

## Perseverance and addiction processes: Clues to identify exercise addicts

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### Abstract

Physical activity is one of the most important resources used to promote health habits and well-being through a controlled and regular practice. Nevertheless, it is increasingly clear that in the area of sports, cases of excessive practice are becoming more prevalent, therefore normalizing the appearance of addictive behaviors. Previous studies on this topic highlight the importance of personality and the presence of different traits in identifying the appearance of this behavioral pattern. Taking into account all this information and the meaning of grit (perseverance and passion), one of the most emerging traits in the field of personality, we selected a sample of CrossFit and endurance sports practitioners (133 athletes; 34.59% women and 65.41% men) to understand the possible association between exercise addiction and grit, which could be affected by some indicators such as ambition and satisfaction in this relationship. A t-test, correlation analysis (Pearson), and linear regression (backward method) showed that the factor of Perseverance is positively correlated with addiction, and the other factor of grit, Consistency of Interest, did not present any kind of relationship. This seems to indicate that Perseverance is a trigger for addiction, while Consistency may help to self-regulate this behavior. In addition, younger athletes showed higher indicators of ambition to achieve their goals and a higher risk of exercise addiction, whereas gaining more experience with sports could facilitate the development of grit.

Keywords: sports, exercise, CrossFit.

### Introduction

In recent years, modern societies have experienced a change in the trend of physical activity towards the practice of sports with great physical and psychological demands (Lamont, & Kennely, 2018), with objectives such as the achievement of new challenges and the search for unlimited improvement (Cruz, 2013). Two types of sport more remarkable in this movement are endurance sports (e.g. 5-km and 10-km runs, half-marathons, marathons, triathlons, ultra-endurance races,

mountain trails, cycling, ironman races, etc.) and CrossFit (which combines aerobic and anaerobic exercises with the stated goal of improving fitness and physical performance, with specific attention to cardiovascular and respiratory endurance, strength, flexibility, power, speed, coordination, agility, and balance) (Belger, 2012; Lichtenstein, & Jensen, 2016).

Both sport types have seen their number of participants grow exponentially during the last

decade (Knechtle, Assadi, Lepers, Rosemann, & Rüst, 2014; Lara, Salinero, & Del Coso, 2014), in spite of the fact that endurance sports and CrossFit are two of the most demanding sports (Holt, Lee, Kim, & Klei, 2014; Predel, 2014), given the high intensity of practice expected for what is considered a leisure exercise (De La Vega, Parastatidou, Ruiz-Barquin, & Szabo, 2016) and that it involves maladaptive thinking in terms of sports practice (Rankin, Read, Walker, & Rankin, 2019), even going so far as to believe that it is necessary to endure physical and psychological pain for the sole purpose of achieving the stated goals (Mayolas-Pi et al., 2016; McCormick, Meijen Anstiss, & Jones, 2018; Schüler, Knechtle, & Wegner, 2018).

Many studies have shown the effect and the significant role that regular physical exercise has in disease prevention (Anandkumar, Manivasagam, Kee, & Meyding-Lamade, 2018; Berczik et al., 2014; Jansson, & Widlund, 2017; Lamont, & Kennelly, 2018; Levit, Weinstein, Weinstein, Tzur-Bitan, & Weinstein, 2018; Lichtenstein, Nielsen, Gudex, Hinze, & Jørgensen, 2018), where the effect of various types of endurance is comparable to pharmacological and behavioral therapy (Dirmaier et al., 2010; Lee et al., 2017).

However, when regular physical exercise is excessive, it has been demonstrated that it can lead to physical and even psychological damage (Manea, Milea, & Câmpean, 2018; Szabo, Griffiths, & Demetrovics, 2016; Weinstein, & Weinstein, 2014). Such a pattern of behavior is known as *exercise addiction*, defined as all physical activity that is carried out excessively and without control, becoming the central axis of life (Kovacsik, Soós, De la Vega, Ruíz-Barquín, & Szabo, 2018), and which is characterized by six common components of other addictions: *salience*, *mood modification*, *tolerance*, *withdrawal symptoms*, *personal conflict*, and *relapse*, referring to the tendency to return to excessive activity after periods of abstinence or control (Brown, 1993; Griffiths, 2005).

