct more attention to female athletes who compete in regional or state events. Possibly these athletes have high DPCE for believing that the increased of physical training volume will result in improvements in sports performance. Although athletes extremely committed to the training to be considered as

“examples” within the sporting arena, it is recommended that coaches and athletic directors who watch for the behavior of these athletes, as the high DPCE may be a pathological trait. Furthermore, coaches reducing the pressure imposed for athletes to performance optimization is a viable alternative to reduce the DPCE, considering that excessive exercise can lead to health problems (Modolo et al., 2011). More specifically, female athletes who express dissatisfaction with body weight may engage in excessive exercise behavior as a compensatory method to mitigate the levels of negative feelings directed to the body. However, it is noteworthy that excessive physical training, contrary to what athletes believe, can have serious health complications. Thus, it is required to create programs that seek to fabricate lectures to athletes and coaches about the risks that excessive physical training can result in sporting life.

## Conclusions

The results showed that affective, personal and demographic factors promoted significant effects on the DPCE only in females. Moreover, DPCE discerned in girls athletes before different competitive levels. Finally, affective, person and demographic variables were not association to DPCE in male athletes.

Finally, it is suggested that research be carried out by determining possible effects and influences of sociocultural agents, such as media and friends on the DPCE in athletes, as well as longitudinal studies to assess the causal relationships between these variables.

### *GRADO DE COMPROMISO PSICOLÓGICO PARA EJERCER EN LOS ATLETAS JÓVENES*

**PALABRAS CLAVE:** Ejercicio, Deportistas, Deporte.

**RESUMEN:** El objetivo fue analizar los efectos de los variables afectivos, personales y demográficos en el grado de compromiso psicológico para ejercer (GCPE). 286 atletas de edades comprendidas entre 10 y 19 años de ambos sexos participaron en el estudio. Se utilizó la *Commitment Exercise Scale*, la *Body Shape Questionnaire* y el “Criterio de Clasificación Económica Brasil” para evaluar el GCPE, la insatisfacción corporal y nivel socioeconómico, respectivamente. Los resultados mostraron efectos significativos para las mujeres ( $p = .001$ ). Estos mismos análisis para los machos no mostraron efectos significativos. Se concluyó que la afectiva, factores personales y demográficos promovió efectos en GPCE sólo en las mujeres.

### *GRAU DE COMPROMISSO PSICOLÓGICO PARA TRABALHAR COM ATLETAS JOVENS*

**PALAVRAS-CHAVE:** Exercício, Desportistas, Desporto.

**RESUMEN:** O objectivo foi analisar os efeitos das variáveis afectivas, pessoais e demográficas no grau de compromisso psicológico para exercer (GCPE). Participaram no estudo 286 atletas de idades compreendidas entre os 10 e os 19 anos de ambos os géneros. Foi utilizado o *Commitment Exercise Scale*, o *Body Shape Questionnaire* e o “Critério de Classificação Económica Brasil” para avaliar o GCPE, a insatisfação corporal e o nível socioeconómico, respectivamente. Os resultados revelaram efeitos significativos para as mulheres ( $p = .001$ ). Estas mesmas análises não revelaram efeitos significativos nos homens. Conclui-se que a variável afectiva, os factores pessoais e demográficos promoveram efeitos no GCPE apenas nas mulheres.

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