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Comparative Effects of Training in different Surfaces on Mental Toughness of Badminton players

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Abstract:- The aim of the study was to analyse and compare the effects of training in different surfaces on mental toughness of badminton players. The subordinate purpose of the study was to explore which surface brings maximum changes in mental toughness. The subjects for the study were 33 male students of Badminton match practice group studying in L.N.U.P.E. aged 20.7 ± 2.23. To assess the mental toughness, Dr. Alan Goldberg's mental toughness questionnaire was used. The mean of sand training group was higher than the water training group and control group in rebound ability, pressure tolerance and level of confidence whereas water training group was higher than sand training group and control group in concentration ability and motivation. To compare the training effects on different surfaces, ANCOVA was calculated and found significant at 0.05 level of significance. As the calculated 'F'values, 8.79 and 6.12 of rebound ability and motivation is greater than the tabulated value at 2, 29 df, scheffes post hoc test was conducted to find out the mean difference among the group. Results indicated that the water and sand training enhances mental toughness but, on only few factors which include rebound ability, pressure tolerance and motivation, but if the duration of training and no. of participants increases their might be improvement on other factors also.

Keywords: Mental Toughness, Rebound Ability, Pressure Tolerance, Motivation, Concentration Ability, Confidence, Water Training, Sand Training.

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INTRODUCTION

Success is more about mental toughness than competence and hard work (Prasad, 2012). Successful athletes are supposed to be not only Physically Tough but Mentally Tough as well (Singh and Kumar, 2011). Tutko's (1974) characterization of such trait indicates that the "Mentally Tough" athlete can take rough handling; is not easily upset about losing, playing badly, or being spoken to harshly; can accept strong criticism without being hurt; and does not need too much encouragement from his coach.

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. Badminton players should be equally strong, physically and mentally. Mental toughness will determine the success as a badminton player and will help to attain consistent achievements. A badminton player have all the fitness, power, agility and skills but without mentally strong he/she cannot sustain anywhere. A match could take a rather long time to end. A good badminton player or in other words an 'established badminton player' will not go down without a fight and should be able to keep their pace and the accuracy of their shots until the very last point in the game no matter how long they have played. This is where mental toughness plays a big role.

A proper training can develop and improve mental toughness of the player. Water and sand training are one of them. Water has very unique properties such as buoyancy, decreased compressive forces and hydrostatic pressure on submerged body parts (White, 1995). Whereas sand also has unique properties i.e. the softness of the sand, like the trampoline mat, absorbs and disperses the download force which takes away any plyometric advantages of the stretch shorten cycle (Woodrup, 2008). These two surfaces vary from each other, but training on these surfaces requires extra efforts to sustain then on land. That's why query had been raised in the mind of

the researcher, whether the training on these surfaces can improve the mental toughness.

Therefore, the purpose of the study was to analyse and compare the effects of training in water and on sand in relation to mental toughness of badminton players. The subordinate purpose of the study was to explore which surface brings maximum changes in mental toughness.

MATERIALS AND METHODS

The subjects for the study were 33 male students of Badminton match practice group studying in L.N.U.P.E. aged 20.7 ± 2.23, who play badminton regularly during the match practice time for 2 hours, volunteered to participate in the study. The subjects were divided into three groups at random, each consisting of eleven subjects i.e. water training group, sand training group and control group. The subjects were informed about the purpose of the study as well as informed that the data will be kept confidential and will not be used for any other purpose.

For the collection of data, Dr. Alan Goldberg's mental toughness questionnaire was used. Mental toughness questionnaire is a 30-item, self-administered scale, developed to measure mental toughness of the respondents. Respondents were asked to rate their current feelings on the questionnaire. The questionnaire consists of five factors which include Rebound ability, pressure tolerance, concentration ability, level of confidence and motivation. Each factor consists of six items. Every item has two possible responses i.e. true or false. The data was collected first prior to the training and then after the six weeks of training. The water training was given in the swimming pool and sand training was given in the sand ground for thrice a week.

RESULTS

The data collected were analyzed statistically and the outcome generated has been given below.