In 1976, Glasser began to refer to the concept of positive addiction to exercise, considering that it allows people to enjoy exercise and obtain mental and physical energy to promote personal achievements. Shortly thereafter, Morgan (1979) suggested that exercise could have possible negative results, producing this when life ends up structuring around this activity to the point that

domestic and work responsibilities are harmed and relationships go into the background, generating in this way a personal and/or social imbalance (Berzick et al., 2012). It is at this time when a wide range of terms began to be generated to describe and refer to this behavior, which has led to a context of conceptual confusion (Kotbagi, Kern, Romo, & Pathare, 2015; Pujals, Baile, & González-Calderón, 2018). Some of the most frequent expressions are compulsory, abusive, compulsive, or excessive exercise and exercise dependence (Egorov, & Szabo, 2013; Macfarlane, Owens & Cruz, 2016; Manea et al., 2018).

Among the different terms used, addiction is considered the most appropriate (Goodman, 1990; Szabo et al., 2015), since it incorporates both dependence, through the presence of tolerance and withdrawal syndromes, and compulsion, understood as a negative reinforcement for addiction (Freimuth, Moniz, & Kim, 2011; Szabo, 2018).

There are different tools to measure addiction in athletes, but one of the most widely used is the Exercise Addiction Inventory (EAI) (Terry, Szabo, & Griffiths, 2004), an instrument that directly assesses the six components of behavioral addiction, and in addition identifies and classifies the risk profiles of exercise addiction in three levels (Grima, Estrada-Marcén, & Montero-Marín, 2018).

Many researchers believe in the existence of personality traits that increase the predisposition of addictive behaviors to exercise (Bircher, Griffiths, Kasos, Demetrovics, & Szabo, 2017). One of the personality traits more recently used in the scientific community is perseverance, currently and concretely defined as Grit (Duckworth, 2016), which originates from studies in education contexts (Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011) and military contexts (United States Military Academy, West Point) (Duckworth, Peterson, Matthews & Kelly, 2007; Maddi, Matthews, Kelly, Villarreal, & White, 2012; Kelly, Matthews, & Bartone, 2014). Lastly, Grit is considered to be one of the characteristics of personality that can be useful in predicting success and well-being, independently of the field of study (Griffin, McDermott, McHugh, Fitzmaurice, & Weiss, 2016), and protecting individuals from falling ill in unhealthy contexts (Borzikowsky & Bernhardt, 2018).

Grit is defined as the perseverance and passion to achieve long-term goals beyond talent, which is what makes great winners special (Duckworth, 2016, p.8; Duckworth et al., 2007), as they see passion as the result of hours and hours of practice or study to achieve greater skill and knowledge, and perseverance as the ability to withstand and overcome a large number of obstacles (Dumas & Smith, 2018; Mills, 2017).

Duckworth et al. (2007) initially developed the 12-item Grit Scale (Grit-O), but due to poor psychometric properties (Datu, Valdez, & King, 2016) was replaced by Duckworth and Quinn's (2009) 8-item Short Grit Scale (Grit-S), in order to correct the limitations of the first instrument. In addition, this second scale showed internal consistency, test-retest stability, convergent and discriminant validity superior to the Grit-O (Duckworth & Quinn, 2009), confirming the expected two-factor structure with a moderate correlation between the two dimensions (Duckworth & Eskreis-Winkler, 2015).

Grit has been studied in the context of sports because the two factors that define this new trait of personality, perseverance and passion, can be identified in the behavior of athletes. For instance, athletes need to devote a very high number of hours to develop the specific skills required for each type of sport (passion), and they must also invest time and effort to maintain or improve their physical condition (perseverance) (Gilchrist, Fong, Herbison, & Sabiston, 2017). In terms of the literature, Cormier, Dunn, and Dunn (2019) and Ueno, Suyama, and Oshio (2018) studied grit in University athletes; Larkin, O'Connor, and Williams (2016) and Moles, Auerbach, and Petrie (2017) looked at grit in football players; Gilchrist et al. (2017) analyzed grit in runners; Martin, Byrd, Watts, and Dent (2015) focused on grit in basketball players in a wheelchair; Reed, Pritschet, and Cutton (2013) and Tedesqui and Young (2017, 2018) looked at grit in a sample of different sport types; and Cazayoux et al. (2018) studied the effect of grit in a CrossFit group.

