



Effect of Mental Exercise on Performance of Table Tennis Sport Men in Kermanshah City

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ABSTRACT

This research has been done in order to study effect of mental exercise on performance of table tennis of 13 to 18-year sportsmen in Kermanshah city. Goal of this research is to determine effect of mental exercise on skill of forehand underspin service of table tennis sportsmen. Statistical population of this research includes all table tennis sportsmen of 13 to 18 years in Kermanshah who participated in provincial competitions. Among these persons, 32 persons were randomly selected and these persons were divided into 2 control group (n-16) and experiment group (n-16). At first, the subjects of both 2 groups were tested. In the next stage, similar control group did (technical) practical exercise and the experiment group did (technical) mental and practical exercise. After 12 exercise sessions, subjects of both groups were tested. Research methodology is semi experimental and in order to analyze data; independent t-test, dependent t-test and variance analysis test (a nova) have been used. The result which was obtained from this research showed that there was no significant difference between pre-test and post-test average mark of control group and control and experiment group pretest average mark in forehand under spin service skill. There was significant difference between pretest and posttest mark of experiment group and posttest average mark of control and experiment group in forehand underspin service skill.

KEY WORDS: table tennis sportsmen, mental exercise, performance, imagery.

INTRODUCTION

Authorities believe that basis of a scientific research is any awareness with the research subject. Many problems today which the human being has faced are raised as a project due to confrontation with some unexpected and irreverent imposed cases which cause destructive effects such as diseases of high blood pressure and all kinds of strokes. Under such conditions, life environment, role and effect of relaxation exercises far from stressful environment can help the persons considerably. Relaxation exercises are introduction mental imagery work. It means that the persons who are willing to utilize positive effects of mental imagery exercises should be relaxed before exercises and undoubtedly, mental imagery can be effective and positive in execution of motor skills. Therefore, we can understand importance of relationship between mind and body. Coubertin could have proved relationship between mind and body in a thesis under title of mind and body unity. Coubertin responds to soul and body interaction with a historical interpretation: this interaction doesn't always spend positive day and has had forward and backward movement like clock pendulum. We can infer from writing of Coubertin that unity and relation of soul and body in ancient periods have been more than those of other periods. David Marki believes that what we have seen or see can be effective on Neuropsychological system. Descartes believes that mind is effective on body but effect of body on mind is higher and more considerable.

The sportsman utilizes mental exercise with use of mental imagination in order to improve physical performance which is done instead of game field in the mind. Mental imagery is the process with which the person sees and feels images in mind. It is also a tool which the sportsman uses in order to maximize his performance in competitions. As Jack Fiklos interprets that mental imagery is like watching film which the most successful sportsmen use in order to complete automatic and reliable performance. Mental exercise causes other effects of exercises including concentration development, overcoming pain and injury, practicing strategies and tactics, practicing sport skills in addition that it causes to develop and complete performing skills of the person. Mental exercises can be used before competition, after competition and at time of injury which the person is not able to move and be active. Before mental exercises, the person should be relaxed and for this reason, relaxation exercises are used before start of metal exercises. Josef Philips describes in 1955 in an article under title of "chess, it is said to be sport" that Alkhin goes to village for years like a boxer who performs bodybuilding and exercised chess in his mind and was to be ready for confrontation with the opponent. Batril in 1986 and Nidfer in 1980 showed that a combination of relaxation, imagery, positive verbal reinforcement and concentration programs in order to

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facilitate performance of skill can be useful at time of competition. Axles in 1985 presents evidence in scientific article that weak spark on neural routes causes to destroy brain order.

Orlik and Partington reported in 1988 that 99% of Olympic players accepted that they have used mental imagery as a preparation means in their study.

Jorge Gervios did research on diving skill of girls of 12-19 years in 1992 and as a result, it was specified that the persons who used mental imagery exercise had considerable progress and success. Zangali, Makivi, Tri Orlik and Luace Zitslsberg did research by aiming at studying effect of mental exercise on performance of table tennis skill of children of 7-10 years. This research was performed on 3 groups. As a result, this group research which used mental exercises and watching film had more progress in learning skill. Orlik et al studied effects of imagery training on development of 7-10 year children's skill. Number of these sportsmen was 40 who practiced table tennis. After 22 weeks of exercise, a group which had used imagery exercises had more progress than the group which learnt material only by observation.

