

Full Length Research Paper

Psychological profiles of talented male youth athletes in team sports games

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To represent the relationship between psychological skills and performance level in ball team sports within a youth talent group, 216 youth Tunisian male athletes representing four sports ball games (16 to 18 years) packed in the third version of the Ottawa Mental Skills Assessment Tool-3 with scales for Goal Setting, Self Confidence, Commitment, Stress Reactions, Fear Control, Activation, Relaxation, Imagery, Mental Practice, Focusing, Refocusing and Competition planning. A performance level (elite versus sub-elite) by type of sport multivariate analysis of covariance with age as a covariate showed had significant effects. Psychological skills distinguished between more and less successful talented athletes. In general, psychological profiles differed between team sports games sport and practice level gap

Key words: Ball games, mental skills, practice level, psychological profiles.

INTRODUCTION

Much of the research in applied sport sciences agrees that athletic successful performance is assured by a total package including physical, psychological, technical and tactical skills (Carling et al., 2009; Franks et al., 1999; Malina et al., 2000).

Besides the physical skills, factors related to mental state of the player have to be considered.

In this multidimensional conceptualization of sport performance, psychological or mental skills become a common essential factor for sport excellence (Morris, 2000; Thelwell and Maynard, 2003).

Mental skills are practices that help athletes manage their minds efficiently while performing their activities.

These practices assist athletes adjust their action, thoughts, feelings and physicals conditions to boost their performance (Garza and Feltz, 1998). Mental skills help competitors enhance their physical skill, deal with competitive pressure, adjust their awareness to achieve optimal performance and remain concentrated despite distractive external environment during competition (Elferink et al., 2004; Van Raalte and Brewer, 1996).

Mental skills involve different abilities such as commitment, goal setting, self-confidence, imagery etc. Published data show how important it is to rely on mental skills in goals' achievement in sport's competition and rehabilitation from serious injury (Hardy et al., 1993).

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Competitors and injured patients indeed have to work out mental rather than physical skills. Coaches and athletes do acknowledge the importance of mental skills but they do not use them properly. First, sports medicine and other physicians' lack of knowledge about mental skills prevent them from using these mental factors in their work with athletes (as patients); moreover, mental abilities in sport are often viewed as part of an individual's personality (Caudill et al., 1983).

Initial research in applied sport psychology focused primarily on the differences in personality's characteristics that differentiated elite performers from others. Additionally, early works in field of sport and exercise psychology explored the relation between psychological trait of personality and optimal performance.

In this perspective, psychological factors may play a dominant role in achieving success in elite level sports; in fact, the connection between series of specific trait of personality and sport excellence has been investigated.

Actually, an essential part of empirical studies examines differences in terms of psychological or mental skills which athletes have practiced and utilized (Vealey, 2007; Visek et al., 2009).

Mental skills are extremely important factors influencing an athlete's performance.

In fact an extensive review of the literature (Gould et al., 2002; Williams and Krane, 2001) shows that researchers have recognized and demonstrated the importance of psychological skills for athletic performance.

To improve this field of research, Silva et al. (1985) assessed determinants of qualifiers and non-qualifiers in the 1980 United States Olympic wrestling trials. Psychological variables were able to differentiate between groups with 78.1 % accuracy. Physiological variables were less important and only able to discriminate between performances with 60.9% accuracy.

The early work of Orlick and Partington (1988) indicated that mental skills components are necessary for performing at high profile events when working with Olympic athletes.

As a result of studies conducted by Orlick et al. across a range of events (Orlick et al., 1978; Orlick and Partington, 1988; McCaffrey and Orlick, 1989; Talbot-Honeck and Orlick, 1998), a combination of pre-event and in-event behaviors is now accepted as being able to distinguish between performances of elite and sub-elite class athletes.

Moreover, Orlick and Partington (1988) showed that in terms of physical, technical and mental preparations of Canadian Olympians, only the latter variable could significantly predict actual Olympic placing.

In the same context of idea, many researchers found a significant distinction related to mental skills with Olympic medalists and non-medalists in the 1988 Olympic Games (Gould et al., 1993a, b, 1993).

Today, the psychological dimension of sport performance was widely discussed as interdisciplinary practice where coaches and experts in this field across the globe were interested in the sport's psychology and mental skills training which should be established in standard norms (Thelwell et al., 2006).

