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Predictor variables of motivation on Spanish master athletes

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ABSTRACT

Ruiz-Juan F, Zarauz A. Predictor variables of motivation on Spanish master athletes. *J. Hum. Sport Exerc.* Vol. 7, No. 3, pp. 617-628, 2012. It is known in the last fifteen years that there is an increase of people in Spain over 35 years old significantly who are often training and competing at several levels in athletics. They are master athletes. There are not National studies about master athletes from Spain and not many are worldwide. Therefore, the objectives of the present research are, firstly, to know their training habits, athletic history and motivations analyzing gender differences; secondly, to set predictive models of their motivations according to their training habits and athletic history. Once results have been analyzed, it was concluded that for Spanish master athletes, both men and women, both training and competition are an important part in their lives. These results could be due to they are practising during a large number of years their specialty on athletics, two hours each session during approximately five days per week, also they are often competing at several levels. Because of the fact that they have a high intrinsic motivation and moderate extrinsic motivation, the most important for them related to their sport was the satisfaction they find improving themselves on training, secondarily, beating rivals at competitions, looking for a medal and, even better, timing a record. These situations fill them with competence feeling and success expectancy. **Key words:** ADULTS, TRAINING, PERFORMANCE, MOTIVATION.

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INTRODUCTION

According to Royal Spanish Athletics Federation (R.F.E.A., 2011), in 1995 there were 198 licenses states of senior athletes and in the last fifteen years, this number has been significantly incrementing to 5704 in 2011. Due to this increase in adults over 35 who regularly train and compete in track and field, RFEA has been forced to organize a number of specific competitions for this group increased. Hence, it started organizing a single Championship of Spain in 1995, to organize about 20 different competitions like individual championships, teams, leagues, meetings, etc., until nowadays.

In one hand, it is known that there are degenerative effects of aging of the human beings, clearly detailed by American College of Sports Medicine (ACSM, 2010). In another hand, there are scientific studies that explain how regular physical activity for adults, (Capranica et al., 2010) and master athletes particularly, slows aging process improving their quality of life (Kettunen et al., 2006). It means an exceptionally successful aging model (Tanaka & Seals, 2008), and gives them a higher aerobic and anaerobic capacity (Tessitore et al., 2005), coordination, strength (Cortis et al., 2011) and visual attention (Pesce et al., 2007) respect to normal at their age, getting also important psychological benefits (Biddle et al., 2000). However, Spain has not been investigated yet if it is due to these benefits or other reasons why master athletes train and compete during their whole life (Baker et al., 2010).

Crandall (1980) warned of the need to study specifically the motivations of each different sport, because about runners, weightlifters and paratroopers, for example, there were not similar motivations. According to this, motivations were evaluated on four different groups of adult athletes by Gill et al. (1996) who analyzed every sport, including each sex different motivations, despite being practiced by people of the same age.

Motivational theory most accepted today is self-determination by Deci and Ryan (1985). It defines motivation as a continuum, characterized by different levels of self-determination, from highest to lowest are intrinsic motivation, extrinsic and amotivation. Intrinsic motivation refers to engaging an activity on its own initiative and the pleasure and satisfaction itself only coming from this participation, explaining that also it depends on the perception of competence in their field of each athlete. By contrast, extrinsic motivation explained as means to a final objective and not for their own benefit, citing the athletes who play to please their parents or friends, or just mainly motivates them to achieve money or trophies. They also explain amotivation as a state that athletes are not motivated or intrinsic or extrinsic, are simply not motivated, practicing without purpose, experiencing negative effects such as apathy, incompetence, depression, without seeking any objective emotional, social or material. Pelletier et al. (1995) developed and validated an instrument to measure three types of motivation, the Sport Motivation Scale (SMS), used in different populations of Spanish athletes (Carratalá, 2003; Moreno et al., 2007; Núñez et al., 2007), and even in the population of master athletes on track (De Pero et al., 2009).

Reviewing adult practitioners of six different sports, Hodge et al. (2008) concluded that these had a high perception of their ability and were mostly intrinsic motivation, regardless of the sport. However, Kamal et al. (1985) made a comparative study of the motivations of sports coercive (eg.; Cross country runners) and interactive (eg.; Basketball players), in concluding that prevailed in coercive intrinsic motivation and extrinsic motivation interactives. This trend seems to repeat in sports motivational individual with similar characteristics, such as the triathlon (Ruiz, 2006), but not in different individual sports such as tennis (Villamarín et al., 1998), where extrinsic motivations prevail.

