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Motivation and Elite Performance: An Exploratory Investigation with Bulgarian Athletes

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The goal of the present investigation was to proceed to a multidimensional analysis of sport motivation in relation with elite performance and gender. The sample was made up of 98 Bulgarian top athletes (35 females and 63 males). Participants' athletic performances in national and international events over the last two years was documented. Participants also completed the Bulgarian version of the Sport Motivation Scale (Brière, Vallerand, Blais, & Pelletier, in press; Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995). The SMS, which is based on the tenets of Self-Determination Theory (Deci & Ryan, 1985, 1991), assesses: intrinsic motivation, self-determined extrinsic motivation, non-self-determined extrinsic motivation, and amotivation. Results indicated that, in comparison with less successful athletes, title and medal holders displayed higher levels of non-self-determined extrinsic motivation and higher levels of amotivation. With respect to gender, the motivation of female athletes was more strongly characterized by intrinsic motivation. Results are dicussed in light of Self-Determination Theory and the cultural context which prevailed in Bulgaria at the time of the investigation. It is concluded that these results highlight the role of motivation in elite sport performance.

KEY WORDS: Performance, Sport motivation.

The relevance of psychological concepts to the investigation of sport performance and elite sport performance in particular has recently been underscored by many (e.g., Mahoney, 1989; Morgan, O'Connor, Ellickson, & Bradley, 1988). Among such concepts, motivation is certainly one of the utmost importance (Roberts, 1992). In this regard, Self-Determination

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Theory (Deci & Ryan, 1985, 1991) could prove relevant since it has been repeatedly acknowledged as a useful multidimensional theoretical framework to understand human motivation in the sport domain (Brière, Vallerand, Blais, & Pelletier, in press; Deci & Ryan, 1985, chap. 12; Fortier, Vallerand, Brière, & Provencher, 1995; Pelletier et al., 1995; Ryan, Vallerand, & Deci, 1984; Vallerand, Deci, & Ryan, 1987).

According to Self-Determination Theory (Deci & Ryan, 1985, 1991), individuals have a need to feel self-determined and competent when dealing with the environment. Self-determination is defined as an autonomous and flexible capacity to choose, among several courses of action, that action that will bring desired consequences. Competence, on the other hand, entails a sense of being effective in one's interactions with the environment. It is hypothesized that these two fundamental needs result in at least four types of motivation that are ordered along a continuum of self-determination. From high to low self-determination, these types of motivation are: intrinsic motivation (IM), self-determined extrinsic motivation (EM), non-self-determined extrinsic motivation, and finally amotivation (see also Vallerand & O'Connor, 1989 on this issue).

Intrinsically motivated activities are engaged in for the feelings of pleasure and satisfaction derived from participation. For example, athletes who experience fun and satisfaction in learning new aspects of their sport or athletes who experience pleasure in trying to surpass themselves while training display intrinsic motivation. An intrinsically motivated activity is thus seen as an end in itself as opposed to a means to some ends.

Extrinsically motivated activities are performed in order to receive or to avoid something once the activity is terminated. Self-determined EM occurs when an activity is personally valued and is perceived as chosen by oneself. For instance, athletes who choose to train regularly because they feel that their training contributes to their well-being display self-determined EM. Indeed, even if their training is instrumental, it nevertheless results from choice. In such cases, individuals experience a sense of direction and purpose instead of obligation and pressure, in performing the activity. Conversely, non-self-determined EM involves engaging in an activity in order to obtain rewards (e.g., to win a medal), to avoid sanctions (e.g., to lose sponsorship), or even in order to appease internal pressures (e.g., guilt). Thus, non-self-determined EM implies a sense of being compelled to behave in a specific way.

Finally, individuals are said to be amotivated when they don't perceive contingencies between their own actions and the resulting outcomes. In other words, amotivation is at work when individuals experience pervasive feelings of incompetence and lack of control. Thus, amotivated activities are neither intrinsically nor extrinsically motivated. For instance, athletes who train or compete with no real purpose and with little sense of meaning display amotivation.

