

## **Examining the conceptual model: Relationships between sport orientation, doping attitude and doping behavior in Iranian elite martial artists**

**Jasem Manouchehri<sup>1</sup> and Farshad Tojari<sup>2</sup>**

<sup>1</sup>*Department of Sport Management, University of Tehran, Kish International Campus, Iran*

<sup>2</sup>*Department of Sport Management, Islamic Azad University, Tehran Central Branch, Iran*

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### **ABSTRACT**

*Naturally occurring performance-enhancing drugs (PEDs) have been known and used through human history. Sport orientations and/or sport tendency focus have been influential factors that individuals and organizations are consistently developing and achieving any kind of technology in order to become prosperous in championships and in this case using performance-enhancing substances/methods has been considered as a way of perfect performing. The present study has examined the conceptual model of sport orientation, doping attitudes and doping beliefs in Iranian elite martial arts athletes. 160 elite athletes (120 males, 40 females) who had activity records in Kick Boxing, O-Sport, Sumo, Wrestling, Jiu-Jitsu, Boxing and Muay Thai were chosen by categorical sampling method. The measurements included sport orientation questionnaire (SOQ), doping use belief (DUB), performance-enhancement attitude scale (PEAS), and demographic questionnaire. Structural Equation Modeling (SEM) was utilized for examining conceptual model of survey. For analyzing data the LISREL was applied on 95% of confidence level. Structural Equation Modeling (SEM) showed doping believes had a significant effect on doping attitude and behavior. Although the relationship between sport orientation and doping attitude was not significant, the significant relationship between sport orientation and doping behavior was reported. Finally, the significant influence of doping attitude on doping behavior became apparent. The present study suggests using educational workshop for athletes in order to improving the expected athletes' behavior in using PEDs. The same survey is suggested to do in the community of team sports for realizing the doping psychology differences of athletes in those sports. Likewise, the semi-empirical research is proposed by the variables studying in this paper. Moreover, the same survey should be accomplished for vast range of female participants to observe more exact details.*

**Key words:** Sport Orientation, Doping Behavior, Doping Attitude, Elite Martial Artists

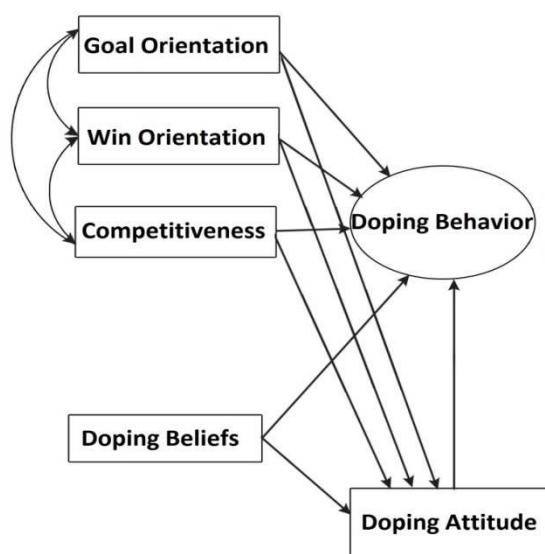
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### **INTRODUCTION**

Naturally occurring performance-enhancing drugs (PEDs) have been known and used through human history [1]. Although the term “doping” first appeared in an English dictionary in 1879, it is believed that the word “dope” has South African roots, where it refers to an alcoholic drink used as stimulant in primeval ceremonies [2]. Despite the fact that doping is not a new phenomenon in sport, enhancing performance through artificial means has only been banned since the 1960s [3]. Doping as a potential danger to the modern Olympic movement was recognized in the '50s and officially acknowledged ten years later by the creation of a list of banned substances [3]. Investigate athletes' attitudes toward prohibited performance-enhancing substances (mostly anabolic steroids) and doping has a long history in sport [4]. Since 40 years ago, athletes have been asked about their beliefs about positive results of using PEDs [4]. Researchers have achieved a good perspective about people who used doping [5];[6]. Something like being too much competitive or win at all cost, huge pressure for winning in sport organizations, nations' desire to proud their athletes, local communities' wishes to be in attention point and presenting positive image of their