In a comparative study of young and veteran marathoners, Ogles and Masters (2000) obtained that the youngest were motivated extrinsically, while intrinsically veterans. Similar results were obtained recently by Ruiz-Juan and Zarauz (2011) in the Spanish population of marathon runners, where both men and mostly women, had high intrinsic motivation, greater even as age increased.

Focusing on the population of master athletes, Da Silva (2009) obtained that was fundamentally intrinsic motivation, but also had important extrinsic motivation, reasons of health; pleasure itself of practice, social relations and competition. Results were similar Dodd and Spinks (1995), who concluded that athletes over 60 masters were the two types of motivation, intrinsic motivation in the same way as younger masters, and further extrinsic motivation that masters younger.

In the same population of master athletes, to assess their motivations, De Pero et al. (2009) found no gender differences, but that as they increased the level at which you compete in the youngest (on a scale ranging from local, regional, national and international), charged more important motivation extrinsic.

However, Medic et al. (2004), to assess the motivational differences by gender and age in master athletes, obtained as boys they liked, more than women, compared with rivals in competition. Also, they are often motivated to beat the national re-cord for his age group, especially in the first year they enter into a new age category. This happens more so in those over 65 years as much participation decreases from that age, medals or records may be obtained with lower relative difficulty that when you're younger. Prevails, therefore, in athletes over 65 masters, ego orientation and extrinsic motivation rather than them or younger. Studying again these gender differences, Medic et al. (2006), concluded that men and women master athletes have different motivational profiles. Thus, women, unlike men, give the highest importance to the reasons of participation related to intrinsic motivation (enjoyment and satisfaction of the practice itself, health and fitness) and minor reasons related to extrinsic motivation and achievement goals.

Subsequently, Medic et al. (2009), also examining the differences by gender and age, that the athletes were male masters liked to compete more times a year than women, because the aforementioned difference accentuated in ego orientation sex for men over women.

Finally, note that in terms descriptive variables in the population of master athletes, other than those hitherto mentioned regarding athletic history, only studies are found than in the population that describe marathon. Thus, we have in the Spanish marathoners between 18 and 71 years old, Zarauz and Ruiz-Juan (2011) and Ruiz-Juan and Zarauz (2012) obtained that in the variables of training habits, there were only two different significant: the trained miles a week (men averaging 54.71 kilometres per week compared to 45.78 for women) and have coach (22.9% women vs. 14.3% men). Both sexes exceeded the hour and ten minutes per training session, trained more than 4 days a week, usually alone, and when they did, accompanied, was another 3 runners, carrying between 9 and 10 years running and having finished most between 4 and 6 marathons.

Given the lack of research in Spain on motivation in this population of master athletes that usually competing in track, the objective of this research is on the one hand, know their training habits, athletic history and motivations by analyzing the differences sex-differences, and secondly, obtain predictive models of motivations based on their training habits and athletic history.

To do this, in terms of training habits and athletic history, start from the assumption that men and women train a similar time per session, and compete at the same level can practiced in different specialties similar percentages athletic. However, significant differences were found in that men are more years coaching, training and competing more often than women, but they have a higher percentage coach. In terms of their motivations, the Spanish veterans get high levels of intrinsic motivation (mainly women), moderate to very low extrinsic and amotivation. Finally, predictive models of motivations is concluded that intrinsic motivation can be predicted by a high score in extrinsic motivation and amotivation low and by a greater number of years training. Extrinsic motivation may predict a high score in amotivation and compete more times a year. Meanwhile, the rate amotivation be predicted by low intrinsic motivation, extrinsic high and bring fewer years of training and competing.

MATERIAL AND METHODS

Participants

The starting of the total master athletes participating in various track competitions previously organized specifically for them at the provincial, regional and national levels in the Spanish territory in 2011. According to the RFEA (2011), there were 5704 federal licenses track master athletes, of whom 4727 are men and 977 are women.

We obtained a random sample of 401 master athletes of track, of which 330 were men (82.3%) with an age range of 35 to 75 years ($M=47.98$, $SD=9.14$) and 71 women (17.7%) with a range of age 35 to 69 years ($M=45.78$, $SD=10.25$). Therefore, we have a representative sample with an error of $\pm 4.82\%$ at a confidence level of 95.5%.