The results of these studies show that grit produces actions that benefit athletes and practitioners of any physical activity, suggesting that "grittier" athletes are more likely to invest a greater amount of time in sports-specific activities (Larkin et al., 2016) and

have greater sports commitment (Martin et al., 2015), which is considered an important differential feature when determining the levels of effort and persistence in the sport (Reed, 2014), especially for moderate to high intensity sports (Reed, Pritschet, & Cutton, 2013).

In spite of this, exercise addiction has yet to be included in official psychiatric diagnostic manuals, such as the DSM-V and ICD-11 (Chen, 2016; Grant & Chamberlain, 2016), though it is a topic which has been studied in current scientific literature in mental health associated with sports (Di Lodovico, Poultais, & Gorwood, 2018). Behaviors related to social networking (Barnes, Pressey, & Scornavacca, 2019; Hawi & Samaha, 2019), gambling (Saeid et al., 2018), or use of the internet (Shek, Yu, & Chai, 2018) have been a significant source of interest in the last few years, along with exercise addiction. In terms of athletes, studying the personality traits of those at risk of exercise addiction has been the main goal of important investigations (Bircher et al., 2017). However, is it not yet known whether any study has explored the relationship between grit and addiction with a sample of athletes. Other addictive behaviors that have been previously studied include gaming (Borzikowsky & Bernhardt, 2018), substance use (Griffin et al., 2016), and use of the internet (Maddi et al., 2013) or mobile phone (Siah et al., 2010).

Against the above background, the present study attempted to understand the possible association between exercise addiction and grit in a sample of endurance sports and CrossFit participants, through the following hypotheses: a) Perseverance will be an adequate protector of exercise addiction; b) athletes who show a higher satisfaction with their sport results will show lower indicators of exercise addiction; c) athletes who show a higher level of ambition will show higher levels of exercise addiction.

## Methodology

### Procedure and Participants

To collect the data from athletes, an online survey was created ad hoc using the web site [onlineencuestas.com](http://onlineencuestas.com). The estimated time to complete the questionnaires was 10-15 minutes and it was composed of three sections. The first section consisted of sociodemographic questions (e.g., gender, age, type of sport practiced, and amount of

exercise per week), and the second section included four questions that assessed the level of satisfaction and ambition of participating athletes. The last section included the two main scales used in the study, the Short Grit Scale (Duckworth & Quinn, 2009; Arco-Tirado, Fernández, & Hoyle, 2018) and the Exercise Addiction Inventory (Terry et al., 2004; Sicilia-Camacho et al., 2013).

All the participants were informed of the confidentiality and the anonymity of the process (Lloret-Segura, Ferreres-Traver, Hernández-Baeza, & Tomás-Marco, 2014), and the study was done according to ethical laws of the University of Granada, the World Medical Association, and the Declaration of Helsinki (World Medical Association, 2013).

The final sample was composed of 133 athletes (34.59% women and 65.41% men), aged 17 to 61 ( $M = 34.87$ ;  $SD = 9.57$ ). Of these, 27.82% engaged in CrossFit, 45.86% in endurance sports, and 26.32% in resistance activities. Table 1 shows the distribution of participants according to years of experience and time of training.

### Measures

The Spanish version of the Exercise Addiction Inventory (EAI) was used (Terry et al., 2004; Sicilia-Camacho et al., 2013). This instrument has six items (e.g. "Exercise is the most important thing in my life"), one for each of the components of behavioral addiction (*salience, mood modification, tolerance, withdrawal symptoms, personal conflict, and relapse*). The items use a Likert scale ranging from 1 (*Completely disagree*) to 5 (*Completely agree*), where the minimum score is 6 points (*no risk of exercise addiction*) and the maximum score is 30 points (*high risk of exercise addiction*).