heroes and also spectators' desirability for breaking records in sport competitions, mean that individuals and organizations are consistently developing and achieving any kind of technology in order to become prosperous in championships and in this case using performance-enhancing substances/methods has been considered as a way of perfect performing [4]. These matters can be known as sport orientations and/or sport tendency focus. Basic attitude assumptions toward doping are the most significant predictor of probable doping behavior [4]. Athletes, who demonstrated more softness and moderation toward doping, were more contingent to use banned drugs [7];[8]. Several studies have accomplished about effective factors on doping among athletes. Barkoukis, et al [9] and Nico, Melvyn & Marloes [10] realized that achievement goals among athletes groups can influence on doping attitudes. Whitaker, Long, Petroczi & Backhouse [11] suggested that achievement motivation, self-confidence, commitment, temperament, competing fear, law conformance, reliability, sociability and athletes' conceptualization from predictor models of user and non-user might act as effective factors on doping. Results from Judge, ET al [12] showed that sexuality is not significant variance in predicting intention but attitude potency and ethical belief are important considerations in conception of PEDs usage. Pappa & Kennedy [13] found that the athletes presented doping as a normalized part of competitive sport, inevitably involving the participation of coaching staff and in contrast to the first theme, athletes maintained that they alone were responsible for the decision to use PEDs. Bloodworth and McNamee [14] realized that most notably injury recovery and the economic pressures of elite sport are influential factor to use doping and a significant minority of athletes entertained the possibility of taking a banned hypothetical PED under conditions of guaranteed success and undetectability. Smith, Et al [15] comprehended that attitudes were sometimes quite libertarian, and contingent upon first, the legality of the substance, and second, its performance impact. Results also indicated that athletes' attitudes about drugs were fundamentally shaped by sport's culture [15]. Other significant factors included its commercial scale, closely identifiable others, early experiences and critical incidents of players and athletes, and their level of performance [15]. Bloodworth, Petroczi, Bailey, Pearce, McNamee [16] realized that Athletes convinced of the necessity of supplementation for sporting success were also more likely to express permissive attitudes. When asked whether they would take a "magic" drug that, while undetectable, would significantly enhance performance, the overwhelming majority of athletes said "no," but many thought others would take the substance [16]. Recently, alternative theoretical models of doping [17];[18], Health Belief Model to develop a theoretical drug control model [17], The Drugs in Sport Deterrence Model [18] based on Deterrence Theory used in criminology and costs and benefits include material and social consequences have been developed. The common element of all three models is that subjective norms play a seemingly important role in doping behavior [3]. The scale-level model of doping [3] presented to discover the relationships between use of performance enhancements, attitudes toward performance enhancements, competitiveness, winning, and personal goals. The papers studied these variables, were mostly accomplished on team sports and online and library researches could not find the same study in Iranian athletes. In addition, it has been realized that contact sports were received lower attention in doping psychology researches compared with other kinds of sports. So the present study has examined the conceptual model of sport orientation, doping attitudes and doping beliefs [3] in Iranian elite martial arts athletes (Figure 1).

Figure 1. The conceptual model of research



## MATERIALS AND METHODS

### Participants

160 elite athletes (120 males, 40 females) who had activity records in Kick Boxing, O-Sport, Sumo, Wrestling, Jiu-Jitsu, Boxing and Muay Thai were chosen by categorical sampling method and they filled questionnaires voluntarily.

### Measures

*Performance Enhancement Attitude Scale [4]:* The PEAS consists of 17 attitude statements measured on a six point Likert-type scale ranging from strongly disagree (1) to strongly agree (6). There were evidences from previous use that the scale is unidimensional and reliable, with Cronbach alpha values above 0.70 [4];[19];[3]. The internal consistency of the scale for the present sample (Cronbach  $\alpha = 0.776$ ) and it increased to 0.812 by omitting the statements of 9, 13, 14 and 16.