Procedure

For a sample as large and geographically dispersed in Spanish territory, called to the national collaboration of master athletes to hang a link section Masters Web RFEA (<http://www.rfea.es/veteranos/veteranos.asp>) and so all masters who visit the page can complete the questionnaire electronically. Similarly, the webmaster of the forum main athletics Spain (<http://www.elatleta.com/foro/forum.php>) was asked to place athletes in the masters section.

On the cover of the Web (<http://www.retos.org/2encuesta/inicio.html>) reported the objective study of the voluntary, absolute confidentiality of responses and data management, that there was right or wrong answers, and were asked to reply with utmost sincerity and honesty. This work has favourable report of the Committee on Bioethics of the University of Murcia.

Instrument

Escala de Motivación en el Deporte of Carratalá (2003) Spanish version of the Sport Motivation Scale (SMS) of Pelletier et al. (1995). It was developed to measure the three types of intrinsic motivation (to knowledge, achievement and stimulating experiences), the three types of extrinsic motivation (external regulation, introjected regulation and identified regulation) and amotivation. It consists of 28 items divided into seven subscales, corresponding to the seven types of motivation mentioned, with four items each scale. Each of the items is an answer to question "Why do you practice your sport?" And are scored according to a Likert scale of 7 points from (1) does not correspond at all to (7) fully corresponds, with an intermediate score (4) this corresponds medium. Numerous studies have shown exploratory and confirmatory validity and reliability in the field of physical activity and sport (Martens & Webber, 2002;

Núñez et al., 2007; Zahariadis et al., 2005), with values ranging between $\alpha=0.69$ and $\alpha=0.85$ in the seven subscales.

Habits training and athletic history. Respondents answered: Do you have a coach?, How long trains normally a day, how many days a week training?, How-cough years been training?, How many competitions involved a year?, Do what level has come to compete at their best specialty? What is your usual athletic specialty?

Statistical Analysis

The item analysis, homogeneity, correlation between the subscales (Pearson coefficient), internal consistency (Cronbach's alpha), mean differences by sex (t Student), correlations between all dimensions of the scales and multivariate linear regression were performed with SPSS 20.0. The factor structure was examined with a confirmatory factor analysis (CFA) with AMOS 18.0.

RESULTS

Psychometric properties of the instrument

To calculate the psychometric properties followed the analysis procedure established by Carretero-Dios and Pérez (2005). In the analysis of items in the four scales, no item was removed to meet the requirements (value ≥ 0.30 in the correlation coefficient corrected item-total deviation >1 and all response options were used). The homogeneity analysis indicated the absence of overlapping items among the theoretical dimensions used in each of the four scales. Indices were calculated skewness and kurtosis being generally close to zero and <2.0 , as recommended by Bollen and Long (1994), indicating similarity to the univariate normal curve.

The factorial validity was examined using the AFC. We used maximum likelihood estimation, having to resort to the technique "bootstrapping" and the procedure of maximum verisimilitude (ML) estimation procedure of structural equation modeling assumes a normal distribution of the data and a continuous scale of them because the Mardia coefficient, which was always greater than 2, indicating lack of multivariate normality in the data thereby violating one of the basic rules of the AFC. The model fit was assessed with a combination of indices of absolute and relative adjustment. All four models feature correct values for determining an acceptable good ness of fit of the original model (Browne & Cudeck, 1993; Hoyle, 1995; Hu & Bentler, 1999; Jöreskog & Sörbom, 1993; Kline, 1998; Shumacker & Lomax, 1996) as manifested results: $\chi^2/df=2.05$, $GFI=0.95$, $CFI=0.96$, $IFI=0.95$, $TLI=0.94$, $RMSEA=0.032$, $SRMR=0.028$. The standardized coefficients of the latent variable relationship with each of the items ranged from 0.66 and 0.89.

Table 3 presents the Cronbach alpha coefficients and also includes the means and standard deviations for all athletes. All subscales showed satisfactory internal consistency ($\alpha > 0.71$).

Descriptive statistics by sex.

Coach Women have a much higher percentage (80.3%) than men (47.3%). However, men ($M = 20.41$, $SD = 13.05$) spent more years training than women ($M = 14.29$, $SD = 11.92$) and also averaged more days of training a week ($M = 4.79$, $SD = 1.22$) than women ($M = 4.32$, $SD = 1.26$). No statistically significant differences were found in daily training time, number of annual competitions, competition level and specialty athletic reached normal (Tables 1 and 2).

