**THE IMPACT OF GUIDED IMAGERY AND**

**PERCEPTUAL COGNITIVE TRAINING ON DISCUS**

**THROW SKILL ACQUISITIONS**

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***Abstract:*** The primary objective of the study was to find out the effect of perceptual cognitive training and psychological skill training (PST) and guided imagery training on the discus throw skill acquisition. In addition to above research also found out the combined effect of both above mentioned independent variable on the discus throw skill acquisition. To attain the objective a complete methodical research procedure was followed. Research hypothesis guided the researcher towards the actual facts in a logical and scientific way. On the personal interaction with expert in the subject area and the research question &amp; objectives of the study following hypothesis are formulated. For the purpose of present investigation, the sample was drawn from Lakshmibai National college of Physical Education, Thiruvananthapuram, India. In total, 20-30 novice discus throwers players, was chosen as the subjects for the study. The subjects were randomly assigned to any of the two experimental groups. On the basis of the objectives certain dependent and independent variables are formed.

***Keywords:*** Perceptual Cognitive Training, Guided Imagery, Skill Acquisition*.*

**INTRODUCTION**

**Imagery has been described as “an experience that mimics real experience, and involves using a combination of different sensory modalities in the absence of actual perception” (Cumming &amp; Ramsey, 2009, p.s5).**

**Mental imagery can be defined as pictures in the mind or a visual repre­sentation in the absence of environ­mental input. This is not a universal talent; not everybody can conjure up mental images at will. Imagery is a psychological technique which has demonstrated its effectiveness in sport through positively affecting psychological states, such as decreasing anxiety and enhancing self-confidence, self-efficacy and concentration (Garza &amp; Feltz, 1998; Post &amp; Wrisberg, 2012). It is also beneficial for use as a coping strategy, maintaining existing skills, and reviewing past performances (Thelwell &amp; Maynard, 2002; White &amp; Hardy, 1998).Imagery is popular among all athletes, from grassroots level up to elite sports personalities. What is the power of imagination? We all create and recall experience mentally. For example, an employee rehearses how she will ask her boss for a raise, imagining how she will dress in her most businesses like suit etc. Many sports performers generate detailed and precise images intentionally. Imagery is mental creation or re creation of sensory experience that appear to the person imagining them to be similar to the actual events (suinn 1993) . We constantly relive past experience and imagine wished for events, in picture, sounds, smells – in facts with all our senses. We can also experienced the same emotion as those the real event generated, which can lead to physiological indicator such as heart rate, respiration, or muscle tension.**

**Imagination is terrifically powerful. By mentally rehearsing a routine before a major competition, athletes can prepare themselves to achieve their optimal performance when it counts most. By imagining playing at their peak, athlete can build their confidence for a match. Imagery can also help a performer through a tough injury layoff by shifting attention away from the injury onto the mental rehearsal of sports skills. Knowing that research supports the value of imagery for maintaining the skill level when physical practice is not possible can help motivate an athlete during recovery. When physical practice is not possible, such during travelling, imagery can provide athletes with a way to practice. It allows them to review pervious strokes or movements so they can correct errors. It is difficult to think of anything else that has a much potential to enhance or destroy not only performance outcome but the entire experience of sports.**

**Methodology**

The primary objective of the study was to find out the effect of perceptual cognitive training and psychological skill training (PST) and guided imagery training on the discus throw skill acquisition. In addition to above research also found out the combined effect of both above mentioned independent variable on the discus throw skill acquisition. To attain the objective a complete methodical research procedure was followed. The following variables were selected for the study. The discus throw skill acquisition was the dependent variable of the study. Complete skill of the discus throw was divided into various parts for the ease of evaluation. These are the variables which the scholar wishes to manipulate and see their effect on the dependent variable. Keeping the objective in mind, two independent variables were formed. The independent variables are assisted imagery training and perceptual cognitive training. To collect the data pertaining to this study a test will be developed by the researcher which will divide the whole skill of discus throw into five different parts such as:

1. Stance

2. Rotation in the Circle

3. Power-position

4. Release and Recovery

5. Distance thrown

Each part will be scored out of ten and the participant will be able to score maximum of 50 marks. This test will be conducted on all the experimental groups.

**STATISTICAL DESIGN**

The experimental design to achieve the objective of the study was the modification of pre-test post-test randomized Group design. The modification was two experimental groups in this study. The advantage here is the randomization, so that any differences that appear in the post-test should be the result of the experimental variable rather than possible difference between the two groups to start with. This is the classical type of experimental design and has good internal validity. The external validity or generalizability of the study was limited by the possible effect of pre-testing.