*Sport Orientation Questionnaire [20]:* The SOQ contains 25 items that uniquely relate to one of three independent factors: (a) competitiveness, (b) winning, and (c) goals. Of the total 25 items, the competitiveness subscale consists of 13 items, whereas the winning orientation and goal orientation subscales contain 6 items each and items are completed by a five-point Likert scale that ranges from strongly agree to strongly disagree. The internal consistency coefficients for the three subscales are reported as follows: competitiveness subscale 0.94, win orientation subscale 0.86, and goal orientation subscale 0/80 [20]. In the present study, the observed internal consistencies of the SOQ were: Competitiveness ( $\alpha = 0.855$ ), Win orientation ( $\alpha = 0.817$ ) and Goal orientation ( $\alpha = 0.718$ ), however, Cronbach's Alpha for Goal orientation increased to 0.730 after omitting its first statement.

*Doping Use Belief measures [3]:* The DUB were operationally defined as expressions of presumed opinion regarding doping use, namely whether doping should be allowed for top and all level athletes (2 separate questions). Participants were asked to select one of the three responses: 'yes, without restrictions', 'yes, with restrictions' and 'absolutely not'. The Doping behavior latent variable was defined by two self-reported measures of doping behavior: current use of and past experience with performance enhancing substances. The internal consistency coefficients for both variables were reported 0.94 [3]. In the present study, the observed internal consistencies of the DUB were: Doping behavior ( $\alpha = 0.713$ ) and Doping belief ( $\alpha = 0.734$ ).

### Methods

Descriptive statistics were used for describing data and Structural Equation Modeling (SEM) was utilized for examining conceptual model of Petroczi (2007). For analyzing data the LISREL was applied on 95% of confidence level.

## RESULTS

The results from Table 1 demonstrated that among total 160 people 54 individuals (about 39%) did not believe that their future depends on performance (physical achievement) in sport, although, 106 individuals (about 66%) believed that their future depends on their physical success. The results from Table 2 demonstrated Mean and SD of variables.

**Table 1. Describing situation of future dependence on participants performance**

	f	%	Aggregated %
Yes	106	66.2%	66.2%
No	54	33.8%	100%
Total	160	100%	

**Table 2. Describing variables**

Variable	Subscale	Mean	SD
Doping belief	-	0.30	0.41
Doping behavior	-	0.32	0.65
Doping attitude	-	0.24	0.73
Sport orientation	Competitiveness	4.48	0.50
	Win orientation	3.94	0.88
	Goal orientation	4.56	0.52

Convergent validity was tested by examining the factor loading of each construct (Item). The results of the measurement model fit are summarised in the following (Table 3). In more detail, factor loadings ranged from 0.33 (PEAS8) to 2.00 (D.Experience), all of them exceeding the recommended cut-off value of 0.5 for a sample of 160 observations at a 0.05 level of significance ( $p < 0.05$ ).

**Table 3. Factor loading of variables (SO: Sport Orientation, PEAS: Performance-Enhancement Attitude Scale, D.Experience: Drug Usage Experience)**

Factor loading				Factor loading			
PEAS1	←	Doping attitude	0.66	D.Experience	←	Doping behavior	2.00
PEAS2	←	Doping attitude	0.67	Current use	←	Doping behavior	0.52
PEAS3	←	Doping attitude	0.37	SO2	←	Win orientation	0.75
PEAS4	←	Doping attitude	0.38	SO6	←	Win orientation	0.65
PEAS5	←	Doping attitude	0.49	SO10	←	Win orientation	0.57
PEAS6	←	Doping attitude	0.38	SO14	←	Win orientation	0.67
PEAS7	←	Doping attitude	0.61	SO18	←	Win orientation	0.58
PEAS8	←	Doping attitude	0.33	SO11	←	Win orientation	0.69
PEAS10	←	Doping attitude	0.49	SO1	←	Competitiveness	0.49
PEAS11	←	Doping attitude	0.41	SO3	←	Competitiveness	0.66
PEAS12	←	Doping attitude	0.36	SO5	←	Competitiveness	0.42
PEAS15	←	Doping attitude	0.48	SO7	←	Competitiveness	0.74
PEAS16	←	Doping attitude	0.49	SO9	←	Competitiveness	0.64
Competitiveness	←	Sport orientation	0.91	SO11	←	Competitiveness	0.51
Win orientation	←	Sport orientation	0.70	SO13	←	Competitiveness	0.72
Goal orientation	←	Sport orientation	1.00	SO15	←	Competitiveness	0.53
SO8	←	Goal orientation	0.48	SO17	←	Competitiveness	0.66
SO12	←	Goal orientation	0.55	SO19	←	Competitiveness	0.43
SO16	←	Goal orientation	0.76	SO21	←	Competitiveness	0.47
SO20	←	Goal orientation	0.61	SO23	←	Competitiveness	0.55

