

Effect of Psychological Interventions in Enhancing Mental Toughness Dimensions of Sports Persons

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The present study was aimed at examining the effect of psychological interventions such as General relaxation , Imagery and combination of both on the mental toughness dimensions of Table-Tennis players. The study was carried out on 32 national level table –tennis players in the age group of 12-17 years. Loehr psychological performance inventory was administered to assess their mental toughness on seven variables viz. self confidence, negative–energy, Attentional control, visual and Imagery control, motivational level, positive energy and attitude control. The data obtained was analyzed using ANOVA, t test and percentage distribution. The results indicate that all the 3 psychological interventions enhanced mental toughness dimensions of sports persons. However combined intervention consisting of both relaxation and imagery therapies showed the maximum effect on mental toughness dimensions.

In sports, many things are left to chance as, sports are predictably unpredictable. Sports persons who enter the competitive arena soon realize that there is more to competition than simply learning the physical skills. It is one thing to possess the physical and mental skills and yet another to be able to use them when needed. Every athletic contest is a contest of control-control of the delicate mind-body connection, which is dramatically clear within the competitive arena. (Loehr, 1982).

Sugarman, (1998) stated that athletes spend so much time on physical practice to get an edge in the competition, yet they ignore one of the basic aspects of the game that is mental skill. Coaches and athletes are becoming aware of the fact that in today's world, competition is tough, even though athletes are physically fit, yet the margin for

victory is slim. Therefore, coaches and players are realizing that to get ahead they need an added resource, and that is a trained mind. Competitive Sports is 85-90 % a mental game, but unfortunately, many times physical aspect of the game is magnified at the expense of the other. Combining the two elements mental training and technical training, gives the players an opportunity to establish a consistent, peak performance every time they step on the field.

Interestingly, the significance of psychology in sports seems to be increasing in two contradictory ways firstly, sportspersons and coaches in search of the "Winning edge" are looking towards sports psychologists for mental advantage. They are asking for techniques and procedures that will make good athletes better. Secondly, sports persons

are also feeling the increasing pressure in sports and the negative consequences of these pressures. Players during match situations feel scared, because they fear failure at every corner, due to which they become nervous, their muscles get tense, their stomach pains, body becomes tight, hands become clammy, and negative thoughts predominate them and hence they start believing that they will never win a big match. Thus, there is the need for psychological training.

Psychologists have used various interventions: such as relaxation, autosuggestion, imagery etc. (Murphy, & Jowdy, 1992) for relaxation and enhancing mental toughness.

Most sports psychologists and elite sports persons, however, believe that learning how to relax allows sportspersons to take giant step towards optimal performance. Today, relaxation is used widely in psychotherapy, stress management and medicine, as well as performance enhancement, self – exploration, and personal growth.

The techniques of relaxation can be divided into two main categories-First, considered muscle to mind techniques focus on the somatic aspects. The second category considered mind to muscle techniques includes all the approaches of relaxation from the cognitive or mental perspective. There are several ways in which relaxation training can benefit an athlete's performance, Firstly; it assists in heightened sensitivity to your body. Secondly, it helps in controlling arousal level. Thirdly, it facilitates recovery from fatigue, and fourthly, it assists in clearing the mind and enhancing concentration on physical and mental practice.

Taking into consideration the importance of mental training in optimal performance the present study was designed to: -

(a). Investigate the difference among psychological interventions i.e. relaxation,

Imagery, and the combination of the two in enhancing mental toughness of sports persons.

(b) Examine the Effect of each intervention on mental toughness dimensions of sports person.

Method

Sample

The sample consisted of 32 Table-tennis players out of which 12 were females and 20 were males. The age range of these players was 12-17 years. All of them were state level players.

Procedure

These players were administered the Psychological Performance Inventory of Mental Toughness Strength / Weakness Dimensions which consists of self confidence level, attentional control, positive attitude control, negative attitude control, visual and imagery control, motivational level, and attitude control. There were 3 experimental and one control group. Each group consisted of 8 individuals. The 3 experimental groups were provided with different intervention techniques for two weeks, and the 4th group was the control group, which was provided with no intervention.

Two interventions provided, one was Relaxation training .In relaxation training sportsperson was asked to relax his/her muscles one by one from head to toe and he/she was also asked to focus on each body part, which the experimenter was speaking simultaneously. Second type of intervention was imagery training. In mental Imagery the athlete imagines himself in a specific environment performing a specific activity, enjoying the activity and feeling satisfied with the performance. One should attempt to enter fully into the image with all their senses being involved and perform as they would in real life.

Imagery for performance preparation focuses on developing a transitory state that involves producing: the correct attention to performance characteristics, a desirable level of arousal, a positive mind-set, and a cognitive plan.