Table 1

Descriptive Statistics of Rebound Ability, Pressure Tolerance, Concentration, Confidence and Motivation of Badminton Players

FACTORS	WATER TRG GROUP		SAND TRG GROUP		CONTROL GROUP	
	MEAN	S.D	MEAN	S.D	MEAN	S.D
Rebound Ability	2.36	0.80	3.27	0.78	2.81	0.91
Pressure Tolerance	2.81	1.25	3.09	1.30	2.90	1.30
Concentration	2.81	1.32	2.45	1.36	2.54	0.82
Confidence	3.18	1.07	3.90	1.04	3.90	0.94
Motivation	4.45	0.93	4.36	0.81	4.36	0.81

Table 1 displays the mean and the standard deviation of various factors of Mental Toughness among Badminton Players. The findings shows that the mean of sand training group was higher than the water training group and control group in rebound ability, pressure tolerance and level of confidence whereas water training group was higher than sand training group and control group in concentration ability and motivation.

One way Analysis for covariance (ANCOVA) for the means of water training group, sand training group and control group in mental toughness factors has been shown in Table 2

Table – 2

Comparisons among the three groups in Mental Toughness Factors

Variables		SS	df	MSS	F	Sig.
Rebound ability	Between Groups	3.50	2	1.75	8.79	.001
	Within Groups	5.78	29	0.20		
Pressure tolerance	Between Groups	3.10	2	1.55	2.21	.128
	Within Groups	20.36	29	0.70		
Concentration ability	Between Groups	1.36	2	0.68	1.38	.267
	Within Groups	14.27	29	0.49		
Level of confidence	Between Groups	1.66	2	0.83	1.50	.239
	Within Groups	16.04	29	0.55		
Motivation	Between Groups	2.92	2	1.46	6.12	.006
	Within Groups	6.91	29	0.238		

In the table 2, analysis of covariance (ANCOVA) for the means of water training group, sand training group and control group in mental toughness factors were calculated and it was found significant that Tab F.05 (2,29) = 3.327 is less than the Cal values of rebound ability and motivation.

To further analyze as which group is higher in mental toughness factors, Pairwise mean comparison analysis was done by using Scheffe test in the table 3.

Table-3

Post-Hoc Comparisons among water training group, sand training group and control group in mental toughness factors

Variable	(I) Group	(J) Group	Mean Difference (I-J)	Sig.
Rebound Ability	Sand Training Group	Water Training Group	.475*	.022
		Control Group	.802*	.000
Pressure Tolerance	Sand Training Group	Control Group	.772*	.045
Motivation	Water Training Group	Control Group	.792*	.002

*Significant at 0.05 level of significance

In the table 3, it was evident that there is a significant difference between water training group and control group in motivation factor; between sand training group and control group in pressure tolerance and rebound ability; and sand training group and water training group in rebound ability. Concentration level and confidence level is found insignificant among all the three groups.

DISCUSSION

The purpose of the study was to compare the effects of training in different surfaces on mental toughness factors of badminton players. The study reveals that there is a significant difference after six weeks of training between water training and control group on motivation factor as well as between sand training and control group on pressure tolerance and rebound ability as well as with water training group on rebound ability. The results also illustrated that there is no significant difference between water training, sand training and control group among concentration ability and level of confidence factors. This result may be attributed due to less duration of training and less numbers of participants. Water is a soothing medium, which is used to relax the body but it also has unique properties of natural resistance and buoyancy effects, which might do not increased concentration ability whereas confidence was not increased because training was given on shallower end of the swimming pool up to neck level which do not create fear factor in the participants to increase the confidence level. On the other hand, sand training group also found no significant difference on concentration ability, level of confidence and motivation because training on sand was very boring and tiring which reduces motivation level and level of confidence naturally. Concentration level do not increased due to less availability of space of sand surface for training and due to airborne dust particles raised from the subjects feet's while doing the training, which affected continuity and concentration ability because that particles entered into the nose, eyes, mouth and ears of the subjects and finally, obstructed the training and subjects. It is recommended that for the sand training, wet sand should be used to improve the sustainability of the participants for the longer duration.

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