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Original article

THE IMPACT OF GREEN EXERCISE ON TEST OF PERFORMANCE STRATEGIES, PHYSICAL VARIABLES AND COUNTER-TIME PERFORMANCE FOR EGYPTIAN EPEE FENCERS

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Abstract

Purpose. Green exercise refers to physical exercise undertaken in natural environments. This study aimed to investigate the impact of green exercise on Test of Performance Strategies (TOPS), physical variables and counter-time performance for Egyptian epee fencers.

Methods. Twenty professional Epee fencers (mean \pm SD age, 21.2 ± 2.05 years. Height, 179.64 ± 7.31 cm. Weight, 77.22 ± 6.77 kg). Training experience 10.12 ± 2.11 years), all participations divided into equally to (2) groups (experimental groups -10 Epee fencers) and (control group -10 Epee fencers) from the Egyptian fencing clubs, the experimental group performed the green exercises (outdoor) which contain (warm up, stretch, and body weight exercises) for (8) weeks, and the control group practiced the traditional training only into the hall (indoor). Only the part of warm up is the different between the two groups. The data collected from counter-time performance test by using off camera 100 frames / second). And Physical abilities tests (flexibility, agility) before and after the programs for the two groups.

Results. Significant changes between posttests scores for the control and experimental groups ($P \leq 0.05$) in physical tests and counter time performance, (TOPS) variables in training Goal setting, Activation, Attentional control for experimental group, and (TOPS) in competition Goal setting, Activation, Negative thinking. However no significant differences were shown between other variables ($P \geq 0.05$).

Conclusions. Under the condition of our study, green exercise intervention for eight weeks has a beneficial effect on Test of Performance Strategies (TOPS), physical variables and counter-time performance for Egyptian epee fencers.

Keywords: TOPS, Green Exercise, Epee Fencing

Introduction

Since the 19th century, the natural environment has been considered important for ensuring a greater level of physical and mental health. Theories suggest that, due to our hunter-gatherer past, present day humans have an innate affiliation with nature and living things. Consequentially, nature is conducive to involuntary attention and does not require our directed attention, allowing recovery from mental fatigue and facilitating attention restoration. In the past decade, epidemiological studies have identified a positive correlation between improved health outcomes and amount of surrounding green space. Subsequently, the diverse health benefits that maybe engendered by nature have become a focal point for research. (Daniel, et al. 2013)

Both physical activity and exposure to nature are known separately to have positive effects on physical and mental health.

Green exercise refers to physical exercise undertaken in natural environments (Mackay, Neill, 2010; Pretty, et al. 2005). Physical exercise is well known to provide physical and psychological health benefits. There is also good evidence that viewing, being in, and interacting with natural environments has positive effects, reducing stress and increasing the ability to cope with stress, reducing

mental fatigue and improving concentration and cognitive function (Kaplan, Kaplan, 1989; Ulrich, 1981). The concept of Green exercise has therefore grown out of well-established areas such as the attention restoration theory within environmental which have tended to focus on the psychological and physical effects of viewing nature and well-recognized work about the psychological benefits of physical exercise.

The potential role of green exercise in physical and mental health (e.g., due to nature-deficit disorder) attracted increasing attention from the early twenty-first century, particularly through the research work of Jules Pretty and Jo Barton at the University of Essex (Pretty, et al. 2005). And several funded programs. Research has involved participants from many different cohorts including adults, young people and vulnerable groups such as those with mental illness.

Fencing is a very old sport with well-developed pedagogies for techniques and tactics. Contemporary fencers reap the rewards of this history and combine it with the advantages of modern science, training methods, and sport theory. (Ibrahim, 1984).

The fencing of sports bout singles, which depend on different capacities' physical skills and mental In preparation methods player we find that the fencing room has its origins and its rules and has a

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philosophy and trends used by various methods, so as to develop the capacity to play this sport, where they differ in performance requirements for the rest of the kinds of sports. (Paul, 2008)

However, progress and rapid development of the sport has become closer to the high levels or overcome difficult unless the availability of the player many aspects of the physical and technical skills, psychological and mental, is the mental side of the important aspects where some experts have known this sport as we continue between the two minds the best in this sport depends on his mental capabilities such as perception, imagination, perception and sense of complex reaction, and all of these capabilities serve the tactical side in the player's performance (Abdel-Maksoud, Sanaa, 1993).

Epee fencing looks the most, and is most tactically similar, to true dueling. When watching epee competition, you see a much greater emphasis on clean blade work and keeping proper distance with footwork. Since even a tap on the wrist or the toe of the shoe with the point of the epee can score, fencers are slower to engage and don't rush in headlong.

