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## THE RELATIONSHIP BETWEEN MENTAL TOUGHNESS AND RESULTS OF THE EGYPTIAN FENCING TEAM AT THE 9<sup>TH</sup> ALL-AFRICA GAMES

HUSSIEN HAGAG<sup>1</sup>, MAHROUSA ALI<sup>1</sup>

### Abstract

*Purpose.* Although sports science is well recognized for the past 40 years, sport psychology is still considered as a new field. Sport psychology concerns with both psychological factors that influence participation and performance in sport and exercise as well as psychological effects derived from them. The aim of the study was to investigate the relationship between mental toughness and results of the Egyptian fencing team at the 9th All-Africa Games.

*Methods.* Participants were members of the Egyptian Fencing Federation who competed in the 9th All-Africa Games held in Algiers. These athletes were competing in (3) weapons: foil, epee, and saber events. The participants consisted of (22) fencers, (12) male and (10) female fencers. All of them participated in team competition, (18) fencers only participated in the individual competition.

*Results.* The results were observed in the area of mental toughness when medallist and non-medallists were analysed. The medallist displayed better self-confidence, better negative energy control and Visual-imagery control than the non-medallist. The results suggested that the athletes with greater mental toughness were more likely to be selected into the main team, to play in crucial competition. And significant relationships between the winning a medal and Self-confidence (.58), Visualization & Imagery (.67), Positive Energy Control (.54).

*Conclusions.* The mental toughness practice will improve the performance levels and the competition results in fencing.

*Key words:* Mental Toughness, Fencing, The 9th All-Africa Games

### Introduction

The idea of an All-Africa Games were conceived as far back as 1920 by Pierre de Coubertin, the founder of the Modern Olympics. This ideal met with opposition from the colonial powers, wary of the unifying aspect of sport among African people. Their independence was denied.

Attempts to host the games in Algiers (1925) and Alexandria (1928) failed, despite considerable preparations taken by the coordinators. Donations from the IOC's (International Olympic Committee) first African member, Greek-Born Egyptian sprinter Angelo Bolanaki, made it possible to erect a stadium, but the games failed and were set back for three decades.

In July 1965 the first All Africa Games were held in Brazzaville, Congo. The Games were granted official recognition by the IOC as being on par with other continental Games. Some 2500 athletes from 30 independent African States attended the event. Egypt became the first ever country to win the All African Games.

The All-Africa Games, sometimes called the African Games or Pan African Games, are a regional multi-sport event held every four years, organized by the Association of National Olympic Committees of Africa (ANOCA). The competing nations must all be from the African continent.

The 9th All-Africa Games took place on July

11-23 2007 in Algiers, the capital city of Algeria. Algiers is the first city to hold All-Africa Games for a second time. The 1978 All-Africa Games were held there. Besides Algeria, only Nigeria has hosted the event twice, but with different host cities. The fencing game is one of 24 sports were completed.

Athletes have indicated that sports are physically as well as mentally demanding. The sport of fencing is no exception. Some of the greatest fencers have alluded to the mental demands that are placed on a fencer. Nadi, 1994 stated that a fencer's weapon is simply an extension of a fencer's brain. Furthermore, Csaba Elthes went as far as to compare fencing to the art of chess because of the great mental demands of the sport (Evangelista, 1995). Some athletes have stated that mental preparation is a vital part of training for competition and competition itself. Researchers have sought to determine the validity of these statements.

Sport psychologists (researchers and practitioners), coaches, sports commentators, sports fans, and athletes acknowledge the importance of mental toughness in sporting performance (Goldberg, 1998; Hodge, 1994; Tunney, 1987; Williams, 1988). In early work on the issue, Loehr (1982, 1986) emphasized that athletes and coaches felt that at least fifty percent of success is due to psychological factors that reflect mental toughness. Similarly, Gould, et al. (1987) emphasized that coaches feel that mental toughness is important in achieving success, while

<sup>1</sup> Faculty of physical education, Alexandria University, Egypt  
CORRESPONDENCE AND REPRINT REQUESTS: Email: amr297@yahoo.com

Norris (1999) has emphasized the importance of mental toughness in developing champion athletes.