Two groups, Pre-Test Post-test Randomized Group Design

Group Pre-test Treatment Post-test

® E1 O1 X O2

® E2 O1 X O2

® C O NO TREATMENT O.

**INTERPRETATION OF DATA**

**Table 1. Descriptive statistics of the pre test score of the different experimental groups in the “Overall Score**

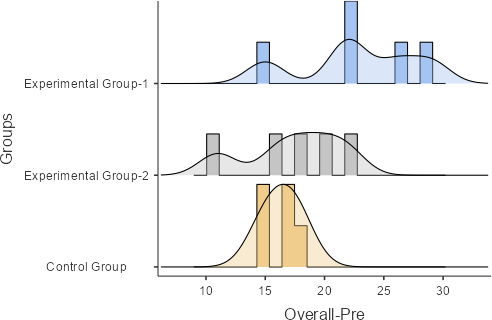
|  |  |  |
| --- | --- | --- |
|  | **Groups** | **Overall-Pre** |
| N | Experimental Group-1 | 5 |
|  | Experimental Group-2 | 5 |
|  | Control Group | 5 |
| Mean | Experimental Group-1 | 22.8 |
|  | Experimental Group-2 | 17.4 |
|  | Control Group | 16.4 |
| Standard deviation | Experimental Group-1 | 5.26 |
|  | Experimental Group-2 | 4.22 |
|  | Control Group | 1.34 |

The Overall score of different experimental groups in pre test of descriptive statistics is show in table 1. The outcomes reflect the total number of subjects in each group is five.

The mean score of the Experimental group-1 (the group which received imagery training during the treatment) was found to have highest mean value (22.8+ 5.26). However, the

Experimental group-2 (which received Perceptual cognitive Training during the treatment) had a lower mean score in the variable concerned (17.4+4.22) and the control group accounted for the lowest score in the Control group (16.4+1.34).

All the assumptions for the normality were tested for the set of data and the data was found to be normally distributed. A Mann Whitney test was applied to ensure the same.

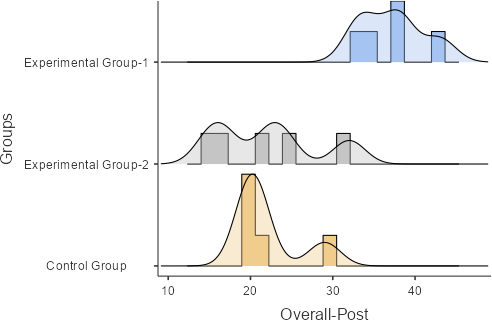


**Figure no. 1. Graphical representation of the pre test score of the different experimental groups in the ‘Overall Score**

|  |  |  |
| --- | --- | --- |
| **Table 2. Descriptive statistics of the post test score of the different experimental groups in the “Overall Score “** | | |
|  | **Groups** | **Overall- Post** |
| N | Experimental Group-1 | 5 |
|  | Experimental Group-2 | 5 |
|  | Control Group | 5 |
| Mean | Experimental Group-1 | 37.2 |
|  | Experimental Group-2 | 22.0 |
|  | Control Group | 22.0 |
| Standard deviation | Experimental Group-1 | 3.96 |
|  | Experimental Group-2 | 6.67 |
|  | Control Group | 3.94 |

The post test scores of the subjects in Overall was subjected to descriptive analysis and the outcomes are displayed on the table 2. From the outcomes it is evident that in each of the groups there were five of the subjects. The mean score of the Experimental group-1 (the group which received imagery training during the treatment) was found to have highest mean value (37.2±3..96). However, the Experimental group-2 (which received Perceptual cognitive Training during the treatment) had a lower mean score in the variable concerned (22.0+6.67) and the control group accounted for the lowest score in the Control group (22.0+3.94).

All the assumptions for the normality were tested for the set of data and the data was found to be normally distributed. A Mann Whitney test was applied to ensure the same.