In order to optimize their use, psychologists in this field developed many tools to measure psychological or mental skills based on their works on theory construct and applied research such as the Ottawa Mental Skill Assessment Tool (OMSAT-3, Durand-Bush, et al, 2001) or the Test of Performance Strategies (TOPS, Thomas et al., 1999).

Nowadays, there are not enough studies related to how psychological skills may influence performance during different stages of competition, especially, when dealing with youth practitioners.

A popular focus of empirical sport psychology literature over the past 2 decades has been the provision of mental techniques, skills, qualities and training that characterize elite and sub-elite performers (Weissensteiner et al., 2012; Sheard and Golby, 2010; Connaughton, et al., 2008). In addition, some study in behavioral sport psychology research has interest in differentiating athlete by gender (male versus female) and type of sport (Elferink-Gemser et al., 2004). However, the mental skills demands of ball team sports and the specific needs of each of them have received less attention.

To the best of our knowledge, the scientific literature has not yet present any study which investigated into the Tunisian mental skills profiles of elite and sub elite youth athletes. Therefore, this lack of information prompted us to determine mental skills for youth team ball athletes and how or whether mental skills can discriminate youth team ball athletes by type of sport and level of play between four sports ball practice.

In another aspect, this study can provide a new investigation into the use of OMSAT-3 in any research related to mental skills of Tunisian youth sports team players. The main purpose of the present study is to compare youth Tunisian male athletes (elite versus sub-elite) in mental skills by type of ball games practice.

MATERIALS AND METHODS

Participants

A total of 206 youth Tunisian male athletes representing four sports ball games were involved in this study.

Elite subjects were selected from the Tunisian national team's sports games players U18: Football (n=18), handball (n=26), basketball (n=23), volleyball (n= 31).

Feltz and Ewing (1987) suggested that an elite-level young athlete can be defined as one who has competed national-level and has participated in his sport for at least 2 years.

The sub-elite group was chosen from Tunisian league 2 team's

sports games players U18: Football (n=34), handball (n=27), basketball (n=25), volleyball (n= 22).

The mean age ranged from 16 to 18 years and all players were training regularly for competition during the period of data collection.

Instrument

The third version of the Ottawa Mental Skills Assessment Tool-3 (OMSAT-3) developed by Durand-Bush and Salmela was used to collect the mental skills.

OMSAT-3 measures a broad range of mental skills that include 48 items and 12 mental skills groups (Goal Setting [GS], Self Confidence [SC], Commitment [CO], Stress Reactions[STR], Fear Control [FC], Activation [AC], Relaxation [RLX], Imagery [IMG], Mental Practice [MP], Focusing [FOC], Refocusing [RFOC]and Competition planning [CP]), which are grouped under three main conceptual components (Each item on this tool was answered on a "strongly disagree" to "strongly agree" on a 7-point Likert scale. The psychometric propriety of the French version shows a high level of Cronbach's alpha value between .58 and .64 and displayed internal consistency scores ranged from .68 to .88, while intra-class reliability scores ranged from .78 to .96, indicating strong reliability (Durand-Bush et al., 2001).

Procedures

Permission to conduct this study was obtained from the National Sport Observatory (NSO) and the National Federation of each sport for Elite athletes. Sub-Elite athletes were contacted by their coaches who were asked to solicit the voluntary participating athletes.

The technical directors and coaches facilitated our efforts recruiting study subjects and organization of players with experiences. No inducement was offered for participation in the study.

All players were informed about the procedures of the study before providing their verbal consent to participate and were asked to complete the OMSAT-3 questionnaire in 30 min before training.

At the beginning of the questionnaire, an introductory page appears, informing participants about the anonymity of their answers and instructing them to answer as correctly and honestly as possible.

Statistical analysis

Data management and computations of statistics were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA) and the significance level was set at $p < 0, 05$. Means \pm standard deviations were calculated for each variable.

Data comparisons were analyzed using multivariate analysis of covariance (MANCOVA) general linear models (GLM) procedure. As part of the GLM procedure, least-squares means are calculated. For the MANCOVA, performance level and type of sport served as the independent variables, while the categories of psychological skills served as the multivariate dependent variable.