Table 1. Mean, standard deviation, *t* and significance of continuous variables (training habits and athletic history) in men (N=330) and women (N=71).

	Men <i>M</i> ± <i>SD</i>	Women <i>M</i> ± <i>SD</i>	<i>T</i>	Bilateral Significance
Minutes training per day	112.26±52.73	122.76±61.44	-1.47	0.141
Days training per week	4.79±1.22	4.32±1.26	2.89	0.004
Years training	20.41±13.05	14.29±11.92	3.63	0.000
Number of competitions per year	12.30±9.62	14.32±15.42	-1.41	0.157

Table 2. Percentages, Chi-square of Pearson and significance of categorical variables (training habits and athletic history) in men (N=330) and women (N=71).

	Men	Women	<i>X</i> ²	Significance
Have coach				
Yes	47.3	80.3	25.56	0.000
No	52.7	19.7		
Competition level				
Autonomic	17.0	8.5	4.28	0.117
National	51.5	50.7		
International	31.5	40.8		
Athletic specialty				
(Speed-Hurdles-Jumps)	41.2	40.8	1.47	0.479
(Endurance)	48.2	43.7		
(Throwings)	10.6	15.5		

The results show that men and women have similar upper-middle values in most types of intrinsic motivations except where women obtain significantly higher values than men, especially in the knowledge intrinsic motivation and achievement. It is also noted that, in both sexes, the score is greater intrinsic motivation than extrinsic, becoming below average external regulation. Also, as expected by the type of collective, in both sexes amotivation get very low scores (Table 3).

Table 3. Alpha coefficient, mean, standard deviation, *t* and significance for Sport Motivation (SMS).
Sex differences (Men N=330 and Women N=71).

Subscales of questionnaire	Total		Men		Women		<i>T</i>	<i>p</i>
	α	<i>M</i> ± <i>SD</i>	α	<i>M</i> ± <i>SD</i>	α	<i>M</i> ± <i>SD</i>		
SMS								
1. Intrinsic Motivation	0.91	5.20±1.15	0.91	5.12±1.14	0.92	5.50±1.15	-2.37	0.018
1.1. Knowledge	0.87	4.86±1.47	0.86	4.76±1.45	0.88	5.29±1.48	-2.60	0.010
1.2. Achievement	0.80	5.10±1.33	0.80	4.99±1.33	0.82	5.58±1.24	-3.22	0.001
1.3. Stimulating experiences	0.80	5.62±1.14	0.80	5.62±1.14	0.79	5.64±1.15	-0.15	0.885
2. Extrinsic Motivation	0.85	3.88±1.04	0.84	3.88±1.04	0.86	3.88±1.05	-0.05	0.963
2.1. External Regulation	0.78	2.87±1.34	0.78	2.90±1.35	0.78	2.72±1.31	0.96	0.339
2.2. Introjected Regulation	0.72	4.23±1.27	0.71	4.22±1.25	0.75	4.26±1.37	-0.23	0.821
2.3. Identified Regulation	0.75	4.54±1.08	0.75	4.51±1.09	0.76	4.67±1.01	-1.07	0.285
3. Amotivation	0.72	2.12±1.14	0.71	2.13±1.14	0.74	2.08±1.15	0.26	0.792

Relations with motivation and background variables athletic training.

In Table 4, the results are reflected correlations have been calculated. In intrinsic motivation in both sexes, a significant correlation was obtained with a longer daily training, and women also with fewer years of workout and having coach. In extrinsic motivation in women yielded only one significant correlation with longer daily training. In amotivation yielded only a significant correlation in men in the athletic specialty.

Table 4. Correlations between the subscales of the SMS with variables of training habits and athletic history by sex.

