International Journal of Applied Research 2015; 1(7): 564-566

ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2015; 1(7): 564-566
www.allresearchjournal.com
Received: 14-04-2015
Accepted: 16-05-2015

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Effect of skill practice and mental training on free throw shooting in basketball

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Abstract
The purpose of the study was to find out the effect of skill practice and mental training on free throw shooting performance in basketball. Total thirty male students from basketball match practice group of the Lakshmibai National College of Physical Education, Gwalior were selected randomly as subjects. The age of the subjects ranged between 18 to 21 years. The subjects were divided into three experimental groups randomly, each consisting of ten subjects. Free throw shooting as per AAHPER Basketball skill test was used as the criterion measure to find out the effect of skill practice and mental training. "Analysis of Covariance" was applied as the random group design was employed in this study.

Keywords: Skill, Mental training, Randomly, Group

1. Introduction
Man a psycho-physical organism is made up of body and mind. Today it is an established fact that mind and body are inseparable and they have an integral unity; one cannot function without the aid of other. Man's life is a continuous flow of activity. Every moment he is doing something and his every activity is the result of the joint effort of his mind and body. **Bryant (1975)** [1] stated that Skill practice refers to the repeated performance of some skill/activity with a view to its improvement. Mental training is a rehearsal of a physical task in the absence of observable movement. Learning is intimately related to the perceptual process. Perception gives meaning to events, objects or situations; whereas learning involves a series of ongoing perceptions or perceptual change brought about through repeated exposure to the same or similar objects and situations. Thus, learning may be thought of as perception with an added temporal dimention

Acc. To Robert (1975) [4, 5] "Numerous experiments support the contention that learning motor skills occurs with active overt (physical) practice and specific instruction. Evidence on ideal rations of overt practice to other means of learning is conspicuous by its absence. There are many people who feel the only way to learn a motor skill is through active physical participation. The results of studies on covert (mental) practice serve to question this belief and certainly the value of lecture, films, reading material and the like cannot be denied. **Robert N. Singer (1975)** [4, 5] Worthy of our attention is the current interest in mental practice, which is a form of passive learning in the sense that overt practice does not take place. Mental or image practice or conceptualizations refer to task rehearsal in which there are no observable movements. Researchers have compared the effectiveness of learning tasks through actual physical practice with mental practice or a combination of physical-mental practice.

Weinberg et. (1991) [6] have conducted a study to examine the importance of the temporal location of mental preparation in relation to physical practice and to investigate the effects of varying the length of the mental preparation interval on subsequent performance. Subjects were 105 male university students who performed a 3-min. timed basketball shooting task in which they attempted to make as many shots as possible from outside a 15-feet perimeter. After a baseline performance assessment, subjects were randomly assigned to a 1-min., 5-min. and 10-min mental preparation condition. Subjects were instructed that they could use any mental preparation technique of their choice. In addition, they were randomly assigned to practice mentally either prior to or after a 3-min. physical practice period before

attempting the shooting task. This was done twice making a total of three trials. The three different amounts of mental preparation time and two temporal locations of mental preparation created six conditions. There was also a physical practice control. Results revealed a significant trials main effect with all groups improving their shooting performance across the three trials. No significant between- group main effects or inter-actions reached significance. **Elko and Ostrow (1992)** [2] conducted a study to examine the effects of three cognitive strategies- imagery, preparatory arousal and counting backwards- on the hand grip strength of college age and older subjects. Additionally, this study analyzed the relationship of age differences on perceived exertion and state anxiety to grip strength. An analysis of the results revealed that imagery significantly enhanced strength as compared to the counting backwards- strategy across all groups. However, imagery was no more effective in enhancing grip strength among the older subjects as compared to the young subjects. Analysis of perceived exertion and anxiety revealed little relationship to subjects grip strength scores across sex and age. The results are discussed in terms of the values of using mental preparation among older adults.

Objective

The objective of the study was to determine the effect of skill practice and mental training on free throw
Shooting in basketball.