Figure 2 (Main Model) and Figure 3 (Secondary Model) have shown the relationships between use of performance enhancements, attitudes toward performance enhancements, competitiveness, winning, and personal goals were investigated using structural equation modeling (SEM) and the hypothesized models are depicted as a model diagram (Figure 1). The results demonstrated that the assumptions of directed influence of doping attitude on doping behavior, doping believe on doping behavior and attitude, sport orientation on doping behavior were significant (Figure 2). and the assumptions of directed influence of sport orientation on doping attitude was not significant so the undirected influence of sport orientation on doping behavior through attitude could not be significant (Figure 2). On the other hand, the results showed that the assumptions of directed influence of goal orientation on doping behavior and attitude, competitiveness on doping behavior and attitude, and win orientation on doping behavior, were not significant (Figure 3). Likewise, the directed impact of win orientation on doping attitude was significant (Figure 3).

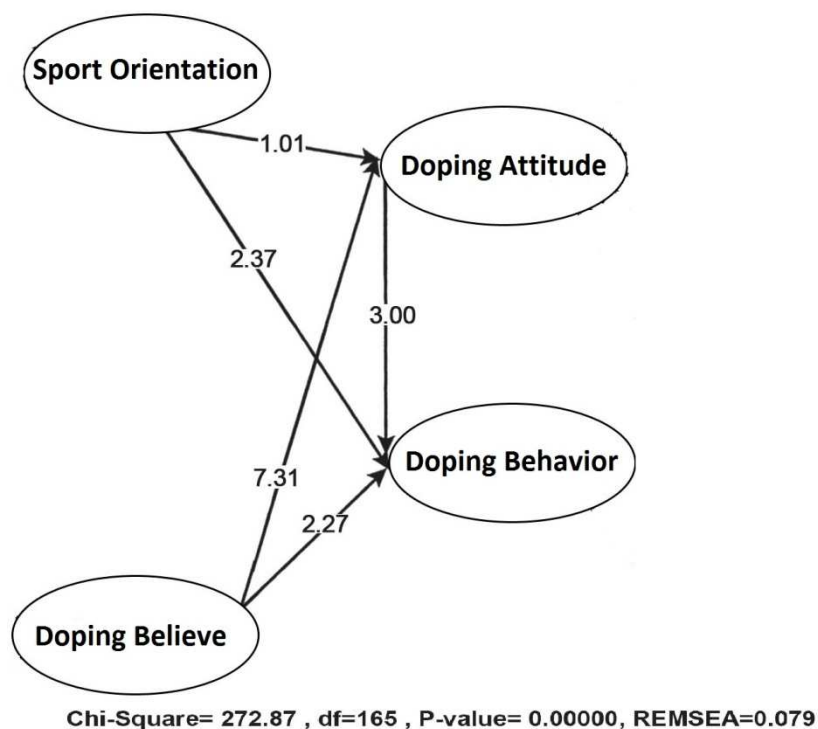
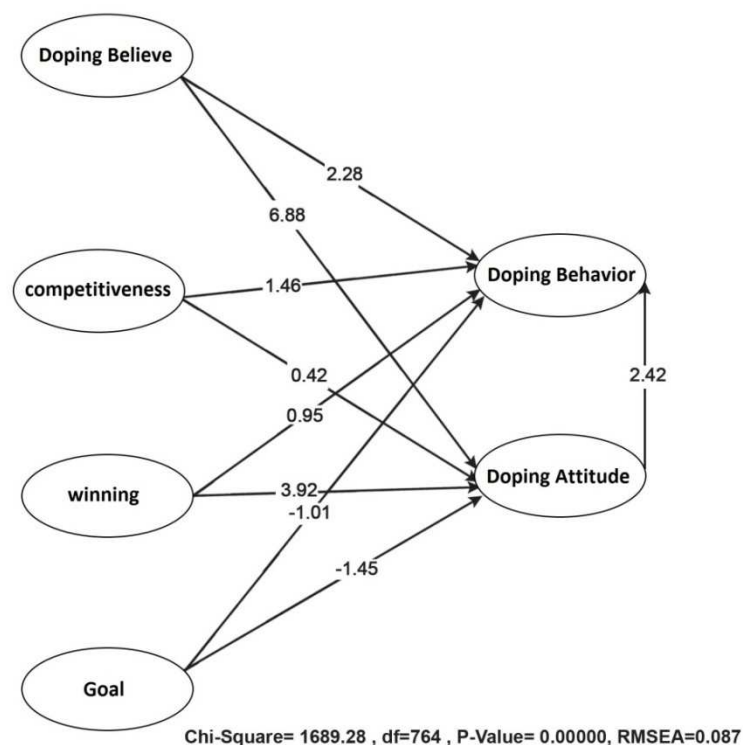
**Figure 2. The main model in Significance coefficients status**