Incorporated in this theoretical framework is Cognitive Evaluation Theory which represents a key component of Self-Determination Theory (Deci & Ryan, 1985, 1991). According to Cognitive Evaluation Theory, various situational factors can have a detrimental impact on IM. For instance, and germane to the sport domain, one such situational factor is certainly that of competition. Previous research has shown that emphasizing winning at all costs may lead individuals to focus on extrinsic elements of the activity so that participation is no longer regulated by the inherent qualities of the activity proper, but rather by some external agent. In such cases, there is a shift from an internal to an external locus of causality, thus leading to a decrease in feelings of self-determination and consequently, to a loss of IM. The detrimental impact of competition on IM has been demonstrated in both laboratory (e.g., Vallerand, Gauvin, & Halliwell, 1986) and sport field settings (e.g., Cornelius, Silva, & Molotsky, 1991).

In accordance with this line of research, Fortier et al. (1995) have recently suggested that Cognitive Evaluation Theory could be extended to other types of motivation besides IM, namely non-self-determined EM and amotivation; that is, external factors such as competition would not simply have the potential to undermine IM but they could also foster non-self-determined EM and amotivation. Results of this study indicated that competitive athletes (who presumably experienced stronger pressures to perform), when compared to recreational athletes, displayed lower levels of intrinsic motivation while exhibiting higher levels of amotivation. However, sport performance was not assessed in the Fortier et al. study.

The few investigations that have simultaneously dealt with sport performance and elite athletes' motivation have outlined a positive relation between better performance and higher motivation (e.g., Bakker, De Koning, Van Ingen Schenau, & De Groot, 1993; Mahoney, 1989; Mahoney, Gabriel, & Perkins, 1987; Morgan et al., 1988). However, very little research has determined the specific types of motivation that would be conducive to better sport performance.

In light of the above, the main purpose of the present investigation was to proceed to a multidimensional analysis of sport motivation in relation to elite performance. To this end, the motivation exhibited by the best performing elite was compared with that displayed by less successful elite athletes. Based on past research (Cornelius et al, 1991; Fortier at al.,

1995), it was expected that the best peforming athletes would display lower levels of IM and higher levels of non-self-determined EM and amotivation than their less successful counterparts. A second purpose of this investigation was to assess gender differences in relation with elite athletes' motivation. In past research, women have consistently been shown to display higher levels of IM and self-determined EM than men across several life domains including sport (Brière et al., in press; Fortier et al., 1995; Pelletier et al., 1995). It was thus hypothesized that a similar pattern of results would be obtained for the present sample of athletes. A final purpose of the present investigation was to begin to explore the motivation of elite sport athletes from an Eastern European country, namely Bulgaria. As such, it should be stressed that the present investigation was exploratory in nature.

Method

Participants

The sample was made up of 35 female and 63 male athletes (respective mean ages of 19 years, $SD = 5.5$, and 20 years, $SD = 3.8$) who belonged to Bulgaria's national elite. With regard to sport disciplines, 31 participants specialized in canoe, 20 in biathlon, 15 in figure-skating, 13 in boxing, 12 in tennis, and 7 in skiing.

Procedure and Measures

The investigation was held in Bulgaria from September through November 1992. All athletes freely agreed to participate and informed consent was obtained from coaches. Data collection was carried out prior to training sessions. Athletes were informed that the purpose of the investigation concerned their attitudes toward sport in general and were assured that their answers would be kept confidential. Participants' athletic performance (e.g., titles and medals) over the preceeding two years in national and international events was documented on the basis of individual records (e.g., National Championships, Olympics, World Championships).