The data collected from the 3 experimental groups and one control group

before and after the interventions were subjected to analysis using descriptive statistics, like mean, standard deviation and percentage distribution. Inferential statistic like ANOVA, and t Score (both correlated and uncorrelated) were calculated to find out the mean differences amongst and between groups.

Results and Discussion

Table 1: Mean scores, SD, and ANOVA of all the 4 groups on pre test scores

Variables	Group-1 Relaxation Mean \pm SD	Group-II Imagery Mean \pm SD	Group-III Combination Mean \pm SD	Group-IV Control Mean \pm SD	F Values
Self Confidence	19.75 \pm 1.03	21.25 \pm 1.16	20.37 \pm 1.68	20.00 \pm 1.69	0.001
Negative Energy	17.75 \pm 1.38	17.25 \pm 2.16	16.87 \pm 2.23	16.87 \pm 2.23	0.23
Attentional Control	18.75 \pm 3.57	19.00 \pm 1.19	18.12 \pm 2.16	18.12 \pm 3.64	0.07
Visual and Imagery Control	14.87 \pm 5.56	14.37 \pm 1.88	14.75 \pm 1.66	14.12 \pm 2.47	0.2
Motivational Level	21.87 \pm 1.64	21.75 \pm 2.37	22.25 \pm 1.83	22.37 \pm 2.32	0.21
Positive Energy	21.87 \pm 2.23	21.00 \pm 2.13	21.50 \pm 1.85	21.00 \pm 1.85	0.31
Attitude Control	21.50 \pm 2.87	20.25 \pm 1.48	20.12 \pm 3.90	20.00 \pm 2.87	0.04

Table 2 : Mean scores, SD, and ANOVA of all the 4 groups on post test scores

Variables	Group-1 Relaxation Mean \pm SD	Group-II Imagery Mean \pm SD	Group-III Combination Mean \pm SD	Group-IV Control Mean \pm SD	F Values
Self Confidence	22.10 \pm 1.41	23.00 \pm 1.60	25.62 \pm 1.40	19.50 \pm 1.19	11.09**
Negative Energy	19.00 \pm 1.77	21.50 \pm 1.30	22.25 \pm 2.43	16.62 \pm 2.82	3.36**
Attentional Control	21.25 \pm 2.65	23.62 \pm 1.06	23.00 \pm 1.51	18.12 \pm 3.87	7.29**
Visual and Imagery Control	15.87 \pm 5.59	20.00 \pm 1.51	21.87 \pm 1.64	13.00 \pm 2.44	9.37**
Motivational Level	22.87 \pm 2.35	25.00 \pm 1.60	26.87 \pm 0.99	22.50 \pm 2.77	8.13**
Positive Energy	21.50 \pm 2.87	23.50 \pm 1.69	24.87 \pm 1.88	20.75 \pm 1.66	10.12**
Attitude Control	23.62 \pm 3.54	23.62 \pm 1.40	24.87 \pm 1.64	19.37 \pm 2.66	7.28**

**p<0.01

Table 3: Shows Mean scores, SD, and t-scores on all the 4 groups

Variables	Group-I Mean ± SD	t-value	Group-II Mean ± SD	t-value	Group-III Mean ± SD	t-value	Group-IV Mean ± SD	t-value	
Self-Confidence	Pre	19.75 ± 1.03	4.96**	21.25 ± 1.16	7.00**	20.37 ± 1.68	9.97**	20.00 ± 1.69	-0.798
	Post	22.10 ± 1.41		23.00 ± 1.60		25.62 ± 1.40		19.50 ± 1.19	
Negative Energy	Pre	17.75 ± 1.38	3.98**	17.25 ± 2.16	5.33**	16.87 ± 2.85	10.09**	16.87 ± 2.23	-0.552
	Post	19.00 ± 1.77		21.50 ± 1.30		22.25 ± 2.43		16.62 ± 2.82	
Attentional	Pre	18.75 ± 3.57	4.73**	19.00 ± 1.19	8.68**	18.12 ± 2.16	9.45**	18.12 ± 3.64	0
	Post	21.25 ± 2.65		23.62 ± 1.06		23.00 ± 1.51		18.12 ± 3.87	
Visual and Imagery	Pre	14.87 ± 5.56	1.52	14.73 ± 1.88	6.84**	14.75 ± 1.66	7.33**	14.12 ± 2.47	-0.96
	Post	15.87 ± 5.59		20.00 ± 1.51		21.87 ± 1.64		13.00 ± 2.44	
Motivational Level	Pre	21.87 ± 1.64	3.03**	21.75 ± 2.37	7.84**	22.25 ± 1.83	8.18**	22.37 ± 2.32	0.143
	Post	22.87 ± 2.35		25.00 ± 1.60		26.87 ± 0.99		22.50 ± 2.77	
Positive Energy	Pre	21.87 ± 2.23	2.64*	21.00 ± 2.13	5.40**	21.50 ± 1.85	5.66**	21.00 ± 1.85	-1
	Post	21.50 ± 2.87		23.50 ± 1.69		24.87 ± 1.88		20.75 ± 1.66	
Attitude-control	Pre	21.50 ± 2.87	3.05*	20.25 ± 1.48	4.96**	20.12 ± 3.90	4.86**	20.00 ± 2.87	-1.35
	Post	23.62 ± 3.54		23.62 ± 1.40		24.87 ± 1.64		19.37 ± 2.66	