Figure 3. The secondary model in Significance coefficients status



The measurement level hypothesized model of doping is depicted in Figure 2. The results demonstrated that Goodness of fit statistics were ( $\chi^2 = 272.87$ ,  $df = 165$ ,  $p = 0.0$ ,  $\chi^2/df = 1.65$ ). However, the relative chi square was under the recommended 3:1 range (Kline, 1988) indicating acceptable fit. Other fit indices ( $NFI = 0.95$ ;  $CFI = 0.96$ ;  $AGFI = 0.88$ ;  $RMSEA = 0.079$ ) also demonstrated a good model fit. And also structural equation extracted ( $R^2=0.29$ ) for doping attitude and ( $R^2=0.19$ ) for doping behavior which are rather top amounts. In addition, measurement level hypothesized model of doping is depicted in Figure 3. The results demonstrated that Goodness of fit statistics were ( $\chi^2 = 1689.28$ ,  $df = 764$ ,  $p = 0.0$ ,  $\chi^2/df = 2.21$ ). Other fit indices ( $NFI = 0.94$ ;  $CFI = 0.96$ ;  $AGFI = 0.88$ ;  $RMSEA = 0.087$ ) also demonstrated a good model fit. And also structural equation extracted ( $R^2=0.37$ ) for doping attitude and ( $R^2=0.13$ ) for doping behavior which are rather top amounts.

## DISCUSSION AND CONCLUSION

The results from SEM showed that competitiveness and goal orientation and also sport orientation influences on doping attitude were not significant, even though, the win orientation and doping believe influence on doping attitude were significant. It became apparent that the present results were congruent with results from Ehrnborg & Rosen [1] indicating the motives for doping are improving and maintaining physical functioning, coping with the social/psychological pressures and striving for social and psychological goals, including economic benefits. Factors such as, “doping dilemma”, “win at all costs”, cost versus benefit, and the specificity of some specific doping agents, also play major roles. And also the present results were congruent with results from paper of Petroczi, Aidman & Nepusz [7] indicating lack of significant impact of athletes’ sport orientation on their attitudes toward doping and also lower tendency of competitive athletes in using doping as well as sport orientation that is not the explanation base of doping attitude. In addition, Manouchehri, Tojari and Ganjouei [21] found that doping believe and attitude had not significant relationship in athletes’ diverse levels of competing, and doping behavior, competitiveness orientation, winning orientation, goal orientation had significant relationship in athletes’ diverse levels of competing. So it can be clarified that doping believe and win orientation can explain the modifications of attitudes toward PEDs usage.

The results from SEM showed that doping believe and sport orientation had significant impact on doping behavior, however, competitiveness, goal and win orientation had not significant influence on doping behavior. It became apparent that the present results were congruent with results from paper of Nicholls [22], Conroy, Elliot & Hofer [23], Conroy, Kaye & Coatsworth [24], Morris & Kavussanu [25];[26], Steober, et al [27] indicating that achievement goal theory assume that works direct with specific goal orientations reflecting with require of



development achievement and personal growth (work orientation), and need to be better than others. For instance, they realized that goals of performance-approach, avoidance-approach, and skill-avoidance were positively related to failure fear. Likewise, the present results were congruent with results from survey of Petroczi, et al [28] indicating diverse factors including financial success, loss, failure fear, health effect and being outside of competition can be effective in athletes' decision making on doping, in addition, understandable sport orientation influence on doping behavior modifications. On the other side, the present results were not the same as the results from Petroczi [3] indicating lack of significant relationship between sport orientation and doping behavior. So it can be clarified that sport orientation and doping believe can explain the modifications of athletes' doping behavior.