Mental toughness refers to a player's psychological skills that are advantageous to performance. Hodge, et al. (1999).

Mental toughness is often referred to in everyday conversations as an elusive quality possessed by only a few elite sportspeople. On the contrary, it is the view of people working in sport psychology that psychological skills can be taught.

Mental toughness is many things and rather difficult to explain. Its qualities are sacrifice and self-denial. Also, most importantly, it is combined with a perfectly disciplined will that refuses to give in. It's a state of mind-you could call it character in action. Vince Lombardi

Jones, et al. (2002) attempt a definition of mental toughness, that centres around being, determined resilience, staying in control and remaining focused in the face of pressure

Generally, cope better than your opponents with the many demands (competition, training, lifestyle) that sport places on a performer.

Specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure.

While psychological skills they are often talked about, the psychological methods used to enhance these skills are not as well known. Often, players have developed some of these skills through experience and also through trial and error. Over time they tried different techniques and adapted those that worked and modified those that did not.

Practical sport psychology is about developing mental toughness by teaching and practicing proven methods with players and coaches. Sport psychology has several goals for teaching these mental skills, including enhancing performance and increasing enjoyment. Some of the more well-known methods for enhancing mental skills for sport include goal setting, self-talk and imagery. Elements of a mental toughness program can be as simple as developing a set routine of physical and mental preparation designed to get a player ready (physically and mentally) before a game and when returning to the field after halftime. This routine could involve going over key tasks as they will need to be performed on the field both in your mind Collins & Hale (2002).

Most coaches and athletes acknowledge that anything between forty and ninety percent of sporting success is due to mental factors (Williams, Krane, 2001). In fact, only mental readiness was seen as

significant for Olympic success (Orlick, Partington, 1998).

The researcher observed that, Several studies have reported common perceptions by competitors such as loss of fear, total immersion in the activity, narrow focus of attention, effortless performance and being in control (Ravizza, 1997; Loehr, 1984; Garfield, Bennett, 1984).

And There has been a multitude of books written about the sport of fencing, but few touch on the mental side of the sport. Nadi, 1994 was one of the greatest fencers to participate in the sport. His book, *On Fencing* (Nadi, 1994), discussed the different physical aspects of fencing (i.e., attacks and parries), but did not discuss any specifics on mental training or techniques that could be used to enhance one's performance. The book was published in the middle of this century, when there was not a significant amount of information about the psychological aspects of sport. Although he did not state that mental training was necessary to compete in the sport, he did suggest that fencing is a mentally demanding sport. In one section of his book, Nadi, 1994 stated that: Above everything else, fencing develops mental agility. Indeed, it is one of the few human activities in which, most of the time, lightning conception and execution are simultaneous. The fencer's blade becomes the extension of his fingers..., but the often expressed thought that it is also an extension of the mind is clearly an understatement. Nadi emphatically implied that there is a great mental demand placed upon a fencer within a bout. According to A. Nadi, 1994, mental quickness is a must to compete in this sport It would appear that many people agree that mental quickness is required for an individual to succeed in fencing. Therefore, it is important that fencers learn psychological skills to possibly help build a mental edge in competition.

The purposes of this study were to determined the relationship between mental toughness and results of Egyptian team for fencing at The 9th All-Africa games in Algiers

## Method

### Participants

Participants were members of the Egyptian Fencing federation who competed in the 9th All-Africa games held in Algiers, These athletes were competing in (3)weapons foil, epee, and saber events. The participants consisted of (22) fencers ,(12) male and (10) female fencers.All of them participated in team competition , (18) fencers only participated in the individual competition. Table 1 contains classifications the sample.

**Table (1) classifications the sample (individual competition).**

V.	Foil	Epee	Sabre	Total
M.	3	3	3	9
F.	3	3	3	9
T.	6	6	6	18

### Materials

In 1986 J. Loehr developed the Psychological Performance Inventory Questionnaire with its seven distinct psychological sub concepts

#### Psychological Performance Inventory (PPI)

The PPI is a 42-item self-report instrument designed to measure factors that reflect mental toughness. All questions in the PPI were answered using a 6-point Likert type scale, ranging from '1' (False) to '6' (True). Six items subsume each of the following seven factors:

- Self-confidence (e.g., "I believe in myself as a player"): Positive cognitions, feelings and images about what one can do and achieve.
- Negative energy (e.g., "I get angry and frustrated during competition"): The ability to control negative emotions such as fear, anger, frustration and resentment.
- Attention control (e.g., "I can clear interfering emotions quickly and regain focus"): The ability to sustain a continuous focus on the task at hand. The ability to 'tune in' to what's important, and 'tune out' to what is not.
- Visual and imagery control (e.g., "Before the competition, I picture myself performing perfectly"): The ability to think in positive and supportive images and the ability to control the flow of mental images in a positive and constructive direction.

