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Original article

THE EFFECT OF MENTAL TOUGHNESS TRAINING ON ELITE ATHLETE SELF-CONCEPT AND RECORD LEVEL OF 50M CRAWL SWIMMING FOR SWIMMERS

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Abstract

Aim. Mental toughness as a set of values, approaches, perceptions and inherent emotions acquired through experience with sports in general or a specific sport in particular as a procedure adopted by the individual to examine and respond to conflicts, challenges and pressures. The aim of study is to reveal effectiveness of mental toughness training on Elite Athlete Self-Concept and record level of 50m crawl swimming for swimmers.

Methods. Fifty swimmers participated in this study (mean +/- SD age, 23 +/- 4.1 years), divided into (2) group (experimental group -25 swimmers) and (control group -25 swimmers). The experimental group participated in the mental toughness program to three times per week for (3) months. A swimming specific adaptation of the Elite Athlete Self-Description Questionnaire (EASDQ) instrument was designed to measure six physical self-concept factors: Skills; Body; Physiological Competence (aerobic); Physiological Competence (anaerobic); Mental Competence; and Overall Performance. The control group participated only in the traditional program only; the adapted questionnaire will be referred to as the Elite Swimmers Self-Description Questionnaire (ESSDQ). In addition, all participants completed Psychological Performance Inventory (PPI), which used to measure mental toughness. This instrument was developed following qualitative work investigating elite athletes, coaches and sport psychologists' perceptions and understanding of mental toughness in applied and theoretical contexts. Responses are made for the 48-items on a 5-point Likert scale ranging from (1) strongly disagree; to (5) strongly agree. The tests was measured before and after the mental toughness program.

Results. The results indicated that, improvement significantly for factors of Elite Athlete Self-Description Questionnaire (EASDQ) instrument after the mental toughness program, and the researcher founded relationship between Elite Athlete Self-Description Questionnaire (EASDQ) instruments And Psychological Performance Inventory (PPI), no improvement in record level of 50m crawl swimming.

Conclusion. These data show that mental toughness program which suggestion from the researcher was affectedness on Elite Swimmers Self-Description, but failed to improve record level of 50m crawl swimming.

Keywords: EASDQ, Mental Toughness, Swimmers

Introduction

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, Hodge, Perterson, and Petlichoff (1987) emphasized that coaches feel that mental toughness is important in achieving success, while Norris (1999) has emphasized the importance of mental toughness in developing champion athletes.

Mental toughness is having the natural or developed psychological edge that enables you to:

- Generally cope better than your opponents with the many demands (e.g., competition, training, lifestyle) that are placed on you as a performer
- Specifically, to be more consistent and better than your opponents in remaining determined, focused, confident, resilient, and in control under pressure (Jones et al, 2002)

Mental toughness refers to a player's psychological skills that are advantageous to performance. However, what are these skills? One way to begin thinking about psychological skills is to think of a player that you admire for their on-field ability. Ask yourself - "What mental characteristics make that player stand out?" For example, some attributes might be a player's concentration under pressure, motivation to train/perform or confidence.

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During the past decade, there has been a resurgence of interest in the self that has focused on the study of individual differences as well as developmental change. Much of this work can be subsumed under the rubric of the "self-concept," where there has been a proliferation of theoretical and methodological activity, leading to a growing body of empirical evidence on the self (Harter, 1990).

The degree of interest has been stimulated by the important role of self-concept in the explanation of human well-being, and its initiator and mediator role in human behaviour (Fox, 1990; Marsh, 1993). Research has shown that self-concept is associated with many positive achievements and social behaviours including leadership ability, satisfaction, decreased anxiety, and improved academic and physical performance (Fox, 1992).

Self-concept is also widely presumed to make a causal difference in addressing some of the key social issues of our time. Attesting to this pervasive significance of the self-construct and the outcomes that are mediated by it, Nathaniel Branden (1994) contends: I cannot think of a single psychological problem—from anxiety to depression, to underachievement at school or at work, to fear of intimacy, happiness or success, to alcohol or drug abuse, to spouse battering or child molestation, to co-dependency and sexual disorders, to passivity and chronic aimlessness, to suicide and crimes of violence—that is not traceable, at least in part, to the problem of deficient self-esteem (Branden, 1994). Hence positive self-belief is valued as a hot variable that makes good things happen, facilitating the realization of full human potential in a range of settings. A theme emphasized here is that the most powerful effects of self-concept are based on specific components of self-concept most logically related to specific outcomes considered in a particular study (a multidimensional perspective) rather than the global component of self-concept represented in global measures of self-esteem (a unidimensional perspective).

