The Effect of Using Some Mental Strategies on Directing Tension and the Level of Skill and Numerical Performance of 100-meter Hurdles Athletes

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There are many factors that will directly affect the athletic level of the individual, such as the physical, skill, mental, psychological and physiological condition, and mental abilities are among the most important and most effective factors in determining the athletic level in many sports events. The mind is the leader of behavior and the first controller in the movement of the body. The high efficiency of his various abilities represented in thinking, remembering, visualizing, attention, and cognition, is one of the most important factors in achieving the best levels of motor achievement in all sports activities.

Muhammad Al-Arabi (2000 AD) refers to the emergence of many terms in the field of physical and sports education that are synonymous with mental strategies, such as Thinking Strategies, Intervention Strategies, Strategies Competitive, and Development Strategies. Regardless of the name, they all revolve around one meaning. The content of the practiced and appropriate mental activity before, during and after the sports performance, that is, it includes all kinds of behavior and thoughts since the beginning of training or competition, as well as recovery and calming procedures (10:20).

Mental strategies represent the final stage in mental training after mastering the two stages of basic mental training and mental training on the specialized skills of sports activity, and it includes the content of the practiced and appropriate mental activity that works to direct tension and increase self-confidence and the ability to address problems before and during performance (22:10).

The obstacle races are among the most interesting track races due to their high excitement to the spectators on the one hand, and the players feeling confident and daring when practicing them, whether in training or in competitions, on the other hand. These qualities are anthropometric, physical or psychological. If the contestant has such qualities and characteristics, he can control the technique, which has a significant positive impact on the progression of the level. This is evident in the field of high-level sports (championship sector) on the one hand, and the field of junior and novice players on the other hand. This is in addition to the voluntary traits that they must have. (5:92)

Through the scientific and practical experience of the researchers in teaching and training the 100-meter hurdles, they noticed that the 100-meter hurdles players are taught and trained on a regular basis, and when sports competitions, they do not achieve the expected and required technical level, and this may be due to

the psychological pressure that falls on the shoulders of the 100-meter hurdles players during the competition , They also noted that the 100m hurdles players have the physical specifications and abilities to raise the level of competitive sports, but it was noticed a deficiency in the level of performance of the technical stages of the 100m hurdles race during sports competitions, and the researchers attributed this to the pressures of competition, lack of focus on goals and duties, and the inability to Recalling mental skills during the competition, in addition to the fear of failure in performance during sports competitions, and this prompted the researchers to try to find an appropriate way to direct the tension of the 100m hurdles players to contribute to reducing stress and improving the level of performance of the technical stages of the 100m hurdles race.

Hence the idea of this research came to identify the effectiveness of using some of the proposed mental strategies on directing tension to improve the performance level of the technical stages and the digital level of the 100m hurdles race for female athletes.

Search objective:
This research aims to identify:
1. The effect of using some of the proposed mental strategies (thinking about the skill duty - positive self-talk) on directing tension and improving some mental skills (the ability to relax - mental visualization - focus attention) for the 100m hurdles athletes.
2. The effect of using some of the suggested mental strategies on the level of skill and numerical performance of 100m hurdles athletes.

Research hypotheses:
1. There are statistically significant differences between the averages of the tribal and remote measurements of the two experimental and control groups in directing tension and improving some mental skills (the ability to relax - mental visualization - focus attention) in favor of the experimental group.
2. There are statistically significant differences between the mean of the tribal and remote measurements of the two experimental and control groups in the level of skill and numerical performance of the 100-meter hurdles players in favor of the experimental group.

Search Procedures:
- Research Methodology:
The researchers used the experimental method on two groups, one experimental and the other controlling, using the method of pre- and post-measurement, due to its relevance to the nature of the research.

Research community and sample:
The research community included the 14 players of the Assiut University team for the 100-meter hurdles race for the 2020/2021 sports season. (5) players were selected as an experimental group, (5) players as a control group, and (4) players as an exploratory sample.

- The homogeneity of the sample in the research variables:
The two researchers calculated the moderation of the distribution of the members of the basic research sample in some variables that may affect the experimental variable such

as growth rates (age - height - weight - training age - high intelligence), and mental skills (the ability to relax - mental visualization - focus attention), And the levels of muscle tension, the level of skill performance, and the digital level of the 100-meter hurdles players, and this is what is shown in tables (1) (2) (3).