- Motivation level (e.g., "I am highly motivated to play my best"): The willingness to persevere with training schedules and to endure the pain, discomfort and self-sacrifice associated with forward progress.
- Positive energy (e.g., "I can keep strong positive emotion flowing during competition"): The ability to become energized through fun, joy, determination, positivity, and team spirit.
- Attitude control (e.g., "I am a positive thinker during competition"): Control over one's habits of thought reflecting the extent to which one's personal attitudes are consistent with those of successful high-level performances.

#### Research Procedures :

The researcher was translated and prepared (validity & reliability) to the Psychological Performance Inventory (PPI), after that the researcher distributed the questioner in the team camp (Olympic center ) before traveling and participating in the All-Africa Games , in this period (25/6 even 2/7/2007) , the researcher was considered Winning a medal in the intervarsity competition for the purpose of this study and get the results from the Egyptian fencing federation , table (2) showed that :

**Table (2) results of Egyptian players for fencing at The 9th All-Africa games in Algiers**

Variables	foil	epee	saber	Total	
M.	Gold	-	1	-	1
	Silver	1	1	-	2
	Bronze	1	-	2	3
	Loser	1	1	1	3
F.	Gold	-	1	-	1
	Silver	-	-	-	-
	Bronze	2	-	1	3
	Loser	1	2	2	6
T.	Gold	-	2	-	2
	Silver	1	1	-	2
	Bronze	3	-	3	6
	Loser	2	3	3	8

\* This result of individual competition only not teams

### Data analysis

Data analysis used SPSS version 12.0.1. All data were examined for missing values and univariate outliers. Histogram, q-q plots, scatter plot and skewness were conducted as recommended by Tabachnick and Fidell (2001). One missing values and outliers were found, which reflected that the assumptions of normality, homoscedasticity and linearity were met. Descriptive statistics were computed for all measures assessed. Inter-correlations were computed among all measures. To evaluate the internal consistency of TEOSQ and PPI, Cronbach's alpha coefficients also were examined. Although, the sample size was a limitation (due to the fixed number of participants for the specific competition),. The variables were standardized using z-scores. The distribution of clustering variables was tested for

normality and outliers. Chi-square ( $\chi^2$ ) test was adopted to identify whether any significant difference existed between the medallist and non-medallist for mental toughness factors .

### Results

The results were observed in the area of mental toughness when medallist and non medallists were analysed. The medallist displayed better self-confidence , better negative energy control and Visual - imagery control than the non medallist., the results suggested that the athletes with greater mental toughness were more likely to be selected into main team, to play in crucial competition , And Significant relationships between the Winning a medal and Self-confidence (. 58) , Visualization & Imagery(. 67) , Positive Energy Control (. 54)

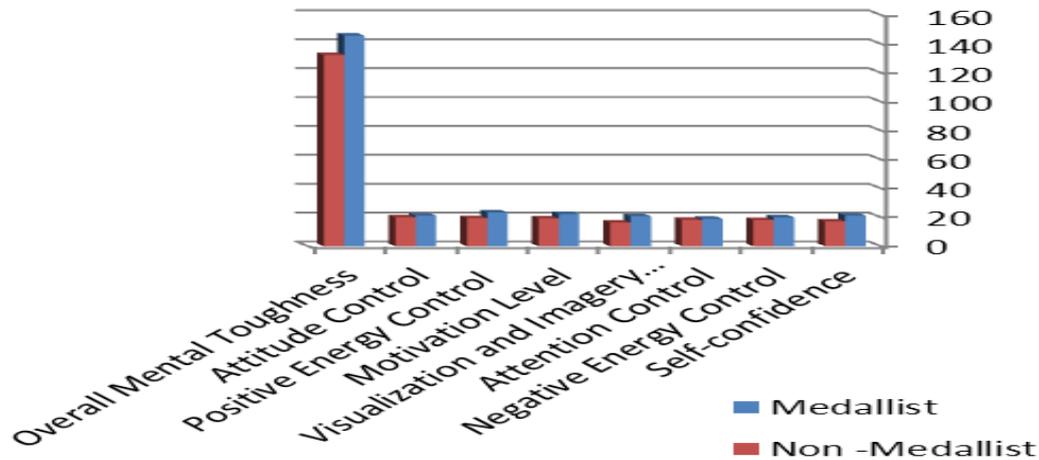
**Table (3) Mean , SD and T test between Winning a medal and Non -Winning a medal fencer**