The Spanish version of Short Grit Scale (Grit-S) was also used (Duckworth & Quinn, 2009; Arco-Tirado, Fernández, & Hoyle, 2018). It is an instrument composed of two factors: Consistency of Interest (e.g. "New ideas and projects sometimes distract me from previous ones") and Perseverance in the Effort (e.g. "Setbacks don't discourage me"). Responses are registered using a 5-point Likert scale from 1 (*not like me at all*) to 5 (*very much like me*). The final score is obtained by taking the

average of the items, where higher scores correspond with a higher level of grit.

### Statistical data

To verify the internal consistency of the instruments and sample normality, reliability tests were carried out (Cronbach alpha and Kolgomorov-Smirnov, respectively), assuming the suitability of parametric tests. A sample distribution is reflected through descriptive analysis [frequencies and measures of central tendency (mean, standard deviation)], and means differential analysis (t-tests) according to gender and type of sport. Correlation analysis (Pearson) was carried out as well as a linear regression (backward method) over exercise addiction ( $V_{\text{dependent}}$ ). Data analysis was carried out using the IBM SPSS statistical package version 23.0.

### Results

For the purpose of describing the distribution of participants in terms of gender, training time, and years of experience in the practice of endurance sports (Table 1), the results indicate that athletes who have less than 1 year or more than 10 years of experience devote less time to training. At the same time, women do not train more than 90 minutes in training sessions, while men train harder (i.e. train for a longer period of time) than women, regardless of their experience in endurance sports. Normally, most endurance athletes devote between 60-90 minutes to their training sessions.

Men are more likely to be satisfied with achieving their goals than women ( $t_{2,4} = 3.62$ ;  $p < .02$ ), while no significant differences were found between the sports analyzed.

The linear relationships between analyzed variables (Table 2) indicate that as men and women get older, there is a decreased feeling of being able to achieve objectives, as well as fewer indicators of addiction to exercise. The diminished belief of "being capable of anything to achieve my goals" could be explained by a loss of control of the mechanisms that allow retaining the impulsive stimulus to continue advancing towards higher goals, which seems to be essential for the emergence of exercise addiction.

Greater experience with sports facilitates the construction of grit, although training a lot throughout the week (and, from what is understood in the data, having a high level of ambition), may also lead to the appearance of addiction symptoms. As such, Perseverance-Effort is the dimension that is directly and significantly related to exercise addiction, while Consistency-Interest does not have any significant relationship. It could be deduced that the former provokes the "triggering" mechanisms of addiction, while the latter is related more to a sense of coherence and self-regulation.

Exercise addiction maintains direct and significant relationships with Perseverance and increased time and intensity of training, and is inversely related to Consistency and experience in the practice of endurance sports.

The regression analysis carried out, with the methodology of successive steps backwards (eliminating the variables that does not explain the predictive relationship), reflects the existence of 4 models of exercise addiction (Table 3). The first three indicate, with 34% variance each, that a younger age and an increase in perseverance are the characteristics that predict the appearance of addiction in the athletes analyzed. Also, a reduction in grit indicates an almost significant inverse relationship (between to .05 and 1 of signification), meaning that a low level of grit may be predictive of tendencies towards addiction.

In addition, the last model suggests that believing in having the capability "to do anything to reach my objectives" is a positive and significant predictor of exercise addiction, which explains 32% of the variance.

## Discussion

Different personality traits and aspects related to them have been studied to discover the links between some patterns of addictive behavior that could have a negative impact on human health. To try and provide an answer, we chose a context where the risk of suffering addiction is relatively high, and where the symptoms and the prevalence of addiction have been tested and which have

increased considerably in the last decade – that being the context of sports. Aiming to explore new ways of studying exercise addiction and personality, we proposed to analyze the relationship between that excessive behavior and Grit (perseverance and passion), an emerging concept in the field of personality psychology.