In addition, all participants completed the Bulgarian version of the Sport Motivation Scale (Pelletier et al., 1995; see also Brière et al., in press; for a French version). The SMS is derived from the tenets of Self-Determination Theory (Deci and Ryan, 1985, 1991) and comprises subscales that correspond to specific types of motivation including IM, self-determined EM, non-self-determined EM, and amotivation. The items represent potential answers to the general question: «Why do you practice your sport?». IM and self-determined EM are assessed by items such as «For the pleasure of discovering new training techniques» and «Because it is one of the best ways to maintain good relationships with my friends», respectively. Non-self-determined EM and amotivation are assessed by items such as «For the prestige of being an athlete» and «I don't know anymore; I have the impression that I'm not capable of succeeding in sport», respectively. In the Bulgarian version, items were scored on a 5-point Likert-type scale (*), ranging from 1 (does not correspond at all) to 5 (corresponds exactly) with a midpoint at 3 (corresponds moderately). In the present investigation, the internal consistency values (Cronbach's alpha) of the four subscales were as follows: .85 for IM, .59 for self-determined EM, .75 for non-self-determined EM (**), and .63 for amotivation.

Results

Multivariate analyses of variance (MANOVAs) were performed on the following dependent variables: IM, self-determined EM, non-self-determined EM, and amotivation. The small sample size did not provide adequate power for testing a full 2 X 2 design (Performance X Gender). Separate MANOVAs were thus conducted for performance and gender. Title and medal holders formed the high performance group ($n = 25$) whereas the low performance group consisted of the remaining participants ($n = 73$). In addition, the dependent variables were analyzed according to their level of self-determination; that is, IM and self-determined EM scores were combined in the same MANOVAs whereas non-self-determined EM and amotivation scores were analyzed together in distinct MANOVAs. This yielded four MANOVAs in all: 1) IM and self-determined EM as a function of performance, 2) non-self-determined EM and amotivation as a function of performance, 3) IM and self-determined EM as a function of gender, and 4) non-self-determined EM and amotivation as a function of gender.

For the first MANOVA, results revealed no significant effect for the IM and self-determined EM block, $F(2,95) = 2.25$, $p > .05$. In contrast, the second MANOVA indicated that the combined non-self-determined EM and amotivation variables were significantly affected by performance, $F(2,95) = 4.54$, $p < .05$. More specifically, univariate F-tests revealed that the contribution of non-self-determined EM to this effect was marginally significant, $F(1,96) = 3.53$, $p < .07$ ($M = 3.49$ for high performance and $M = 3.21$ for low performance) while the contribution of amotivation was significant, $F(1,96) = 4.14$, $p < .05$ ($M = 2.25$ for high performance, and $M = 1.93$ for low performance). It thus seems that non-self-determined types

(*) The Bulgarian version is derived from the original version of the Sport Motivation Scale which used a 5-point scale. In the subsequent version of the SMS, which was comprised of the very same items as the original version, the 5-point scale was replaced by a 7-point scale in order to allow for greater score variability.

(**) Non-self-determined EM represented a composite score of introjected and external regulation (see Pelletier et al., 1995, for more details concerning these particular subtypes of non-self-determined EM).

of motivation were associated with better sport performance. In addition, all athletes from the present sample displayed appreciable level of self-determined types of motivation. The means and standard deviations of the motivational subscales as a function of performance are presented in Table I.

TABLE I
Means and Standard Deviations of Self-Determined and Non-Self-Determined Types of Motivation as a Function of Performance.

Types of Motivation	Performance	
	Low (n = 73)	High (n = 25)
Self-Determined		
Intrinsic Motivation	3.60 (SD = .53)	3.45 (SD = .76)
Self-determined EM	3.38 (SD = .64)	3.59 (SD = .46)
Non-Self-Determined		
Non-self-determined EM†	3.21 (SD = .62)	3.49 (SD = .65)
Amotivation*	1.93 (SD = .61)	2.25 (SD = .84)

Note: *p <.05, †p <.07

With respect to gender, results of the third MANOVA revealed a significant effect on the IM and self-determined EM variables, $F(2,95) = 3.33$, $p < .05$. As expected, female athletes exhibited significantly higher levels of IM ($M = 3.75$) than their male counterparts ($M = 3.46$) (univariate $F(1,96) = 5.84$, $p < .05$). However, the levels of self-determined EM did not differ as a function of gender. The fourth MANOVA did not yield significant results for the non-self-determined EM and amotivation block in relation with gender, $F(2,95) = 0.004$, $p > .05$. The means and standard deviations of the motivational subscales as a function of gender appear in Table II.