The results from SEM demonstrated that attitudes toward doping influence doping behavior significantly. The present results were congruent with the results from Anshel [29], Godin & Kok [30], Murnaghan, et al [31], Theodorakis [32], Cook, Lounsbury, Fontenelle [33], Armitage & Connor [34], indicating planned behavior theory (PBT) focus on motivational factors as effective factors for probability happening of specific behavior. And also PBT base on variables such as attitudes, mental norms and visual behavior control, and it had been set up in health related factors regarding drug usage and abuse prediction together with other behaviors relating to health impacts. The present result also were congruent with the results from Judge, et al [12], indicating that important predictor of intention including attitudes, injunctive norms, attitude strength, ethical believe and attitudes had contemplate with ethical believe and also attitude strength and ethical believe were the important considerations in cognizing PEDs usage. The present results were congruent with the results from Petroczi [4], Petroczi & Aidman [8], Atkinson [35], Smith, et al [36], indicating significant relationship between attitudes toward doping and doping behavior, Also the results from Vajjala, et al [37], Petroczi, et al [28], Backhouse & McKenna [38], indicating that athletes experiencing the spontaneous mind statements such as tension, depression, frazzle, might use doping drugs. In addition, the present results were congruent with the results from Evdokia & Eileen [39] and Bloodworth & McNamee [14], indicating that the athletes presented doping as a normalized part of competitive sport, inevitably involving the participation of coaching staff, and in contrast to the first theme, athletes maintained that they alone were responsible for the decision to use PEDs. Finally, a significant minority of athletes entertained the possibility of taking a banned hypothetical performance enhancing drug under conditions of guaranteed success and undetectability. Likewise, the present results were consistent with the results from Gucciardi, Jalleh, Donovan [40] and Johnson [41], indicating that Structural equation modelling analyses showed social desirability to partially mediate the association between doping attitudes and doping susceptibility, whereas regression analyses revealed strong support for the presence of a moderation effect of social desirability. On the other hand, the present results were not congruent with the results from Uvacsek, et al [42], indicating that PED users showed a significantly more lenient attitude toward doping and it become apparent that doping behavior had an inverse relationship with doping attitude. So it can be clarified that attitudes toward PEDs usage can explain athletes' doping behavior.

The results from SEM demonstrated that sport orientation had not significant undirected influence on doping behavior through doping attitude. The present results were congruent with the results from Buckley, et al [43], indicating that most sport requiring strength and speed were more suspected of doping offenses, And also the results from Barkoukis, et al [9], Ajzen & Fishbein [44], Skitka, Bauman, Sargis [45], Kraus [46], indicating that both achievement goals, motivation can affect on vast range of sport related behavior, and they can have a deep effect on sport recognition relating to athletes and sportsmanship, and regarding PBT indicating that individuals' attitudes affect their intentional behavior. The present results also were congruent with the results from Tsorbatzoudis, et al [47] and Petroczi [3], indicating that athletes' goal and win orientation and competitiveness had not significant relationship with doping behavior, but win orientation had a significant impact on doping attitude, in addition, the lack of directed relationship between sport orientation and doping behavior and understandability of sport orientation which cannot explain doping behavior changes indirectly by athletes' attitudes toward doping. So it can be clarified that because of the insignificant influence of sport orientation on doping attitude, the sport orientation cannot explain doping behavior through doping attitude indirectly.

Both the eminent literature and the official global sport organizational stance suggest that athletes' attitudes are responsible for the deviant behavior of doping [48];[49];[50]. So, due to the same results from the present study and past literatures, the semi-empirical research by using educational workshops is suggested for athletes in order to improving the expected athletes' behavior in using PEDs. In that case the athletes' attitudes toward doping and knowledge about performance-enhancement drugs/methods must be worked. Likewise, the same survey is suggested to do in the community of team sports for realizing the doping psychology differences of athletes in those sports. Moreover, the same survey should be accomplished for vast range of female participants to observe more exact details.