The variables of age and gender are two of the most interesting and most important determinants when exercise addiction is studied. Prior studies pointed out that the relationship between age and the risk of addiction is inverse, in that younger people/athletes show a higher risk of exercise addiction (Bruno et al., 2014; Grima et al., 2018; Lichtenstein, Christiansen, Elklit, Bilenberg, & Støving, 2014). Meanwhile, in terms of gender, the results in most cases suggest that men show a higher risk of becoming addicted to exercise (Cook, Hausenblas, & Rossi, 2013; Cunningham, Pearman, & Brewerton, 2016; González-Cutre & Sicilia, 2012; Guskowska & Rudnicki, 2012; Szabo, Griffiths, & Demetrovics, 2013). For the age variable, as with the gender variable, we have obtained similar results in our study as in the previous literature. This may be related to the tendency for younger people to have a more compulsive nature, and to have greater difficulty in managing their impulses.

Throughout the scientific literature, symptoms of addiction include having difficulty controlling and self-regulating impulses, which are understood as a set of rapid and unplanned responses to external or internal stimuli, and which contribute to behavioral reinforcement (Grant & Potenza, 2006; Starcevic, 2016; Starcevic & Khazaal, 2017). In the present study, this can be seen in individuals with a high level of ambition, referring to the will to do anything to achieve objectives, which seems to be related to a conscious loss of control and limits, and therefore appears to be a determining factor in the appearance of addiction. These results could be explained by human nature and competitive instincts, such as wanting to do something first, avoiding the agony of losing, and the reigning desire for victory. Instincts like these are always present in competitive situations, and participation in sports is one of the most common situations in which to show them (Vargas, Fregoso-Madrigal, Morales, & Morales, 2018).

A high dose of training (represented by the number of hours spent training and the number of training

sessions) is another indicator of exercise addiction behavior (Latorre, Jiménez, Párraga, & García, 2016; Sicilia & González-Cutre, 2011; Szabo et al., 2013), and when this is in conjunction with a loss of control, as was shown in this study, it seems that the likelihood of triggering addiction increases. If the personality trait of grit (having difficulty controlling impulses) is added to this "equation", then experience (understood as the number of years practicing the sport) seems to be a variable that boosts the development of this trait, and, when added to the ambition of athletes, can cause the emergence of addictive behaviors.

According to the results of this study, grit seems to act as a control mechanism. Although only a few studies have analyzed the relationship between addiction and grit, it seems to provide some protection against internet addiction, online game addiction, and substance use disorders (Borzikowsky et al., 2018; Maddi et al., 2013; Siah et al., 2010). However, only Siah et al. (2010) pointed out that adolescents who have a strong Consistency of Interest are likely to resist the immediate pleasure brought by mobile phones, and also contained data similar to our own study. The rest of the studies do not make any reference to the role that each of the factors of grit have in relation to addictive behaviors.

As far as we know, the combination of passion and perseverance is what gives validity to this trait of personality. Thus, it could be said that perseverance is responsible for helping individuals to remain committed to the pursuit of their objectives (Duckworth et al., 2007; Von Culin, Tsukayama, & Duckworth, 2014), while passion provides the necessary focus to achieve these goals (Duckworth et al., 2011; Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014) and is the factor responsible for controlling behavior. As has already been analyzed in the study of exercise addiction, obsessive passion is considered a strong predictor of behavioral control, while harmonious passion is unrelated (de la Vega et al., 2016; Kovacsik et al., 2018; Paradis, Cooke, Martin, & Hall, 2013; Parastatidou, Doganis, Theodorakis, & Vlachopoulos, 2014).

Finally, similar to the results obtained by Maddi et al. (2013) and Borzikowsky et al. (2018), age seems to be a variable that determines the likelihood of being addicted to online games, or in our case to

exercise, meaning that individuals with a younger age have an increased risk of becoming addicted.

### **Limitations**

This proposal has some limitations, particularly with respect to the sample. In spite of it being a minimum and considerable number of athletes, we believe that with a larger number of participants we could find stronger results which support the hypothesis.