Clark and Herbert (2003) indicated that, the elite swimmer is expected to perform at a level commensurate to their status of "elite".

As their swimming times decrease and performances improve the athlete often accepts accompanying pressure that may coincide with these improvements. A moderating variable in the perception of this pressure is one's self-concept. The work of Shavelson and Marsh in particular has demonstrated the link between self-concept and performance in a sporting as well as academic

setting. Coaches and school administrators alike have struggled to explain poor performance in their charges, when many objective and subjective signs indicate a higher level potential. In the sporting example, one possible explanation is that the athlete's opinion of themselves, influenced by internal and external comparative influences, may hinder their ability to perform up to their physical, mental and technical potential. One possible cause of this negative perception of self-concept is frame of reference effects. An internal and or external comparative evaluation may lead individuals to an overly critical and often detrimental self-appraisal. The BFLPE and Internal/External models are well-established in the academic setting and appear to have a strong influence over sporting self-perceptions, although these models have not been empirically well tested in that population. The aim of study is to reveal effectiveness of mental toughness training on Elite Athlete Self-Concept and record level of 50m crawl swimming for swimmers

Methods

Participants

Fiftyswimmers participated in this study (mean +/- SD age, 23 +/- 4.1 years), divided into (2) group (experimental group -25 swimmers) and (control group -25 swimmers) from Egypt , the experimental group participated in the mental toughness program to 3 times per week for (3) months

Research Procedures:

The researcher was translated and prepared (validity & reliability) to the Psychological Performance Inventory (PPI), Elite Swimmer Self-Description Questionnaire

Instrumentation

In 1986,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 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.

Elite Swimmer Self-Description
 Questionnaire

The self-concept of elite athletes has been defined by Marsh, Hey, Johnson, and Perry (1997). Clark and Herbert (2003) were modified it to swimmers.

In their description of the elite athlete self-concept, they include six components, namely self-perceptions about the suitability of their:

1. Skills
2. Body
3. Aerobic system
4. Anaerobic system
5. Mental capacity
6. Overall ability to perform.

Results

Table (1) Mean, SD and T test between pretest and posttest for the experimental group in Psychological Performance Inventory (PPI)

Mental toughness	Before		After		T TEST
	M	SD	M	SD	
Self-confidence	17.11	2.56	21.75	2.77	Sign.
Negative Energy Control	18.00	2.77	21.76	1.91	Sign.
Attention Control	18.11	3.03	18.25	1.34	No Sign.
Visualization and Imagery Control	16.22	2.72	20.34	1.65	Sign.
Motivational Level	19.11	2.85	22.91	1.09	Sign.
Positive Energy Control	19.33	2.45	23.86	1.42	Sign.
Attitude Control	19.89	2.21	20.05	1.33	No Sign.

A closer look at the mental capacity factor reveals that it is in fact very similar to the mental self-concept uncovered in this investigation.

Limitation of Mental Toughness Program

- #1 Keep your Swimming Fun
 - #2 Have Clear Goals.
 - #3 Make Your Practices Important
 - #4 Focus on Your Race One Stroke at a Time
 - #5 Concentrate = Recognize (Step #1) = Bring Yourself-Back (Step #2)
 - #6 Learn to Quickly Let go of your Mistakes and failures
 - #7 Stay within yourself ~ Swim Your Own Race ù Stay Mentally in the Here"
 - #8 Control your Eyes and Ears for Championship Meet Performances
 - #9 See what you want to have happen, not - what you're afraid will happen
 - #10 Let it happen=speed
 - #11 Swim with No-Mind to go fast
 - #12 GIGO - you swim the way you think
 - #13 be positive - nothing good comes from negativity
 - #14 Reframe adversity
 - #15 Act as if - if you- want to become a winner, first you have to learn to act like one.
 - #16 Learn to be your own best fan
 - #17 you are not your races
 - #18 Learn to relax
- Statistical analysis used

Confirmatory Factor Analysis was conducted on the data to determine the goodness of fit between the EASDQ factors and the responses on the PPI factors. An examination of the relationships between the dependent measures was conducted with Multilevel Structural Equation Modelling. , the researcher used add:

- MEAN
- T test
- Person correlation



Overall Mental Toughness	132.22	10.10	142.65	9.67	Sign.
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Seen from table (1) statistically significant differences between the two measurements pre and post experimental group at the 0.05 level in Psychological Performance Inventory (PPI) except Attention Control and Attitude Control.