# REFERENCES

- [1] Ehrnborg, C., Rosén, T., *J of Growth Hormone & IGF Research* 19, **2009**, 285–287.
- [2] Australian Sport Drug Agency, **2000**, <http://www.ausport.gov.au/asda/drugs1.html>.
- [3] Petróczi Andrea, *J of Substance Abuse Treatment, Prevention, and Policy* **2007**, 2:34 doi:10.1186/1747-597X-2-34.
- [4] Petróczi A, Published Doctor of Philosophy dissertation, **2002**, University of Northern Colorado, USA.
- [5] WADA, **2006**, [[http://www.wada-ama.org/rtecontent/document/LABSTATS\\_2006.pdf](http://www.wada-ama.org/rtecontent/document/LABSTATS_2006.pdf)].
- [6] WADA, **2009**, [http://www.wada-ama.org/rtecontent/document/Call\\_for\\_Proposals\\_2009\\_En.pdf](http://www.wada-ama.org/rtecontent/document/Call_for_Proposals_2009_En.pdf). Accessed 16.06.08.
- [7] Petróczi, Aidman and Nepusz, *J of Substance Abuse Treatment, Prevention, and Policy* **2008**, 3:9 doi:10.1186/1747-597X-3-9.
- [8] Petróczi and Aidman, *J of Psychology of Sport and Exercise*, **2009**, 10, 390e396.
- [9] Barkoukis V, Lazuras L, Tsorbatzoudis H, Rodafinos A, *J of Psychology of Sport and Exercise* 12, **2011**, 205e212.
- [10] Nico W. Van Yperen, Melvyn R.W. Hamstra and Marloes van der Klauw, *British Journal of Management*, Vol. 22, S5–S15 (**2011**) DOI: 10.1111/j.1467-8551.2010.00702.x
- [11] Whitaker, L., Long, J., Petroczi, A., Backhouse, S.H., *J of Performance Enhancement & Health* xxx (**2012**) xxx– xxx.
- [12] Judge, L. W., Craig, B., Bellar, D., & Gilreath, E., *ICHPERD-SD Journal of Research*, **2010**, 5(2), 54–61.
- [13] Pappa, E., Kennedy, E., *International Review for the Sociology of Sport* April 30, **2012** 1012690212442116.
- [14] Bloodworth, Andrew., McNamee, Michael., *International Journal of Drug Policy* 21 (**2010**) 276–282.
- [15] Smith, A.C.T., Stewart, B., Oliver-Bennetts, S., McDonald, S., Ingerson, L., Dickson, G., Emery, P., Graetz, F., *Sport Management Review* Volume 13, Issue 3, August **2010**, Pages 181–197.
- [16] Bloodworth, A. J., Petroczi, A., Bailey, R., Pearce, G., McNamee, M. J., *Scandinavian Journal of Medicine & Science in Sports*, **2012**, Volume 22, Issue 2, pages 293–301, April.
- [17] Donovan RJ, Egger G, Kapernick V, Mendoza J., *Sports Med*, **2002**, 32:269-84.
- [18] Strelan P, Boeckmann RJ., *J Appl Sports Psychol*, **2003**, 15:176-83.
- [19] Petróczi A., *Med Sci Sports Exerc*, **2003**, 35:S326.
- [20] Gill DL, Deeter TE., *Res Quart Exerc Sport*, **1988**, 59:191-202.
- [21] Manouchehri J., Tojari F., Ganjouei F.A., *Euro. J. Exp. Bio.*, **2013**, 3(1):62-67.
- [22] Nicholls, J., London: Harvard University Press, **1989**.
- [23] Conroy, D. E., Elliot, A. J., & Hofer, S. M., *J of Sport and Exercise Psychology*, **2003**, 25, 456e476.
- [24] Conroy, D. E., Kaye, M. P., & Coatsworth, J. D., *J of Sport and Exercise Psychology*, **2006**, 28, 69e92.
- [25] Morris, R. L., & Kavussanu, M., *J of Sports Sciences*, **2008**, 26, 465e476.
- [26] Morris, R. L., & Kavussanu, M., *International Journal of Sport and Exercise Psychology*, **2009**, 9, 185e202.
- [27] Stoeber, J., Stoll, O., Pescheck, E., & Otto, K., *Psychology of Sport and Exercise*, **2008**, 9, 102e121.
- [28] Petróczi, A., Uvacek, M., Nepusz, T., Deshmukh, N., Shah, I., Aidman, E. V., Barker, J., Tóth, M., Naughton, D. P., **2011**, (<http://www.wada-ama.org/en/Education/Awareness/Social-Science/>).
- [29] Anshel, M.H., *J of Sport Behavior*, **1991**, 14 (4), 283-307.
- [30] Godin, G., & Kok, G., *American Journal of Health Promotion*, **1996**, 11(2), 87–98.
- [31] Murnaghan, D. A., Blanchard, C., Rodgers, W., La Rosa, J., Macquarrie, C., Maclellan, D., et al., *Addiction Research and Theory*, **2009**, 17(5), 469–480.
- [32] Theodorakis, Y., *The Sport Psychologist*, **1994**, 8, 149–165.
- [33] Cook, M. P., Lounsbury, J. W., & Fontenelle, G. A., *The Journal of Social Psychology*, **1980**, 110, 193–201.
- [34] Armitage, C. J., & Connor, M., *The British Journal of Social Psychology*, **2001**, 40, 471–499.
- [35] Atkinson, Rayan W., Thesis Presented of the Requirements for the Degree Master of Science, Faculty of Health and Physical Education Eastern New Mexico University, **2011**.
- [36] Smith, A.C.T., Stewart, B., Oliver-Bennetts, S., McDonald, S., Ingerson, L., Dickson, G., Emery, P., Graetz, F., *Sport Management Review*, Volume 13, Issue 3, August **2010**, Pages 181–197.
- [37] Vâjială, G., Epuran, M., Stanescu, M., Potzaichin, I., Berbecaru, C., *Series Physical Education and Sport / Science, Movement And Health*, **2010**, Vol. 10 ISSUE 2, Romania.
- [38] Backhouse, Susan H., McKenna, Jim., *International Journal of Drug Policy* 22 (**2011**) 198–202.
- [39] Evdokia and Eileen, *International Review for the Sociology of Sport* April 30, **2012** 1012690212442116.
- [40] Gucciardi, Daniel F., Jalleh, Geoffrey., and Donovan, Robert J., *Psychology of Sport and Exercise* 11 (**2010**) 479e486.
- [41] Johnson, Michael B., *Psychology of Sport and Exercise* 13 (**2012**) 317e323.
- [42] Uvacek, M., Nepusz, T., Naughton, D. P., Mazanov, J., Ranky, M. Zs., Petroczi, A., *Journal of Medicine & Science in Sports* Volume 21, Issue 2, **2011**, 224–234.