In addition, taking into account the previous limitation, we believe that, using the process outlined in this study, it would be interesting to include other explanatory variables or personality traits such as perfectionism, impulsivity, or dark traits that could mediate the relationships shown in this research.

### **Conclusions**

This study aims to provide a method of identifying exercise addiction through analyzing the beliefs underlying the experiences of endurance sportsmen and women. Various characteristics that could exist in different types of endurance sports, such as running and CrossFit (which are the main types studied in the scientific literature of addiction) as well as others in which different types of sports could be combined (e.g. triathlon or mountain bike), were considered for the present work.

As significant differences were not found between these sports types, the established relations (both linear and predictive) mark an interesting path for the investigation of addiction to exercise, since men have indicated that they train longer and more intensely than women, in the same way that younger athletes train compared to those with more experience.

By comparing the influence of each factor of grit, it may be possible to predict an athlete's conduct. This means that a weak Consistency-Interest factor could indicate an exercise addiction, a weak Perseverance-Effort factor could indicate an excessively conservative and preserving conduct, and similar influences of both factors could indicate a balance in self-regulation.

Considering such relationships, an individual who is beginning to practice an endurance sport, has a high Perseverance orientation, believes in being capable of anything, and has a low Consistency orientation would form a relevant risk profile for

becoming addicted to exercise, especially if an increase in the frequency and intensity of training was observed.

In fact, established predictive models confirm negative relationships with age and the risk of addiction (although this relationship is not very strong) and positive relationships with Perseverance in the face of emerging tendencies towards exercise addiction. The ambitious belief of "being capable of anything" reinforces the initial models, providing a value of necessary relevance for understanding athletes who lose control of themselves, falling into processes of addiction and excessive practices of exercise and training.

### Implications

Although Grit is an emerging concept within the field of personality psychology, there are some studies that have connected this trait with addictive behaviors (Borzikowsky & Bernhardt, 2018; Griffin et al., 2016; Maddi et al., 2013; Siah et al., 2010). In the context of sports, this study is one of the first, or perhaps the very first, to join these two concepts, and therefore this work can be used to advance the development of a theoretical model for understanding how addictive behaviors are produced in athletes with specific traits of personality (e.g. athletes with perseverance but without impulse control mechanisms), as well as the important consequences that this presents to coaches, sportsmen, and sportswomen when it comes to training.

In relation to this idea, we believe that the findings of this study can be used to help coaches plan training sessions and guide their behavior for when they have to face situations of withdrawal, low participation, lack of effort, etc. In addition, from the position of the athletes, this information can increase knowledge about and awareness of their own behaviors, beliefs, and reactions at any time in their training, with the main objective being to avoid the behaviors cited previously through the control of expectations, impulses, and/or external stimuli.

According to everything presented, the results of the present study and this line of research in general could be very useful to detect, in the planning and programming of training sessions, all those elements and situations which could be clear indicators of withdrawal and which possibly reflect an addiction to exercise.

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Table 1.  
Contingence table according time training, gender and years of experience

N = 133		Time spent training				Total
		< 45 minutes	45-60 minutes	60-90 minutes	> 90 minutes	
<b>Men</b> (n = 87)	< 1 year	0	5	1	0	6
	1-5 years	2	10	19	3	34
	5-10 years	2	6	10	4	22
	> 10 years	1	8	12	4	25
		5	29	42	11	87
<b>Women</b> (n = 46)	< 1 year	2	4	2	0	8
	1-5 years	1	9	5	0	15
	5-10 years	2	6	7	0	15
	> 10 years	0	3	5	0	8
		5	22	19	0	46

Table 2.