Table (1)

Arithmetic mean, standard deviation, and skew coefficient

For the members of the research sample in the basic variables (n = 5)

No.	Variables	Measure unit	Arithmetic mean	standard deviation	Skew coefficient
1	Chronological Year	Year	22.00	1.41	0.295
2	Length	Cm	163.50	4.30	0.000
3	Weight	Kg	65.40	3.81	-1.035
4	Training Years	Year	3.30	0.67	-0.434
5	High IQ	Score	29.60	1.71	1.115

It is clear from Table (1) that the sample members are homogeneous in chronological age, height, weight, training age and IQ of the female athletes, where the torsion coefficient ranged between (± 3) and this value was limited between (-1.035) to (+1.115), which indicates the moderation of the distribution of the research sample members in these variables.

Table (2)

The arithmetic mean, standard deviation, and skew coefficient of individuals

Research sample in mental variables and muscle tension levels (n = 5)

Psychological skills	Measure unit	Arithmetic mean	standard deviation	Skew coefficient
Ability to Relax	Degree	34.70	1.89	0.416
Mental perception	Degree	63.00	1.94	-0.340
Attention	Degree	8.20	1.40	1.085
First muscle group	Degree	10.70	1.16	-0.342
Second muscle group	Degree	21.80	1.23	0.467
Third muscle group	Degree	19.50	1.58	1.265
Fourth muscle group	Degree	18.10	0.74	-0.166
Total deck of the card	Degree	70.10	3.28	0.291

It is clear from Table (2) that the values of the torsion coefficient of mental skills and muscle tension levels (under research) are between (± 3) and this value was limited between (-0.166) to (1.265), which indicates the moderation of the distribution of the research sample members in this variables.

Table (3)
Arithmetic mean, standard deviation, and skew coefficient
For the members of the research sample at the level of skill and numerical
performance (n= 5)

No.	Variables	Measure unit	Arithmetic mean	standard deviation	Skew coefficient
1	Skill performance level	Degree	7.90	0.74	0.166
2	Digital level	Second	24.04	2.14	-0.652

It is clear from Table (3) that the distortion coefficient for the level of skill and numerical performance ranged between (±3) and these values were limited between (-0.625) to (+0.166), which indicates the moderation of the distribution of the research sample members in the level of skill and numerical performance.

The equivalence of the research sample:

The two researchers found equivalence between the two research groups (experimental - control) in the previous variables, in which homogeneity was made, and tables (4), (5), (6) illustrate this.

Table (4)
Significance of differences between the experimental and control groups
in the basic variables (N1 + N2 = 10)

No.	Variables	Measure unit	Experimental		Controllable		T	Level of significance	significance
			SMA	SD	SMA	SD			
1	Chronological Year	Year	22.40	1.82	21.60	0.89	0.88	0.4	Not significant
2	Length	Cm	165.00	3.67	162.00	4.74	1.11	0.29	Not significant
3	Weight	Kg	67.60	1.82	63.20	4.15	2.17	0.06	Not significant
4	Training Years	Year	3.60	0.55	3.00	0.71	1.5	0.17	Not significant
5	High IQ	Score	30.40	2.07	28.80	0.84	1.6	0.14	Not significant

It is evident from Table (4) that there are no statistically significant differences at the level (0.05) between the experimental and control groups in the growth rates (age - height - weight - training age - high intelligence), which indicates the equality of the two research groups in these variables.

Table (5)
Significance of differences between the experimental and control groups
In the mental variables and levels of muscle tension in the research sample (N1 + N2 = 10)

Psychological skills	Measure unit	Experimental		Controllable		T	Level of significance
		SMA	SD	SMA	SD		
Ability to Relax	Degree	35.80	1.92	33.60	1.14	2.2	0.59
Mental perception	Degree	63.60	2.30	62.40	1.52	0.97	0.35
Attention	Degree	8.40	1.14	8.00	1.73	0.43	0.67
First muscle group	Degree	10.80	1.30	10.60	1.14	0.25	0.8
Second muscle group	Degree	22.00	1.58	21.60	0.89	0.49	0.63
Third muscle group	Degree	20.20	1.92	18.80	0.84	1.49	0.17
Fourth muscle group	Degree	18.20	0.84	18.00	0.71	0.4	0.69
Total deck of the card	Degree	71.20	4.21	69.00	1.87	1.06	0.31

The tabular value of "T" at the level (0.05 = 2.101)

It is evident from Table (5) that there are no statistically significant differences at the level (0.05) between the experimental and control groups in mental skills and muscle tension levels (under research), which indicates the equality of the two research groups.

Table (6)
Significance of differences between the experimental and control groups in the level of skill and numerical performance (N1 + N2 = 10)

No.	Variables	Measure unit	Experimental		Controllable		T	Level of significance	Signify-cance
			SMA	SD	SMA	SD			
1	Skill performance level	Degree	8.20	0.84	7.60	0.55	1.34	0.21	Not significant
2	Digital level	Second	23.62	2.03	24.47	2.40	0.6	0.56	Not significant

The tabular value of "T" at the level (0.05 = 2.101)

It is clear from table (6) that the two groups (experimental - control) are equal in the level of skill and numerical performance, as it turns out that the calculated (T) values are less than the tabular (T) value, and this indicates that there are no statistically significant differences between the two groups in the level of skill and numerical performance.