Table (2) Mean, SD and T test between pretest and posttest for the experimental group in Elite Swimmer Self-Description

Mental toughness	Before		After		T TEST
	M	SD	M	SD	
Skills	18.23	1.98	18.88	2.03	No Sign.
Body	17.76	2.08	18.32	1.99	No Sign.
Aerobic system	17.07	2.11	17.75	2.07	No Sign.
Anaerobic system	18.45	1.96	21.76	1.12	Sign.
Mental capacity	16.74	1.64	20.87	1.32	Sign.
Overall ability to perform	20.55	1.53	23.55	1.22	Sign.
Overall Elite Swimmer Self-Description	109.65	10.10	142.65	9.67	Sign.

Seen from table (2) statistically significant differences between the two measurements post-experimental group at the 0.05 level in Elite Swimmer Self-Description, except skills, body and aerobic system.

Table (3) Mean, SD and T test between pretest and posttest for the experimental group in Record level of 50m crawl swimming

Mental toughness	Before		After		T TEST
	M	SD	M	SD	
Record level of 50m crawl swimming	32.65	0.10	32.41	0.33	No Sign.

Seen from table (3) no statistically significant differences between the two measurements pre and post-experimental group at the 0.05 level in Record level of 50m crawl swimming.

Discussion

The results indicated that, improvement significantly for factors of Elite Athlete Self-Description Questionnaire (EASDQ) instrument after the mental toughness program, and the researcher founded relationship between Elite Athlete Self-Description Questionnaire (EASDQ) instruments And Psychological Performance Inventory (PPI), no improvement in performance level

The researcher said that, the mental toughness training was affected and positivity on factors of Elite Athlete Self-Description Questionnaire (EASDQ) instrument. although no significant in performance level but the researcher founded improvement in performance level in swimming, so that the researcher indicated that if the mental toughness was prepared good, the factors of Elite Athlete Self-Description Questionnaire and performance level will be improvement.

Many research studies have pointed to the multiplicity and the different factors that can drive the individual sports practice and should be on the trainer to identify these factors so that it can guide the individual to help him build motivation towards

sports practice. Where the motivation as an internal engine is activates behaviour and is in turn responsible for the continuity of his destination and identified.

And are affected by levels of motivation among athletes as a result of certain motives and this effect does not have the same growth, but vary from one athlete to another, some of them respond better when he heard the instructions of coach them or inciting them to make the effort. Giving rewards or change the player's positions in the game plan or entrust Sports responsibly certain, or directing his punishment or warning. all methods can be used with athletes so it is best to identify the character and nature of the sport. so that we can choose the appropriate means of motivation to be used when needed, without resort to put all members of the group under the same treatment.

In the opinion of the Araby (1996), that the level of performance of the most important factors you should take care of it when developing mental skills that varies the level of performance in accordance with the classification of the players in the light of experience. and number of years of



practice programs also stresses the importance of convergence in the level of performance to achieve the desired interaction.

Osama (1997) of the game, which is characterized by an increase of emotion, appears in less than the true level of his abilities.

Beth indicates, (2006) to the importance of a goal of the swimmer it is the basis when developing a training program myself because goal setting is immediately followed by work to achieve this goal motivation and self-confidence and determination to achieve, gymnast which aims to improve his fitness must training seriously to achieve this goal

He adds that the goal to put the swimmers strategy can be developed through training and mental toughness

Explains Arab Shimon (1996) to relax reducing the impact of responding to pressure nervous and assistance to reach the optimal level of tension and prevent the accumulation of stress by working on access to the low level of stress-base and access to the degree of deep relaxation where tension level below the grassroots level .

And refers Beth Athanas, (2006) to that negative thought important to the player Fencing psychological traits with the situation in mind that the player fencing will not be able to distance himself especially negative thoughts that his mind during the competition but he can make them not overcome it and affect the performance

And refers Lowther, (2002) to positive self-talk that is associated with a positive outcome of the games in fencing

He adds that self-talk clearly reflects the level of self-efficacy, which means I can or I cannot Performance

The researcher believes that self-talk of swimming where the requirements of self-talk is a vital dimension in the areas of training and competition at all levels, and is the athlete's ability to recruit positive self-talk of the crucial factors influencing directly on the performance of various sports skills.

And sustains that what the Arab Shimon (1996) that is associated with the occurrence of sports achievements existence of psychic energy player in the optimal area.

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