Age was considered as a covariate since the relationship between mental skills and performance level may change with age. Therefore, each variable was adjusted for age.

Univariate analyses of covariance (ANCOVA) with factors of performance level and type of sport and with age as a covariate were carried out separately for each psychological variable, with

follow-up analyses to clarify the source and nature of significant relationships.

RESULTS

A performance level by type of sport multivariate analysis of covariance (2 X 2) resulted in significant main effects for performance level [$F = 97.26, p < 0.001$ and type of sport [$F = 7.00, p < 0.001$].

Table 1 shows the means of the psychological skills for categories of performance level, and type of sport.

Performance level

In the relation of psychological skills and performance level, we found high significant main effects for Goal Setting, Self confidence, Commitment, Stress Reactions, Fear Control, Imagery, Mental Practice, and Competition planning.

Elite and sub-elites athletes had similar scores on Activation, Relaxation, Focusing and Refocusing.

Type of sport

In the relation of psychological skills and type of sport, we found high significant main effects for Goal Setting and Imagery ($p < 0.001$). The statistical values also show significant main effects for Commitment, Stress Reactions, Fear Control and Activation ($p < 0.01$) and demonstrate significant main effects with significance level $p < 0.5$ for Self confidence and Mental Practice (Table 2).

Regardless of performance level, hand-ball players outscored other players in all these psychological skills. We also found significant interaction effects for Fear Control (Performance level by Type of Sport).

DISCUSSION

The aim of this study was to reveal the relationship between mental skills and performance level with effects of type of sport within youth sports ball games athletes. To accomplish this purpose, two different performance level groups for each sport's ball players group were compared in terms of mental skills.

Multivariate Statistical results confirmed significant main effects for performance level and type of sport on OMSAT-3 mental skills. as well as the mental skills these athletes used to achieve optimal psychological states. Characteristics included self-regulation of arousal, high confidence, better concentration and focus, an in control but not forcing it attitude, positive imagery and self-talk

Table 1. Means of the psychological skills by categories of performance level, and type of sport.

	Elite				Sub-elite			
	Football (n=18)	Handball (n=26)	Basketball (n=23)	Volleyball (n=31)	Football (n=34)	Handball (n=27)	Basketball (n=25)	Volleyball (n=22)
GS	22,22±3,15	24,92±2,54	22,17±3,78	17,82±3,25	17,82±3,25	19,41±3,69	17,68±3,13	16,82±3,03
SC	21,72±2,68	24,38±3,38	22,22±4,08	21,06±4,43	17,50±4,41	25,00±2,22	18,22±3,42	16,77±3,70
CO	22,44±4,03	24,12±3,55	22,83±4,34	20,42±4,82	16,94±4,73	20,41±4,50	17,12±4,35	15,64±3,71
STR	19,22±3,01	20,85±3,22	19,13±3,35	18,84±3,49	17,47±2,50	19,56±5,52	17,12±3,36	17,23±3,15
FC	23,89±2,30	24,23±2,16	21,48±3,69	23,68±3,10	19,38±5,64	22,56±3,81	19,88±2,70	18,91±2,96
AC	19,61±3,62	21,58±3,31	18,26±4,38	17,97±4,08	18,21±4,01	20,19±3,78	17,96±4,92	17,82±3,95
RLX	19,50±3,45	20,35±4,17	17,96±4,30	19,90±4,45	19,71±4,01	19,59±2,36	19,60±3,37	17,50±3,64
IMG	20,39±3,43	23,00±2,21	22,13±3,60	21,23±4,15	16,65±3,23	20,67±3,31	17,48±3,16	16,50±3,05
MP	21,44±4,03	22,31±3,31	22,13±3,68	20,58±3,86	17,62±3,64	20,07±4,00	16,68±2,87	16,23±3,51
FOC	17,44±3,73	18,54±2,90	17,96±3,65	17,58±4,47	16,50±3,62	18,19±3,62	18,12±3,32	17,73±2,35
RFOC	17,56±3,26	17,88±3,10	17,52±3,86	15,84±5,14	15,85±4,80	17,81±3,83	17,24±3,63	16,82±2,65
CP	20,72±3,06	23,31±2,61	21,30±4,07	22,22±3,28	17,12±3,88	18,33±3,74	18,32±4,18	16,68±3,99

Table 2. Summary of Univariate F-ratios calculated using type III of squares with hypothesis for GS, SC, CO, STR, FC, A, RLX, IMG, MP, FOC, RFOC and CP for (General Linear Model).