With the athletes staying further apart to avoid touches, it is much easier to see the beauty of their blade work. Epee is by far the most mentally involved weapon of the three. Opponents seem engaged in a dance, their blades slithering like snakes, as they look for their moment to perform a clever attack. Unlike the aggressive and messy in-fighting one sees in foil fencing, epee displays greater use of beautifully executed deep lunges. Although the rule of right of way does influence epee fencers, there is more emphasis on avoiding being hit than with foil or saber. A deep, low lunge that reaches from outside blade crossing distance can be quite a surprise to an unwary opponent.

The fencer often combined a low, long lunge with an upward circular beat that would flow into a flick to the opponent's lead foot or foreleg. There is a great deal of artful trickery in epee fencing.

According to (Borysiuk, Cynarski, 2010) beside the motorial abilities and energetic predisposition, the psychomotorcapacities (different types of speed reaction) and psychological features (temperament and personality dimensions) play the key role in fencing and other similar sports. According to specialists the most important in the whole training process are :

The ability of transferring training skills, habits and features to the tournament combats; versatility, regarded as the combination of technique, various reactions -coordinative predispositions, motorial aptitudes, tactics as well as psychic features and processes,

The ability of controlling during the competition mental processes and emotional states, stress resistance, adjustability to different adversaries.

(Mohamed, 1987) points out the importance of setting tactical for sports activities characterized by struggle and compete against a competitor (face to face) such as fence individual such as boxing,

wrestling and fencing, where these activities require the presence of a competitor positive in the face of the player immediately tries with all his strength frustrate the goals that intends to rival achieved and, as others suggest that competition in such sports activities is only a competition between the yen, thinking, thinking player in the face of rival thinking.

Actual actions are ultimate, specific actions intended to ward off a hit or to score a hit, directly or indirectly. From the point of view of the most elementary tactical application, the actual actions can be divided into: offensive actions, defensive actions and counter-offensive (offensive-defensive, counter-attacks)

An essential part of research in Sport Psychology is the assessment of athletes' psychological skills (25). Although previous research focused primarily on the differences in personality characteristics between successful and unsuccessful athletes, recent studies examine those differences in terms of the psychological skills which athletes have practiced and used. (Vealey, 1994)

Actually refers to the attention of coaches and all the physical aspects and personnel skills and tactical without any consideration of psychological skills, despite the fact that athletic performance in general depends on what the player's potential and physical skill and tactical and psychological skills as well.

Therefore, this study aimed to investigate the impact of green exercise on Test of Performance Strategies (TOPS), physical variables and counter-time performance for Egyptian epee fencers.

Material and Methods

Subjects:

Twenty professional Epee fencers (mean \pm SD age, 21.2 ± 2.05 years. High, 179.64 ± 7.31 cm. Weight, 77.22 ± 6.77 kg). Training experience 10.12 ± 2.11 years), all participations divided into equally to (2) groups (experimental groups -10Epee fencers) and (control group -10Epee fencers) from the Egyptian fencing clubs, the experimental group performed the green exercises (outdoor) which contain (warm up, stretch, and body weight exercises)for (8) weeks, and the control group practiced the traditional training only into the hall (indoor). Only the part of warm up is the different between the two groups .The data collected from counter-time performance test by using off camera 100 frames / second). And Physical abilities tests (flexibility,agility) before and after the programs for the two groups. All participants were fully informed about the aims of the study, the procedures and the training, and gave their voluntary consent before participation. The experimental procedures were in agreement with the ethical human experimentation.

Procedures:

Age, height, weight, body mass index and Training experience were recorded. Height was assessed with a standard tape measure on a wall; weight was measured with household scales.

Measurement instrument.

The 64-item Test of Performance Strategies is a self-report instrument designed to measure an athlete's use of psychological skills and strategies during competition and practice (Thomas et al., 1999). Exploratory factor analysis has previously indicated an 8-factor solution for competition items and a slightly different 8-factor solution for practice items. Seven factors are common to both competition and practice contexts, whereas negative thinking is only included in the competition context and attention control only in the practice context. Each subscale has four items. Items were rated on a 5-point scale anchored by 1 (never) to 5 (always). Scores for each subscale were summed and divided by four; resulting in overall factor scores that could range from 1 - 5.

Sit and Reach Flexibility Test

The sit and reach test is a common measure of flexibility, and specifically measures the flexibility of the lower back and hamstring muscles. This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for a one-two seconds while the distance is recorded. Make sure there are no jerky movements. The score is recorded to the nearest centimeter or half inch as the distance reached by the hand. Some test versions use the level of the feet as the zero mark, while others have the zero mark 9 inches before the feet. There is also the modified sit and reach test which adjusts the zero mark depending on the arm and leg length of the subject. The table below gives you a general guide for expected scores (in cm and inches) for adults using zero at the level of the feet (otherwise add 23cm or nine inches).