** P < .01, * P < .05

GR I Relaxation GR II Imagery GR III Combination of both GR IV Control

Table 4: Comparisons of all the four groups

Gr. I & IV t-value	Gr. II & IV t-value	Gr. III & IV t-value	Gr. I & III t-value	Gr. II& III t-value	Gr. I& II t-value
3.76 **	4.72**	6.12**	4.75**	3.27**	1.12
1.91	4.17**	3.99**	2.90**	0.72	3.08**
1.56	5.5**	3.12**	1.86**	0.89	2.57*
1.65	6.48**	8.06**	4.37**	2.59*	3.10**
0.51	2.08**	3.55**	5.20**	2.67*	2.55*
2.07*	3.12**	4.38**	1.86	1.45	0.61
2.17*	3.74**	4.70**	1.95**	1.56	0.94

Gr I:-Relaxation, GR-II Imagery

GRIII:-Combination of the two, GRIV :-ControlGr I:-Relaxation, GR-II Imagery

GRIII:-Combination of the two, GRIV :-Control

The four groups were tested on mental toughness dimensions; Table 1 shows the pre test scores and ANOVA on mental toughness dimensions, which indicates no significant difference among the groups. After which two weeks training with 30 minutes session per day was provided to all the 3 groups. Relaxation training was provided to group I. Similarly group II was provided with mental Imagery training and group III was provided with both the interventions i.e. with Relaxation and Imagery and control group were not given any training.

After two weeks of training these sports persons were again tested on the seven dimensions which were self confidence level, attentional control, positive attitude control, negative attitude control, visual and imagery control, motivational level, and attitude control. Table 2 shows the pre and post-test results of relaxation, Imagery, combination group (General relaxation and Imagery) and control group on the mental toughness/strength dimensions. The results indicate that all the 3 experimental groups showed significant improvement on mental toughness dimensions compared to pre-test

results. This shows that relaxation training helped them relax and Imagery training helped the subjects to visualize themselves doing all the task successfully making them more confident and in control of situation. These results are also supported by Murphy & Jowdy, (1992).

Mental rehearsing skills will reduce the uncertainty of match situation hence when the sports persons enter the actual match setting they feel at ease as they had visualized that scene before and will perform better. Thus results indicate that all the 3 experimental groups showed marked improvement, maximum improvement was found in combination group on mental toughness dimensions. The initial evaluation indicates that group as a whole was low on Visual and Imagery dimensions and was high on Motivation level.

Table 3 shows mean, SD and t values of all 4 groups which indicates that all 3 experimental groups have improved and the maximum improvement has occurred in the sportspersons who were provided with the

combination of both the interventions. Percentages were also calculated to see how much present improvement has occurred.

The sportspersons provided with relaxation and imagery training (combination of both group) showed 20% increase in self-confidence, 24% in negative energy control, 21% on Attentional control, 33% on visual and Imagery, 17% on motivational level, 14% on positive energy control and 19% on attitude control. Imagery group showed 13% increase on motivation level, 10% on positive energy control and 14% on attitude control. The relaxation group showed 10% improvement on self-confidence level. No improvement was observed for the control group.

Table 4 shows post test results of all the 3 groups with interventions and the control groups. The comparison of the scores shows that combination group improved maximum. Wrisberg and Anshel, (1989), in a similar study found that relaxation used in conjunction with imagery was effective in enhancing the basketball performance of young boys. The experimental group with Imagery also enhanced their mental toughness followed by relaxation group. No improvement was observed for control group.

Results also indicate significant improvement on all 7 dimensions for combination group as compared to control group. Significant differences were observed on all other dimensions for the Combination

group in comparison to relaxation group, where-as Imagery, group showed no significant difference on Self-confidence, Positive energy and Attitude control.

Conclusion

The above results indicate that on mental toughness dimension combination of two-intervention group has shown maximum improvement as compared to any other intervention group. This is because of the fact that relaxation helped them to focus more and helped them to relax all the tight muscles making movements easier and when it was supplemented with Imagery training the subjects were able to visualize doing the entire task successfully making them more confident and in control of situation.

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