	Performance level (PL)	Type of sport (TS)	PL* TS
GS	97.26***	7.00***	0.27
SC	84.56***	3.73*	0.52
CO	64.17***	8.41**	0.55
STR	10.87**	4.24**	0.97
FC	36.52***	4.49**	3.31*
AC	1.96	5.88**	0.35
RLX	0.35	1.37	2.49
IMG	68.25***	10.04***	0.23
MP	60.26***	5.49*	0.16
FOC	0.25	1.36	0.26
RFOC	0.23	1.49	0.22
CP	75.82***	2.24	1.95

Note: * p<0.5; ** p<0.01; *** p<0.001.

and high determination and commitment. Skills used to achieve peak psychological states included imagery, goal setting, thought control strategies, arousal management. The findings of the Univariate analysis of the mental skills one by one demonstrated that the majority of mental skills are different by the level of play except activation, Focusing and Refocusing. Also eight of them varied by the type of sport ball game. No differences were showed for Relaxation, Focusing and Refocusing. The interact effects illustrated significant main effects for Goal Setting, Self confidence, Commitment, Stress Reactions, Fear Control, Activation, Imagery and Mental Practice. After an

extensive review of the literature, Williams and Krane (2001) identified a number of psychological characteristics of highly successful athletes (Olympians), well-developed competition plans, well-developed coping strategies, and pre-competitive mental preparation plans. The quantitative and qualitative results collected with these Olympic champions paralleled, practically, the results of the present study. In another work, it was proved that psychological skills differentiate between successful and unsuccessful athletes. In general, elite performers have higher self-confidence, heightened concentration, can regulate arousal effectively, use

systematically goal setting and imagery, and have high levels of motivation and commitment (Gould et al., 2002). It was also established that elite athletes use more goal setting, imagery and activation than non-elite athletes (Thomas et al., 1999).

Despite significant advances and a growing knowledge base, mental skills training in sport must continue to evolve in socially significant ways. As discussed, mental training in sport must begin to address issues that arise with athletes and coaches due to their inclusion in a specific social-cultural context.

Highly skilled athletes use self-talk in a more planned and consistent manner than less skilled athletes, who tend to think reactively (Hardy et al., 2004; Hatzigeorgiadis et al., 2007; Perkos et al., 2002). Research concurs that successful elite athletes regularly use relaxation techniques to manage their physical energy (Durand-Bush and Salmela, 2002; Gould et al., 1993a, b).

Research with elite, collegiate, and adolescent athletes has confirmed that almost all athletes set goals, but most of them rate goals as only moderately effective in enhancing their performance (Burton et al., 1998; Weinberg et al., 2000).

This finding emphasizes the important point that goals by *themselves* do nothing to enhance athletes.

Overall, more successful elite athletes use imagery more extensively and more systematically and have better imagery skill than less successful athletes (Calmels et al., 2003; Cumming and Hall, 2002; Hall et al., 1990).

Conclusion

From the findings of the present study, it is concluded that mental skills change by level of practice and type of sport game in youth athletes.

This study can help all parties who are involved in youth sports ball games by determining psychological profiles of athletes in four ball team players, especially in the Tunisian elite and sub elite play level. The athletes need to have positive and good mental skills to achieve success.

The results of mental skills profiles of the players in this study are useful to enable coaches to choose players who are truly worthy, good, and have the thirst for success to bring up the name and reputation of the team. While the findings of this study extend previous elite versus sub-elite empiric research and several differences between types of sport are shown, a number of limitations should be considered.

The specific nature of the study prevents the current findings to generalize results. Specifically, the current sample does not contain female athletes. In addition, more evaluations are required to determinate the athlete

mental profile of each sport discipline.

In light of these limitations, several areas of future research are suggested. First, these findings should be replicated with youth participants representing female athletes.

Additionally, it is suggested that further research includes the investigation of longitudinally procedure to determine the mental profile needed to perform in each ball team sport.

Finally, it is recommended that further research should include more sports team discipline.

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Conflict of Interests

The author(s) have not declared any conflict of interests.

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