Agility Shuttle Run Test

Results

Table 1. Age, anthropometric characteristics and training experience of the two groups (Mean ± SD)

Group	N	Age [years]	Weight [kg]	Height [cm]	Training experience
Experimental	10	21.20 ± 1.6	80 ± 3.9	182 ± 4.1	11.27 ± 2.5
Control	10	20.11 ± 1.9	79 ± 3.1	178 ± 5.2	10.06 ± 2.3

Table 1 shows the age and anthropometric characteristics of the subjects. There were no significant differences were observed in the anthropometric characteristics and Training experience in the two different groups.

Table 2. Mean ±SD and T test in test of performance strategies (TOPS) for the control and experimental groups

Variables	Control			Experimental			T between two groups
	pre	post	Sign	pre	post	Sign	
(TOPS) in training							

This test describes the procedure as used in the President's Challenge Fitness Awards. The variations listed below give other ways to also perform this test. This test requires the person to run back and forth between two parallel lines as fast as possible. Set up two lines of cones 30 feet apart or use line markings, and place two blocks of wood or a similar object behind one of the lines. Starting at the line opposite the blocks, on the signal "Ready? Go!" the participant runs to the other line, picks up a block and returns to place it behind the starting line, then returns to pick up the second block, then runs with it back across the line.

Terminology

Counter-time

An attack that responds to the opponent's counter-attack, typically a riposte following the parry of the counter-attack. (Nadi, 1996)

Tempo in fencing:

Tempo is a word that will take many meanings. It is the amount of time it takes one fencer to do one action, which is the definition used when determining right-of-way. It can also be used to describe the feeling of the bout, for example: fast, slow, even, etc. The Tempo (practiced by playing the "Bladeless distance game") is something that takes many parts. There is the tempo of the bout as well as the tempo of the fencer's footwork. But what is nearly indescribable is what happens when a fencer attacks "with the tempo". The fencer is truly attacking into preparation- not the beginnings of a compound attack, but true preparation- catching the opponent off guard, too busy still planning or simply not doing anything at all. Furthermore, this form of attack is so smooth and unexpected; the opponent quite literally doesn't know what hit him. (Evangelista, 1996).

Statistical Analysis

All statistical analyses were calculated by the SPSS.V.16 (Statistical Package for the Social Sciences). The results are reported as means and standard deviations (SD). T Test was used to compare group means in variance analysis results that were found statistically significant. Differences in means were considered if p, 0.05

Goal setting	14.99±2.62	15.02±2.37	Not Sign	15.02±2.13	17.86±1.69	Sign	Sign
Self-talk	12.25 ±2.37	12.62 ± 0.45	Not Sign	12.32±2.55	12.65±2.54	Not Sign	Not Sign
Relaxation	10.26 ±2.57	11.29 ± 3.99	Not Sign	10.11±1.98	10.86 ±2.11	Not Sign	Not Sign
Automatically	13.34 ±2.91	13.63 ± 3.52	Not Sign	13.67±1.87	13.74 ±2.72	Not Sign	Not Sign
Activation	13.11 ±2.34	13.56 ±2.61	Not Sign	13.27±2.06	15.90 ±2.15	Sign	Sign
Emotional control	14.55±3.21	4.89 ±2.33	Not Sign	14.09±2.57	14.34 ±2.21	Not Sign	Not Sign
Imagery	10.98± 1.17	11.11 ±1.66	Not Sign	11.24±2.11	12.75 ±2.62	Not Sign	Not Sign
Attentionalcontrol	14.46±2.09	14.87±1.50	Not Sign	14.00±1.98	16.56±1.75	Sign	Sign
(TOPS) in competition							
Goal setting	15.11±2.55	15.75±1.70	Not Sign	15.17±2.68	17.99±1.54	Sign	Sign
Self-talk	12.25 ±2.14	12.64±2.53	Not Sign	12.22±2.22	12.71±2.08	Not Sign	Not Sign
Relaxation	11.33±2.78	11.86 ±2.17	Not Sign	10.89±2.09	10.94±1.87	Not Sign	Not Sign
Automatically	12.47±2.69	13.02± 3.78	Not Sign	12.55±2.08	12.74 ±2.12	Not Sign	Not Sign
Activation	12.57±2.02	12.90 ±2.17	Not Sign	12.67±2.14	16.02±2.49	Sign	Sign
Emotional control	12.47±2.47	12.84 ±3.26	Not Sign	12.18±2.66	14.94±2.02	Sign	Not Sign
Imagery	9.14± 1.87	9.75 ±2.72	Not Sign	10.05±2.18	10.71±2.14	Not Sign	Not Sign
Negative thinking	11.57±1.11	11.66±1.15	Not Sign	11.68±1.96	16.14±2.35	Sign	Sign

Table 2. Showed a significant change between posttests scores for the control and experimental groups ($P \leq 0.05$) in (TOPS) variables in training Goal setting, Activation, Attentional control for experimental group, and (TOPS) in competition Goal setting, Activation, Negative thinking. However no significant differences were shown between other variables ($P \geq 0.05$).