John Lin did research on a group of basketball players in which the players who practiced with relaxation and mental imagery were more successful in learning skill of throwing ball to ring.

Jorge Gerives did a research on reduction of reaction time with mental exercise in 1992 and showed that mental exercise was effective on reaction time reduction.

Mehdi Sohrabi did research on 320 boy students of high school who were table tennis sportsmen in Mashhad in 1994 and showed that the group which used mental and practical exercises simultaneously had more progress in learning service skill.

Keivan Kazemi did a research on effect of mental exercise on kata learning in karate in 1996. Result of the research showed that the group which utilized practical and mental exercises made more progress in skill learning.

Shamsi Sanati Monfared did research about effect of mental exercise on performance level of table tennis sportswomen and concluded that the group which had used imagery and relaxation program had more progress in the related performance.

It was concluded that most players and sportsmen who have used mental exercise for progressing skills were more successful in learning and performance of the skills.

Research goals: A- general goal: studying effect of mental exercise on performance of the table tennis sportsmen of 13-18 years in Kermanshah city

B-Special goals: studying effect of mental exercise on forehand underspin service performance in table tennis sportsmen of 13 to 18 year in Kermanshah city

Research methodology: the method which is used in this research is semi experimental because it is not laboratory based which includes a group of sportsmen. Total number of table tennis sportsmen in Kermanshah city was 242 persons of whom 32 were randomly selected and were divided into 2 control group (16 persons) and experiment group (16 persons). Control group which included 16 persons performed only practical exercise and the experiment group which included 16 persons performed relaxation and mental exercises in addition to the practical exercise.

Pretest and posttest of the sportsmen were based on the researcher made test on forehand underspin service skill and both control and experiment groups did exercise for 12 sessions each lasting 60 minutes and experiment group did relaxation and mental exercises for 30 minutes and spent rest of 30 minutes for performing practical exercises. But control group spent all of their time in practical exercises. In order to prevent from overtraining and uniform exercise, some arrangements were made. Descriptive statistics and inferential statistics have been used in order to analyze information. In descriptive statistics, central tendency indices (mean, median, mode) and dispersion indices (standard deviation and variables variance) and independent t-test and dependent t-test, ANOVA, Kolmogorov-Smirnov test and Cronbach alpha have been used for information analysis.

Statistical population: statistical population in this research includes all table tennis sportsmen of 13 to 18 years in Kermanshah city who were 242 persons and all of them were experimentally in one level and participated at least once in provincial competition.

Hypotheses results:

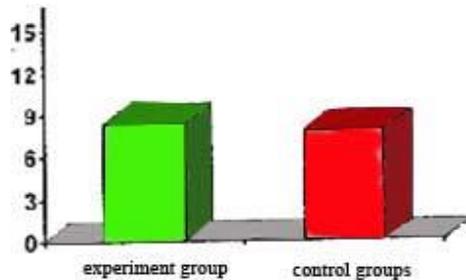
- 1- There is no significant difference between pretest average marks of forehand underspin service in experiment group and control group.

Independent samples test

Mean equality t test			New test for equality of variances		Significance	V	Pretest
Mean difference	significance	Degree of freedom	Significance	V			
0.562	0.80	0.30	/250	0.629	0.238		
0.562	0.80	29.981	0.250			Variance equality hypothesis	
						Variance inequality hypothesis	

The above table shows that there is no significant difference between experiment and control groups in pretest average mark of forehand underspin skill with regard to significance value of t-test (80%) which is larger than 0.05 and it means confirmation of null hypothesis. Then, results analysis shows that H₀ is confirmed due to lack of significant difference between the acquired results.

Diagram relates to comparison of pretest average mark of forehand underspin skill in two control and experiment groups and we notice partial difference between two groups in pretest stage and this difference between the average marks is so low that it is not significant.



The above diagram shows comparison between pretest average mark of forehand underspin service in two control and experiment groups.

There is no significant difference between tests of skill in forehand underspin service in experiment and control groups.

Independent t- test

Mean equality t test				New test for equality of variances		posttest
Mean difference	significance	Degree of freedom	t	Significance	F	
5.312	0.001	30	3.639	0.532	0.339	Variances equality hypothesis
5.312	0.001	28.448	3.639			Variance inequality hypothesis

The above table shows that there is significant difference between experiment and control groups in posttest average mark of forehand underspin skill with regard to significance of t-test (0.001) which is smaller than 0.05 and it means rejection of null hypothesis. Then, results analysis shows that H₀ is rejected and H₁ is confirmed due to lack of significant difference between the acquired results and this means acceptance of the research.