Finally, a chi-square analysis was performed in order to rule out the possibility that the results concerning performance might be due to unequal proportions of male and female participants among the low versus high performance groups. Indeed, given the higher levels of IM displayed by females over those exhibited by males, it could be argued that the lower representation of females in the high performance group might have blurred the real impact of self-determined types of motivation in relation with performance. This alternative explanation was discarded by a non-significant chi-square value regarding the relative representation of females and males across the various cells ($\chi^2 = .87$, df = 1, $p > .05$). The gender breakdown

TABLE II
Means and Standard Deviations of Self-Determined and Non-Self-Determined Types of Motivation as a Function of Gender.

Types of Motivation	Gender	
	Men (n = 63)	Women (n = 35)
Self-Determined		
Intrinsic Motivation*	3.46 (SD = .55)	3.75 (SD = .60)
Self-determined EM	3.45 (SD = .65)	3.41 (SD = .52)
Non-Self-Determined		
Non-self-determined EM	3.28 (SD = .64)	3.29 (SD = .63)
Amotivation	2.02 (SD = .67)	2.01 (SD = .72)

Note: *p <.05

was as follows: 7 females and 18 males for the high performance group, and 28 females and 45 males for the low performance group.

Discussion

The main purpose of the present investigation was to assess elite athletes' sport motivation in relation with performance. Results revealed that, in comparison with less successful athletes, the best performing athletes exhibited higher levels of non-self-determined types of motivation. Specifically, title and medal holders seemed more inclined to report external rewards and feelings of obligation and pressure as their primary sources of motivation than less successful athletes. However, to the extent that these results were not mirrored by a decrease of self-determined types of motivation, they only bring partial support to the first hypothesis.

These results go in line with those of Fortier et al. (1995) regarding an extension of the Cognitive Evaluation Theory to non-self-determined types of motivation. More specifically, aside from undermining intrinsic motivation, external factors such as competitive sport structures may also foster non-self-determined types of motivation.

A plausible interpretation of these results is that individuals who eventually come to win titles and medals are those who participate in sport in order to obtain such rewards. Such effects might have been exacerbated by the prevalent social context. This interpretation is substantiated by the highly competitive sport structure which prevailed in Bulgaria under the communist regime. This structure strongly emphasized incentives to win

at all costs in the form of material benefits such as travel opportunities, fancy cars, nice apartments, and bank accounts. At that time in Bulgaria, such benefits were very scarce and were accessible to only a few privileged. It should also be noted that although the investigation was completed three years after the collapse of communism in Bulgaria, the social context of sport structure had not yet dramatically changed, and athletes who participated in this investigation have grown up influenced by this social context. Thus, it is possible that the present investigation's best performing athletes might have been more strongly influenced by these incentives and pressures to compete, thus leading to an increase in non-self-detrmined EM. In addition, it is also possible that constant pressures from sport officials and coaches, when combined with the fear of losing invaluable privileges, might have fostered a state of amotivation among these athletes. Another line of interpretation could be the pressure of the social recognition of Bulgarian elite athletes and of the high value formally and informally placed on their achievements. Further research will be needed in order to corroborate these assertions.

The second purpose of the present investigation was to assess gender differences in elite athletes' motivation. Results revealed that women athletes exihibited higher levels of IM than their male counterparts although no significant difference was found for self-determined EM. These results corroborate those of pervious studies in the sport domain (Brière et al., in press; Fortier et al., 1995; Pelletier et al., 1995) and suggest that, in comparison with male athletes, female athletes participate more out of pleasure and satisfaction than out of other extrinsic reasons. In relation with the present investigation, it should also be noted that the relative absence of female particpants in some sports did not permit the analysis of an interaction effect between gender and types of sport. Subsequent research will be needed in order to address this particular issue.