		Men			Women		
	<i>IM</i>	<i>EM</i>	<i>Amot</i>	<i>IM</i>	<i>EM</i>	<i>Amot</i>	
Minutes training per day	0.117*	0.091	-0.026	0.285*	0.356**	0.202	
Days training per week	-0.006	-0.033	-0.083	0.041	0.046	0.022	
Years training	0.025	0.095	-0.074	-0.271*	0.083	-0.139	
Number of competitions per year	-0.011	0.078	-0.048	-0.009	0.122	0.047	
Have coach	-0.086	0.007	0.067	-0.271*	-0.059	-0.096	
Competition level	-0.056	0.029	-0.046	-0.046	0.111	-0.115	
Athletic specialty	0.004	0.040	0.134*	-0.055	-0.086	0.074	

*($p < 0.05$), **($p < 0.01$), ***($p < 0.001$)

Multivariate Linear Regression

Trying to get some models which explain most variance possible cannot explain motivations of Spanish master athletes who train and compete regularly in track, we performed a multivariate linear regression analysis. Dependent variable was the mean score for each of the motivations of the SMS (intrinsic motivation, extrinsic motivation, amotivation). As predictor variables, we took the average score in the rest of the SMS motivations and history variables and athletic training. Finally, as a variable selection, being male or female.

As a result of analysis models were obtained as solids, in all cases, explained more than one third of the variance in men and women, with the exception amotivation pattern in men. The analysis extracted R2 value in explaining the variance of Beta to explain the prediction between variables, F to see if there is a relationship between selected variables and their significance (see Table 5).

Table 5. Multivariate linear regressive analysis; prediction and significance of intrinsic motivation, extrinsic motivation and amotivation based on other motivations and habits all variables of athletic training and history.

	Intrinsic Motivation						Extrinsic Motivation						Amotivation					
	Men			Women			Men			Women			Men			Women		
	Beta	t	Sign.	Beta	t	Sign.	Beta	t	Sign.	Beta	t	Sign.	Beta	t	Sign.	Beta	t	Sign.
Intrinsic Motiv.							0.49	0.14		0.62	5.67	***	-0.19	-3.25	**	-0.56	-3.95	***
Extrinsic Motiv.	0.52	10.5	***	0.56	5.67	***							0.33	5.61	***	0.36	2.45	*
Amotivation	-0.16	-3.25	**	-0.36	-3.95	***	0.26	5.61	***	0.25	2.45	*						
Minutes training/day	0.05	1.17		0.18	1.95		0.04	0.95		0.07	0.69		-0.01	-0.32		0.22	1.85	
Days training/week	-0.01	-0.22		-0.10	-1.07		-0.02	-0.56		-0.003	-0.02		-0.06	-1.16		-0.08	-0.73	
Years training	0.01	0.24		-0.37	-3.53	**	0.06	1.28		0.19	1.62		-0.13	-2.47	*	-0.35	-2.53	*
Competitions/years	-0.08	-1.63		0.07	0.78		0.11	2.37	*	0.04	0.43		-0.05	-1.05		0.13	1.12	
Have coach	-0.08	-1.71		-0.22	-2.34	*	0.03	0.75		0.097	0.95		0.02	0.40		-0.17	-1.47	
Competition level	-0.06	-1.33		0.07	0.68		0.04	1.00		-0.04	-0.42		-0.03	-0.72		-0.07	-0.54	
Specialty	0.03	0.60		0.02	0.28		-0.01	-0.33		-0.08	-0.89		0.13	2.47	*	0.07	0.69	
	R ² =0.380			R ² =0.566			R ² =0.327			R ² =0.524			R ² =0.144			R ² =0.322		
	F=12.389			F=7.832			F=15.502			F=6.593			F=5.354			F=2.855		

*(p<0.05), ***(p<0.001), ***(p<0.001)

The models obtained in the regression analysis showed that intrinsic motivation, both men and women, could significantly predict score high in extrinsic motivation and low amotivation (this model explained 38% of variance in men and 56.6% in women). In women, also was coach and to have fewer years training and competing.

The model of extrinsic motivation, in men, showed that it could be predicted by rate significantly higher in amotivation and competes more times a year (32.7% of variance). However, the prediction was for women score high on intrinsic motivation and amotivation (52.4% of variance).

Amotivation models of both men (14.4% of variance) and women (32.2% of variance), showed that it could significantly predict rate low intrinsic motivation, extrinsic high and bring fewer years training and competing. In men, also athletic specialty (14.4% of variance).