Data Collection Tools:
First: Tools and Equipment:
(Restameter for measuring height in centimeters - barriers - cones - medical scale for measuring weight in kilograms - stopwatch).
Second: Tests:

Psychological tests were determined by informing the researchers of many specialized scientific references in sports psychology (3)(9) (10) (17) (18) and related scientific studies (1)(2)(6)(7) (8) (20) (21) (22) (23) (24) to determine the psychological skills that contribute to the level of performance of the technical stages of the 100-meter hurdles race and to determine the tests that measure them.

This resulted in the following:

1. Relaxation ability scale prepared by Alawi (1998). Attachment (2-1).

2. Mental Perception Scale, prepared by Muhammad Al-Arabi and Magda Ismail (1996) attached (2-2).

3. Focus network test prepared by / Muhammad Al-Arabi Shamoun (1999) attached (2-3).

4. High intelligence test prepared by / Mr. Muhammad Khairy (1989), annex (2-4).

The high intelligence test consists of (42) mental questions that show the laboratory's ability to think (intelligence), by measuring multiple mental abilities (linguistic ability - arithmetic ability - ability to visualize - ability to link and infer) and it is valid for both genders and the age group. Appropriate for its application over (17) years, and the time of this test (30)minutes.

Third: Assessment of the level of skill performance of the 100-meter hurdles athletes:

The members of the basic research sample (experimental - control) were evaluated in the level of skill performance in the 100-meter hurdles race by a committee of three arbitrators from the faculty members for the track and field competitions in the college (attachment 2), and the degree was calculated from (10) degrees, and the average scores were taken.

Time distribution of the proposed mental strategies:

Based on the reference survey of related studies (1), (2), (6), (7), (8), (21) (22) (23) (24) (25), the researchers determined the duration of the program as eight (8).) weeks at a rate of (3) three training units per week at an average of (25) minutes for each training unit, thus the total number of training units in the program reached (24) training units, given alongside the traditional program for the experimental group.

Tribal measurements:

Tribal measurements were made for the two research groups in the psychological variables and the level of skill performance of the 100-meter hurdles players, in the period from (3/10/2020) to (4/10/2020).

Implementation of the proposed mental strategy:

The content of the proposed mental strategies annex (9) was applied for a period of eight (8) weeks with three (3) training units per week at an average of (25) minutes for each training unit beside the traditional program on the members of the experimental group, while the control group was satisfied with training with the traditional program only. From (10/10/2020) to (4/12/2020).

Dimensional measurements:

The two researchers made dimensional measurements for the two

research groups in the period from (6/12/2020) to (7/12/2020).

Conclusions:

In light of the research objective and hypotheses, within the limits of the research sample and its characteristics, and based on the statistical treatments and the results of the research, the researchers reached the following conclusions:

1. Basic mental training is one of the main steps for implementing mental strategies in training and competitive stressful situations, as it is difficult to apply such strategies before completing the mental training for the psychological requirements in the 100m hurdles race.

2. The use of mental strategies (thinking the skill assignment - positive self-talk) positively affects mental skills (the ability to relax - mental visualization - focus attention).

3. The use of mental strategies (thinking about the skill duty - positive self-talk) contributes to directing tension to the optimal level for the 100m hurdles players.

4. Using the proposed mental strategy (thinking about the skill duty - positive self-talk) contributes to improving the level of skill and numerical performance of the 100m hurdles players.

5. The training program followed with the control group led to an improvement in the level of skill and numerical performance of the 100m hurdles players, while it did not lead to an improvement in the mental variables under discussion.

Recommendations:

Within the limits of the research community and the selected sample, and in light of the research objective, hypotheses and results, the researchers recommend the following:

1. The necessity of applying the proposed mental strategies (thinking about the skill duty - positive self-talk) because of their effective impact in directing tension and improving the level of skill performance of the 100m hurdles players.

2. The necessity of training on the basic skills of mental training, in particular relaxation, mental visualization and focusing attention because of their effective role in increasing the effectiveness of the proposed mental strategies and achieving the best results in the performance of the 100-meter hurdles race.

3. The need to determine the optimal level of excitement for each player, at which the player can perform his best technical performance, whether in training or competition.

4. Interest in training the 100-meter hurdles players in developing a program of mental strategies when planning physical and skill training programs.

5. The necessity of having a sports psychologist among the members of the technical bodies responsible for training the players.