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- [43] Buckley, W. E., Yesalis, C. E., Friedl, K. E., Anderson, W. A., & Streit, A. L., *J of the American Medical Association*, **1988**, 260(23), 3441–3445.
  - [44] Ajzen, I., & Fishbein, M., *The handbook of attitudes*, **2005** (pp. 173–221). Mahwah, NJ: Lawrence Erlbaum Associate.
  - [45] Skitka, L. J., Bauman, C. W., & Sargis, E. G., *J of Personality and Social Psychology*, **2005**, 88, 895–917.
  - [46] Kraus, S. J., *Personality and Social Psychology Bulletin*, **1995**, 21, 58–75.
  - [47] Tsorbatzoudis, H., Rodafinos, A., Spiliopoulou, H., Barkoukis, V., Lazuras, L., Aristotle University of Thessaloniki Department of Physical Education & Sports Science 09 WADA final report, **2009**.
  - [48] Alaranta A, Alaranta H, Holmila J, Palmu P, Pietilä K, Helenius I., *Int J Sports Med*, **2006**, 27:842-6.
  - [49] Crown J, Heatherington L., *J Sport Exerc Psychol*, **1989**, 11:281-9.38.
  - [50] Hoberman J., In *Doping in elite sport* Edited by: Wilson W, Derse E. Champaign, IL: Human Kinetics; **2001**:241-274.