DISCUSSION

With the exception of the marathon, few references in the literature that describes the training habits or athletic history in the town of veteran athletes who train and compete regularly in track athletics. Therefore, knowing these habits and history was the first sport of the objectives set for this study. So, as predicted, there are significant differences between men and women in some of these variables, since, as obtained Zarauz and Ruiz-Juan (2011) and Ruiz-Juan and Zarauz (2012), although women have coach a higher percentage than men, it is they who have more years of training and train a number of days per week more. Also, as expected, men and women train a similar time per session, competing at the same level and practiced in different specialties similar percentages athletic. What was not predicted was that women compete more times a year than men, although results were not significant.

With regard to the motivations, also confirms the hypothesis, since both men and women, the most important motivation was intrinsic, extrinsic and mean values obtained amotivation very low. Similar results were obtained Kamal et al. (1985), Gill et al. (1996), Ruiz (2006), Hodge et al. (2008) and Isorna et al. (2012) in individual sports coercive. This shows that this profile is so motivational, athletes usually Spanish masters competing in track, maintain the practice of their specialty sport for much of his life, as explained Baker et al. (2010).

Furthermore, as expected, were the women obtained significantly higher values than men on intrinsic motivation, like Da Silva (2009), Gill et al. (1996) and Medic et al. (2004, 2006, 2009) to international athletes in the population of veterans, and Ruiz-Juan and Zarauz (2011) nationwide in the population of marathoners.

Similarly, high scores for this population to intrinsic motivation and achievement stimulating experiences, show that veterans are motivated primarily Spanish pleasure of running over and over movements that make up the complex technical execution his specialty athletic, as explained Da Silva (2009) and Steinberg et al. (2001). This gives them, in turn, feelings of competence and success, fundamentally when getting surpass themselves make a mark or did not record a long time ago when they were younger. All these feelings may explain the high frequency with which weekly practice their specialty athletic (almost 5 days a week), in relation to the average of the general Spanish population practicing a sport of study by the Centre for Sociological Research (CIS, 2005).

Also, men and women moderate values obtained similar extrinsic motivation, in contrast to that obtained Medic et al. (2004, 2006, and 2009) who obtained significant differences according to them. Therefore, as obtained Da Silva (2009) and Dodd and Spinks (1995) in their populations of master athletes, for Spanish masters of both sexes extrinsic motivation has some importance, since getting medals, records or demonstrate superiority over its rivals in competition, it is also important for them, as they judge their competence comparing to others in competition, which is part of their way of perceiving positive success. These moderate to moderate-high scores on extrinsic motivations undoubtedly explain the high number of times per year that the Spanish master athletes participating in competitions at various levels.

The low values obtained in both sexes amotivation were predictable, since it is an elderly population of 35 years, who practice an individual sport, minority, very specific as to the complexity of implementing technical and required to be federated for racing practice. These low scores on amotivation and high intrinsic motivation already mentioned, opposite ends of the continuum of self-determination, explaining that people maintain their sport in time for many years (Baker et al., 2010), and train a large number of days a week, almost five, for about two hours per session, these averages even higher than those obtained in Spanish marathoners by Zarauz and Ruiz-Juan (2011) and Ruiz-Juan and Zarauz (2012).

From the results of the correlations between the variables motivation and training habits and athletic history, once again shows that the high average time spent on training per session in this population undoubtedly is related to their particular motivational profile: moderate high intrinsic motivation and extrinsic motivation. What was not expected was that intrinsic motivation in women, correlation with the least number of years training and having a coach, these results are repeated in the solid model predictor of intrinsic motivation obtained in them.

By contrast, it was predicted that if the hypothesis was that intrinsic motivation could be predicted by the extrinsic score high and low on the amotivation, extrinsic motivation that would be predicted by amotivation score high and compete in a larger number of times a year, and that the rate amotivation is predicted by low intrinsic motivation, extrinsic high and bring fewer years of training and competing.

To conclude, it can be concluded that the Spanish master athletes, both men and women, both training and competition are a very important part in their lives, because they have a large number of years practicing his specialty athletic, for about five days week and two hours a day, often competing at various levels. This is due to a moderately high intrinsic motivation and extrinsic motivation, since for them, the most important of sports is the satisfaction that gives them better themselves in practice and, secondarily, overwhelm opponents in competition, waiting therefore a medal and, better yet, a record, all of which fills their feelings of competence and expectations of success.

For future research, it is an interesting opened research field about some athletes in this population of masters, which also can include other variables, such as addiction to training, pre-competitive anxiety or various sociodemographic variables that shed more light on all the questions still open this growing population.

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