As a final comment, it should be noted that the present sample was markedly dissimilar to those that have been commonly employed in sport motivation research; that is, athletes originated from an eastern European country whereas more traditional samples were made up of «Westerners» (e.g., from United-States or Canada, Vallerand, 1993). On one part, this consideration might represent a limitation in that the present results may only apply to elite atheltes from the East Block. Consequently, more research is needed in order to ascertain the generality of such results in relation with samples drawn from different cultural backgrounds. On the other hand, since the findings were overall concordant with those of previous sport studies in spite of the dissimilar nature of the present sample, it can be

argued that they bring additional support to Deci and Ryan's Self-Determination Theory.

In conclusion, results of the present investigation provide preliminary indications regarding the specific types of motivation which might be involved in elite sport performance. First, it was found that non-self-determined types of motivation (i.e., non-self-determined EM and amotivation) were more prominent among the best performing athletes. Second, female athletes displayed higher levels of IM than their male counterparts. These findings underscore the detrimental impact that high-level competitive structures might have on self-determined types of sport motivtion, and the importance of considering gender differences in the sport domain.

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RÉSUMÉ

Le but de cette étude était de procéder à une analyse multidimensionnelle de la motivation à l'égard des sports en fonction des facteurs performance et sexe. L'échantillon était constitué de 98 (35 femmes et 63 hommes) athlètes bulgares appartenant à l'élite sportive de leur pays. Les performances réalisées par les athlètes dans le cadre d'événements sportifs nationaux et internationaux tenus aucours des deux années précédant l'étude ont d'abord été documentées. Les sujets ont également complété une version bulgare de l'Échelle de Motivation dans les Sports (Brière, Vallerand, Blais, & Pelletier, in press; Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995). Cette échelle, qui repose sur la Théorie de l'Autodétermination (Deci & Ryan, 1985, 1991), permet de mesurer: la motivation intrinsèque, la motivation extrinsèque autodéterminée, la motivation extrinsèque non-autodéterminée, et l'amotivation. Les résultats ont démontré que, comparativement aux athlètes moins performants, les tenants de titres et de médailles affichaient de plus hauts niveaux de motivation extrinsèque non-autodéterminée et d'amotivation. Il a également été démontré que la motivation des sujets de sexe féminin était plus fortement caractérisée par la motivation intrinsèque. Les résultats sont interprétés à la lumière de la Théorie de l'Autodétermination et ils sont mis en rapport avec le contexte culturel qui prévalait en Bulgarie lors de la tenue de cette étude. Enfin, ces résultats soulignent l'importance du rôle que semble jouer la motivation dans le sport d'élite.

REFERENCES

Bakker, F.C., De Koning, J.J., Van Ingen Schenau, G.J., & De Groot, G. (1993). Motivation of young elite speed skaters. *International Journal of Sport Psychology, 24*, 432-442.

Brière, N.M., Vallerand, R.J., Blais, M.R., & Pelletier, L.G. (in press). Développement et validation d'une mesure de motivation intrinsèque, extrinsèque et d'amotivation en

contexte sportif: L'Échelle de Motivation dans les Sports (ÉMS) [On the development and validation of a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS)]. *International Journal of Sport Psychology*.

Cornelius, A.E., Silva, J.M., & Molotsky, E.J. (1991). *Motive structures for engaging in regular exercise* (Unpublished manuscript, University of North Carolina).

Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Deci, E.L., & Ryan, R.M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation* (pp. 237-288) Lincoln, NE: University of Nebraska Press.

Fortier, M.S., Vallerand, R.J., Brière, N.M., & Provencher, P. (1995). Competitive and recreational sport structures and gender: A test of their relationship with sport motivation. *International Journal of Sport Psychology, 26*, 24-39.