Table 3. Mean \pm SD and T test in physical tests and counter time performance for the control and experimental groups

Variables	Control			Experimental			T between two groups
	pre	post	Sign	pre	post	Sign	
Flexibility	17.25±1.02	17.66±0.98	Sign	17.18±0.86	18.14±1.01	Sign	Sign
Agility	7.12±0.21	7.06±0.32	Not Sign	7.15±2.18	7.03±0.14	Sign	Sign
counter time	7.57±0.12	7.26±0.15	Sign	7.68±0.16	7.14±0.25	Sign	Sign

Table 3. Showed a significant change between posttests scores for the control and experimental groups ($P \leq 0.05$) in physical tests and counter time performance for the control and experimental groups.

Discussion

According to (Ibrahim, 2001). That fencing requires the mental side a greater degree of physical side, where the mental side plays a major role in jousting, so you should be characterized swordsman high degree of willpower and patience and control of emotions and the ability to act where there is no frequency domain. The strategy is to identify the best way to achieve the goal and to reach it by exploiting the strengths and overcome areas of weakness.

(Nadi, 1996; Osama 2006) noted the need for the development strategies swordsman performance through mental training and psychological, stimulate and pleasure in fencing due to confinement in the ring thinking, and that the fencing is still mentally before they are still dynamic and therefore depend on the mental toughness and the rules of self-restraint.

And refers federation international d'escream, (2002) that the performance in fencing strategies is working to create all the conditions in order to maintain on Attentional control the stability towards achieving the goal.

In the opinion of (Osama, 2006) that the strategies performance in fencing rely on muscle power and the rules of self-restraint, they are in fact an adventure of mind subtle, choosing the timing of the

attack is the most influential factor on the rival, threat psychological effect is greater than the threat of weapons.

Psychological skills have been found to differentiate 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. It has also been found that elite athletes use more goal setting, imagery and activation compared to non-elite athletes.

Athletes are required to be strong physically as well as mentally and emotionally. Psychological preparation is an important part of any athlete's regimen, and athletes that take part in combat sports such as fencing require a great deal of fortitude, determination, and mental toughness. There are many resources available to athletes that can help them with their psychological preparation, including coaches, books, and sport psychologists. (Czajkowski, 2007)

An important factor in any bout is the scoring of the first touch. To the one who scores goes not only the lead in points, but also a variety of feelings, including Accomplishment, relief, and joy. This boosts confidence and helps fuel the upcoming touches. The



opponent, was scored upon, does not feel these effects. He may shrug it off and just focus on getting the next touch, as he should, or he may feel a variety of negative feelings, such as regret, frustration, anger, anxiety, and a partial loss of hope. (Paul, 2008)

Thinking processes play an important role in the activity of the individual and the responses within the exercise of aspects of various sports activities, especially in its attempts implementation and performance plans to play multiple, and is in an attempt speed estimate an individual's attitudes and perception of relations associated with the conduct of play, and the ability to infer and circular reasoning so that it can correct response, including commensurate with the positions. There are a lot of kinds of sports activities, which is located where the greatest burden on the thought processes during various tactical responses private in fencing and that is where the permanent conflict between the player and thinking opponent.

That negative thinking of personality psychological important to the player duel with the situation in mind that the player fencing cannot be just about the same negative thoughts private that his mind during the competition but he can make them not overcome him and affect his performance, to talk to positive self-associated positive-fixing in fencing.

Clearly reflects the level of self-efficacy, which means I can or cannot performance

The appearance full in the sport of fencing includes focusing the attention of mental full directed to competitors who changes always the distance from the player, and then attack and defense, in addition to setting his sword, and must be the player to continue to analyze the strategic competitor, at the same time he has to change and establish a strategy, and thus he has to decide what has the ability to successfully attack

Conclusion

Under the condition of our study, green exercise intervention for eight weeks has a beneficial effect on Test of Performance Strategies (TOPS), physical variables and counter-time performance for Egyptian epee fencers.

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