Mental toughness (Fundamental areas)	Medallist		Non -medallist		T TEST
	M	SD	M	SD	
Self-confidence	21.25	3.39	17.11	2.56	Sign.
Negative Energy Control	19.96	1.17	18.00	2.77	No Sign.
Attention Control	19.00	1.54	18.11	3.03	No Sign.
Visualization and Imagery Control	20.75	3.31	16.22	2.72	Sign.
Motivation Level	22.25	3.60	19.11	2.85	No Sign.
Positive Energy Control	23.33	2.74	19.33	2.45	Sign.
Attitude Control	21.17	1.99	19.89	2.21	No Sign.
Overall Mental Toughness	145.67	11.63	132.22	10.10	Sign.

**Table (3) Inter-correlations between the winning a medal and mental toughness .**

	1	2	3	4	5	6	7	8
1. Winning a medal								
2. Self-confidence	.58 **	.05						
3. Negative Energy Control	.25	.60 **	.36 *					
4. Attention Control	.12	.28	.03	.31				
5. Visualization & Imagery	.67 **	.28	.40 *	.27	.47 **			
6. Motivation Level	.16	.27	.48 **	.41 **	.16	.63 **		
7. Positive Energy Control	.54 *	.05	.49 **	.20	.09	.56 **	.62 **	
8. Attitude Control	.36	.07		.46 **	-.09			.56 **

\* $p < 0.05$ ; \*\*  $p < 0.01$ .



**FIG 1 explain the defrence between Winning a medal and Non -Winning a medal fencer**

### Discussion

Organised sports psychological skills training programs have been shown to be effective in enhancing performance (Cox, 1994). In fact, Rushall (1989) stated that sports psychology was the key to sporting excellence. Therefore, through the implementation of the Psychology Performance Inventory, which highlights the attributes and constructs most frequently employed by players, the information obtained would be specific to the unique psychological demands of fencing players. As well as the demands of the game in general, results may indicate unique psychological requirements for each specific position in rugby union. A greater understanding of the psychological needs and demands of players would offer coaches the opportunity to provide better support and advice to individual athletes. This ought, therefore, to enhance the players' overall development.

It should be noted that when assessing Mental Toughness using the Psychological Performance Inventory, two assumptions are made. Firstly, success of athletes is achieved by common qualities, not because of other characteristics (quantity of practice, physical suitability, social support, etc.). Second, those elite athletes perform psychological skills better than other sports participants (Murphy, Tammen, 1998).

According to (Bull, et al. 1996) There are also certain attributes that make some teams mentally tougher than other teams. For example, some teams have a high ability to work well together under pressure. Team work is often referred to in sport psychology as the task cohesion of a group. There is also another dimension to cohesion - social cohesion - or, how well players get on together in social situations. Task cohesion, however, is often the primary concern of coaches as it relates more directly to on-field performance. There are several ways that coaches can build task cohesion. For example, doing tasks that require good communication and understanding among

players on the field is one way to help facilitate task cohesion. These team activities not only help the team, they can also benefit an individual player's confidence and motivation.

**Conclusions.** It should also be highlighted that self-report psychological inventories have been criticized. Privette, (1983), suggested that test items are open to misinterpretation and that they were susceptible to social desirability response bias. Williams, (1988) questioned whether it was the thoughts of the participant or the researcher that were coming through in the responses produced by the inventories.

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