Mahoney, M.J. (1989). Psychological predictors of elite and non-elite performance in Olympic weightlifting. *International Journal of Sport Psychology, 20*, 1-12.

Mahoney, M.J., Gabriel, T.J., & Perkins, T.S. (1987). Psychological skills and exceptional athletic performance. *Sport Psychologist, 1*, 181-199.

Morgan, W.P., O'Connor, P.J., Ellickson, K.A., & Bradley, P.W. (1988). Personality structure, mood states, and performance in elite male distance runners. *International Journal of Sport Psychology, 19*, 247-263.

Pelletier, L.G., Fortier, M.S., Vallerand, R.J., Tuson, K.M., Brière, N.M., & Blais, M.R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport and Exercice Psychology, 17*, 35-53.

Roberts, G.C. (1992). *Motivation in sport and exercice*. Human Kinetics Publishers: Champaign, IL.

Ryan, R.M., Vallerand, R.J., & Deci, E.L. (1984). Intrinsic motivation in sport: A cognitive evaluation theory interpretation. In W.F. Straub & J.M. Williams (Eds.), *Cognitive Sport Psychology* (pp. 231-242). Lansing, N.Y.: Sport Science Associates.

Vallerand, R.J. (1993). La motivation intrinsèque et extrinsèque en contexte naturel: Implications pour les secteurs de l'éducation, du travail, des relations interpersonnelles et des loisirs [Intrinsic and extrinsic motivation in natural settings: Implications for education, work, interpersonal relationships, and leisure]. In R.J. Vallerand & E.E Thill (Eds.), *Introduction à la psychologie de la motivation* (pp. 533-581). Montréal: Études Vivantes.

Vallerand, R.J., Deci, E.L., & Ryan, R.M. (1987). Intrinsic motivation in sport. In K.B. Pandlof (Ed.), *Exercise and sport sciences reviews* (pp. 389-425). New York: Macmillan.

Vallerand, R.J., Gauvin, L.I., & Halliwell, W.R. (1986). Negative effects of competition on children's intrinsic motivation. *Journal of Social Psychology, 126*, 365-372.

Vallerand, R.J., & O'Connor, B.P. (1989). Motivation in the elderly: A theoretical framework and some promising findings. *Canadian Psychology, 30*, 538-550.

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An Exploratory Study on the Relationship between Postural Deformities and Body-image and Self-Esteem in Adolescents: The Mediating Role of Physical Activity

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This explorative study was designed to examine the association between the intensity in which adolescents engaged in physical activity (PA) and their body-image and general self-esteem. Furthermore, it was aimed at examining the hypothesis that adolescents with postural deformities who engage in PA will perceive their body (in particular) and the self similarly to their healthy counterparts and more positively than adolescents with postural deformities who do not engage in any PA. Two-hundred-and-eighty-six male and female adolescents (12-18 years) of whom 146 were healthy and 140 were diagnosed as suffering from structural and non-structural Adolescent Idiopathic Scoliosis (AIS) were administered a body-image (Secord and Jourard, 1953) and the Tennessee self-concept (Fitts, 1965) questionnaires. Subjects were also classified with respect to their level of engagement in PA (extensive, moderate, and low). A 2 (postural status) X 2 (Gender) X 3 (PA level) ANOVAs indicated a significant 3-way interaction on body-image, but not on self-esteem. Adolescents with AIS, not engaged in PA, had lower body-image than their peers, particularly males. However, both males and females with AIS perceived their body positively when engaged in moderate or extensive PA. Being an exploratory prospective research, the results do not permit assigning any causal effect to PA on perception of the body and the self. The results support the specificity hypothesis of self-esteem and encourage investigation as to the particular physical activities which are most beneficial for adolescents who suffer from postural deformities.

KEY WORDS: Body image, Physical activity, Self-esteem.

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