Correlation analysis between sociodemographic (age and year's experience, time training) with perseverance (grit) and exercise addiction

<i>N</i> = 133	K-S	M(SD)	1	2	3	4	5	6	7	8	9	10	11
<b>(1) Age</b>	-	34.87(9.57)	-										
<b>(2) Experience</b>	-	11.4(3.06)	.51**	-									
<b>(3) Training</b>	.21	4.23(1.3)	-.17	.31*	-								
<b>(4) SRO</b>	.23	8.78(1.90)	.11	.25*	.34**	-							
<b>(5) SOA</b>	.25	8.53(2.05)	.03	.37*	.32**	.78*	-						
<b>(6) OYNA</b>	.26	4.23(2.90)	.01	-.05	.08	-.28*	.45*	-					
<b>(7) CAA</b>	.22	5.34(3.32)	-.34*	-.03	-.03	-.40*	.07	.19*	-				
<b>(8) (GRIT)-PE</b>	.19	3.55(.57)	-.04	-.25*	.24*	.07	.04	.15	.22	(.76)			
<b>(9) (GRIT)-CI</b>	.22	3.58(.74)	.22*	-.15	.09	.13	.19	-.06	-.08	-.18	(.80)		
<b>(10) GRIT</b>	.25	3.56(.74)	.14	.25*	.20	.17	.16	.04	.06	.70*	.83**	(.69)	
<b>(11) Addiction</b>	.20	18.49(3.45)	-.44**	.32	.37*	.12	.01	.21	.38*	.41*	-.22*	.24	(.72)

\*significant < .05; \*\*significant < .01.

SRO: Satisfaction with Results Obtained; SOA; Satisfaction Objectives Achieved; OYNA: Objectives yet not Achieved; CAA: Capable of anything to achieve what I desire; Perseverance-Effort: Perseverance-Effort; Interest-Consistency: Interest Consistency.

Tabla 3. *Exercise addiction predictors in endurance athletes*

V. dependient	Model	V. independent	$\beta$	$t$	$p$		
<b>Exercise addiction</b> $R = .58; R^2 = .34; F_{7,126}(p) = 4.59(.00)$	<b>1</b>	<b>Age</b>	-.10	-2.42	.02*		
Excluded: (GRIT)-CI		<b>SRO</b>	.13	.412	.68		
		<b>SOA</b>	.02	.06	.958		
		<b>OYNA</b>	.16	1.12	.27		
		<b>CAA</b>	.18	1.42	.16		
		<b>(GRIT)-PE</b>	2.64	2.83	.01**		
		<b>GRIT</b>	-1.91	-1.81	.07†		
<b>Exercise addiction</b> $R = .58; R^2 = .34; F_{7,126}(p) = 5.44(.00)$	<b>2</b>	<b>Age</b>	-.10	-2.48	.02*		
Excluded: (GRIT)-CI; SOA		<b>SRO</b>	.15	.78	.44		
		<b>OYNA</b>	.16	1.18	.24		
		<b>CAA</b>	.18	1.44	.16		
		<b>(GRIT)-PE</b>	2.64	2.85	.01**		
		<b>GRIT</b>	-1.90	-1.83	.07†		
		<b>Exercise addiction</b> $R = .58; R^2 = .34; F_{7,126}(p) = 6.45(.00)$	<b>3</b>	<b>Age</b>	-.11	-2.55	.01**
Excluded: (GRIT)-CI; SOA; SRO	<b>OYNA</b>	.15		1.09	.28		
	<b>CAA</b>	.19		1.59	.12		
	<b>(GRIT)-PE</b>	2.59		2.81	.01*		
	<b>GRIT</b>	-1.78		-1.74	.07†		
	<b>Exercise addiction</b> $R = .57; R^2 = .32; F_{7,126}(p) = 7.74(.00)$	<b>4</b>		<b>Age</b>	-.10	-2.44	.02*
	Excluded: (GRIT)-CI; SOA; SRO; OYNA			<b>CAA</b>	.22	1.87	.05*
<b>(GRIT)-PE</b>			2.73	2.99	.00**		
<b>GRIT</b>			-1.88	-1.83	.07†		

\* < .05; \*\* < .01; \*\*\* < .00; .05 <  $\dagger$  > 1

SRO: Satisfaction with Results Obtained; SOA; Satisfaction Objectives Achieved; OYNA: Objectives yet not Achieved; CAA: Capable of anything to achieve what I desire; (GRIT)-PE: Perseverance-Effort; (GRIT)-IC: Interest Consistency (excluded).