Hypothesis

It was hypothesized that there would be significant positive effect of mental training and skill practice on free throw shooting performance of basketball players and the experimental group would exhibit significance differences in their performances on free throw shooting at the end of training.

Methodology

The purpose of the study was to determine the effect of skill practice and mental training on free throw shooting in basketball. Thirty male basketball players of Lakshmibai National College of Physical Education, Gwalior were selected as subjects for this study. The average age of the subjects was 18 to 21 years. These subjects were divided into three experimental groups randomly, each consisting of ten subjects. The experimental groups were "Skill Practice group" (Group-A), "Auditory Mental Training followed by skill practice group" (Group-B), "Visual-Auditory Mental Training followed by skill practice group" (Group-C). Free throw shooting as per AAHPER Basketball Skill test was used as the criterion measure to find out the effect of skill practice and mental training. The training sessions were conducted thrice a week in the evening. Performance for free throw shooting in basketball was taken before and after an experimental period of 6 weeks. "Analysis of Covariance" was applied as the random group design was employed.

Procedure of test

Free throw shooting test was used to measure skill in shooting free throws from free throw line. Standard inflated balls and standard goals were used. The player executed the shots from behind the center of the free throw line and was allowed to shoot by any method preferred by him. Twenty shots were given in series of five at a time. The player was asked to leave the foul line at the end of each series of five shots and move around and in the meanwhile another player took a series of his shots before continuing with the next series of shots. Scoring was done in terms of one point for each goal made regardless of how the ball went in. Counting each shot as 1 or 0, recording the points in lines of five. Total score made for a maximum of 20 shots was recorded as the final score for each subject.

Statistical technique

To find out the effect of mental training and skill practice on free throw shooting ability of the three experimental groups. "Analysis of Covariance" was applied as the random group design was employed in this study. To test the hypothesis 0.05 level of significance was chosen as the study did not employed sophisticated techniques/tools of mental training and physical training (skill practice) demanding more stringent level of significance.

Results

The significance of differences between the pre-test and post-test means for the three experimental groups (A, B and C) in free throw shooting obtained through analysis of covariance have been presented in table:-

Table 1: Analysis Of Variance and Covariance of the Means of Three Training Groups

	Groups			Sum of Squares	Df	Mean Squares	F-Ratio
	A	B	C				
Pre-test means	11.6	11.3	11.3	B:0.6	2	0.3	0.031*
				W:264.6	27	9.8	
Post-test means	14.0	12.8	13.4	B:7.2	2	3.6	0.57*
				W:170.0	27	6.3	
Adjusted Post-test means	13.8	13.4	14.0	B:5.3	2	2.6	0.96*
				W:70.3	26	2.7	

N=30 *Not significant at.05 level
B: Between Group Variance
F ratio needed for significant at .05 level=3.57
W: Within Group Variance

Discussion & Findings

The purpose of the study was to determine the effect of skill practice and mental training on free throw shooting in basketball. Table-1 reveals that the pre-test means of all the three groups A, B and C on free throw shooting performance in basketball were 11.6, 11.3 and 11.3 respectively and the resulting F-ratio for pre-test means of all the three groups was 0.31, which was less than the value of F-ratio needed for significance at 0.05 level of confidence with 2, 27 degree of freedom. The needed value for F-ratio was 3.35. The post-test means of all the three groups A, B and C on free throw shooting performance in basketball were 14.0, 12.8 and 13.4 respectively and the resulting F-ratio for the posttest means was 0.57.

The adjusted posttest means of all the three groups A, b and C were 13.8, 13.4 and 14.0. F-ratio of 0.96 which was also quite less than the value of 3.37. This shows that all the three groups were not statistically different in their free throw shooting performances at the end of training.

Conclusion

The findings of the study clearly show that mental training and skill practice did not have significant effect on the free throw shooting performance of all the three experimental groups, however, all the three experimental groups exhibited mean gains in free throw shooting performance at the end of training.

The findings may be attributed to the fact that subjects for this study were those who had opted basketball as their game and a majority of them had trained for quite some time. **Cooper (1985)** indicated that mental practice had a positive but not statistically significant effect on skill acquisition.

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