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**Figure no. 2. Graphical representation of the post test score of the different experimental groups in the” Overall Score’’**

**RESULT**

From the table 19 it is very clearly evident that there was a significant difference in mean score of the “distance thrown” that might occur among the three different groups, whilst adjusting for pre test scores. The partial Eta Squared value was 0.56 which indicated the moderate effect size when compared with Cohen’s guidelines (0.2 – small effect, 0.5 – moderate effect, 0.8 – large effect). The outputs are of indication that the independent variables had a significant impact on the dependent variable i.e. the Skill learning in discuss throw. Hence to know further, which group had higher impact on the overall skill learning, in discus throw. A post hoc comparison was done and the results are displayed in the table no 20

| **Table 19. Post Hoc Comparisons among the groups in “First Turn”** ANCOVA - Overall-Post | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | **Sum of Squares** | | **df** | | **Mean Square** | | **F** | | **p** | | **η²p** | |
| Groups |  | 361.7 |  | 2 |  | 180.9 |  | 7.097 |  | 0.010 |  | 0.563 |  |
| Overall-Pre |  | 22.5 |  | 1 |  | 22.5 |  | 0.882 |  | 0.368 |  | 0.074 |  |
| Residuals |  | 280.3 |  | 11 |  | 25.5 |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |

The table 20 displays the outcomes of the post hoc comparison among the groups based on the marginal means. The overall discus throw skill learning ability of the Experimental group-1 (Which received Imagery Training) was found to be significantly better than the experimental group 2 and Control group as well. However, the Experimental group 2 and the control group could not account for any significant difference in the overall skill acquisition in discuss throw. To conclude with, it can be said that the imagery training had the highest impact on the skill acquisition among the discus throwers but Perceptual cognitive training could not account for any significant impact on the overall skill learning in discus throw.

| **Table 20. Post Hoc Comparisons of overall skill learning scores among the groups** | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Comparison** | | | | | |  | | | | | | | | | |
| **Groups** | |  | | **Groups** | | **Mean Difference** | | **SE** | | **df** | | **t** | | **ptukey** | |
| **Experimental Group-1** |  | **-** |  | **Experimental Group-2** |  | **13.339** |  | **3.76** |  | **11.0** |  | **3.550** |  | **0.012** |  |
|  |  | **-** |  | **Control Group** |  | **12.995** |  | **3.96** |  | **11.0** |  | **3.278** |  | **0.019** |  |
| Experimental Group-2 |  | - |  | Control Group |  | -0.345 |  | 3.21 |  | 11.0 |  | -0.107 |  | 0.994 |  |
| Note. Comparisons are based on estimated marginal means | | | | | | | | | | | | | | | |

**DISCUSSION**

From the analyses it is clearly evident that there was no significant difference in mean score of the “Stance” skill learning that might occur among the three different groups, whilst adjusting for pre test scores. The outputs are of indication that the independent variables did not have any impact on the stance skill learning in the discus throw among the subjects.

From the analyses it is very clearly evident that there was a significant difference in mean score of the “First turn” skill learning that might occur among the three different groups, whilst adjusting for pre test scores. The outputs are of indication that the independent variables had a significant impact on the dependent variable i.e. the Skill learning in discuss throw. The outcomes of the post hoc comparison among the groups based on the marginal means indicated that the Experimental group-1 (Which received Imagery Training) did not have any significant difference from the subjects from the Experimental group-2 (which received Perceptual cognitive training). However, the mean scores among the experimental groups indicate that the subjects in experimental groups 1 scored higher than the Experimental group 2. Between the scores of the subjects in experimental group 1 and the control group there existed a significant difference (p=0.04) and the mean scores are of evident that the experimental group benefitted from the imagery training.

There was no significant difference in mean score of the “Power position” skill learning that might occur among the three different groups, whilst adjusting for pre test scores. The outputs are of indication that the independent variables did not have any impact on the power position skill learning in the discus throw among the subjects.

There was no significant difference in mean score of the “Release and Recovery” skill learning that might occur among the three different groups, whilst adjusting for pre test scores. The outputs are of indication that the independent variables did not have any impact on the Release and Recovery skill learning in the discus throws among the subjects.

No significant difference was seen in mean score of the “Distance thrown” that might occur among the three different groups, whilst adjusting for pre test scores. The outputs are of indication that the independent variables did not have any impact on the distance thrown in the discus throw among the subjects.

**CONCLUSION AND RECOMMENDATIONS**

* The Guided Imagery training was found to have a significant Impact on the skill learning ability in discus throw.
* Perceptual cognitive training could not account for any significant impact on the Discus throw skill acquisition.
* The improvement among the subjects exposed to various experimental conditions was seen to be highest in case of Imagery training and then PCT.

**RECOMMENDATIONS**

* Such studies may be conducted at various spheres of sports and physical activity so that the results could be gathered and certain theories could be developed.
* The training for the different motor abilities is different and hence they put different kind of load on body and mind. The effect of different Psychological skill training enhancing skill acquisition in case of the sportsmen could be studied.
* The study could be undertaken with a better control over the extraneous variables and with better experimental conditions which must consider a very reliable method of monitoring and manipulating the training loads.

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