Diagram relates to comparison of posttest average mark of forehand underspin skill in two control and experiment groups and we notice progress of experiment group compared to control group with regard to this diagram.

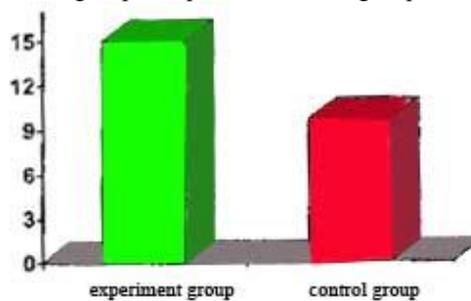


Diagram (9-4): comparison between posttest average mark of forehand underspin service in two control and experiment groups

Dependent t- test

significance	Degree of freedom	t	Dependent samples difference			Pretest and posttest
			Average standard deviation	Standard deviation	Mean	
0.005	15	-3.3	2.003	8.015	-6.625	

The above table shows that there is significant difference between posttest and pretest marks of forehand underspin skill in experiment group with regard to significance value of dependent t-test (0.005) which is smaller than 0.05 and it means rejection of null hypothesis. Then, results analysis shows that H0 is rejected and H1 is confirmed due to significant difference between the obtained results and this means rejection of the research.

The diagram relates to comparison of pretest and posttest average mark in experiment group and we notice difference between average marks of experiment group in pretest and posttest stage with regard to this diagram and this shows progress in this group after performance of 12 sessions of mental and practical exercises.

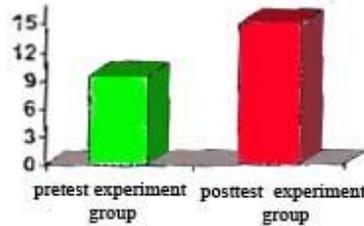


Diagram: comparison between pretest and posttest average mark of experiment group

There is no significant difference between average marks of pretest and posttest of forehand underspin service in control group.

Dependent t- test (binary samples)

significance	Degree of freedom	t	Dependent samples difference			Pretest and posttest
			Average standard deviation	Standard deviation	Mean	
0.34	15	-0.966	1.940	7.762	-1.875	

The above table shows that there is no significant difference between posttest and pretest marks of forehand underspin skill in control group with regard to significance value of dependent t-test (0.34) and it means confirmation of null hypothesis. Then, results analysis shows that H0 is rejected and H1 is confirmed due to lack of significant difference between the obtained results.

The diagram relates to comparison of pretest and posttest average mark in control group and we notice partial difference between average marks of experiment group in pretest and posttest stage with regard to this diagram and this shows less progress than the experiment group.

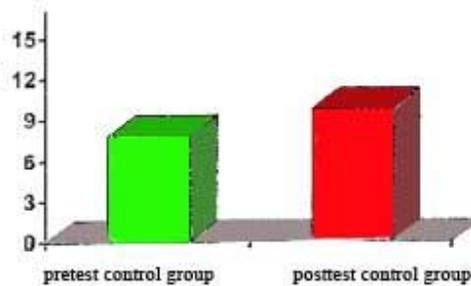


Diagram: comparison between pretest and posttest control group

Conclusion and Suggestion:

- 1- We can compare effect of mental exercise in open and closed skills.
- 2- We can compare effect of mental exercise in two genders (boy and girl).
- 3- We can compare effect of mental exercise in different age groups.
- 4- We can compare effect of mental exercise in group and individual sports.
- 5- It is suggested to study effect of mental exercise on group sports and tactic of the group members.
- 6- It is suggested to perform similar research in other sport fields.

Research limitations:

- A- Intelligence of the person with different tastes was not controllable in mental imagery.
- B- Activity and rest of subjects were not controlled.

- C- The researcher was unaware of mental imagery of the person during exercises.
- D- Mental status of the subjects was not controlled.
- E- Economic, social and cultural status of the families was not controlled in attitude of the person to mental exercises.
- F- Although the samples who participated in this research at least for one time in provincial competitions, they were different in terms of capabilities.

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