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A RELATIONSHIP BETWEEN UNILATERAL AND BILATERAL POWER TRAINING AND IMPROVED UPBODY

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Abstract:

The purpose of the study was to find out the influence of unilateral and bilateral power training programme on upper body power. To achieve the purpose of the present study, forty five soccer players were selected as subjects at random from Pudukkottai district, Tamilnadu, India and their ages ranged from 18 to 21 years. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=45) were randomly assigned into three equal groups of fifteen soccer players each. The groups were assigned as unilateral power training group (UPTG), bilateral power training group (BPTG) and control group (CG) in an equivalent manner. With the guidance of supervisor and experts in the field of physical education and coaching, the investigator had designed two training programmes namely unilateral power training and bilateral power training. The subjects belong to unilateral training and bilateral power training was treated on them for about 12 weeks in their respective training programmes. The training programmes were scheduled at 6.00 to 7.30 am for alternate three days in a week for both the groups. The subjects belonging to control group was not treated with any training program. After completion of the treatment the subjects belong to all the groups were again tested on criterion measures as measured during the initial test. The collected data on criterion measures were treated by dependent 't' test and analysis of covariance to test the significance of mean difference among the three groups on performance related factors. Further if its significance was observed, as post-hoc test, scheffe's post hoc test was applied. The bilateral power training group showed significant differences on upper body power than unilateral power training group and control group.

Key Words: Unilateral, Bilateral, Power.

Introduction:

Our everyday weight training involves movement that requires both the extremities (arms & legs) performing an action. Action in the gym requires the activation of muscles and it will be the executing muscles generating force to perform a movement. Any exercises performed when both the limbs are working in tandem will be termed as a bilateral movement. Even movements like getting up the chair will be termed as a bilateral movement. Similarly, movement involving a single limb will be termed as a unilateral movement. Exercises like a single leg press, pistols, one arm overhead press and a single leg dead lift will be termed as a unilateral movement. In our day to day activities we perform movements that are unilateral movement. A beautiful example of this will be walking and running.

Methodology:

The purpose of the study was to find out the influence of unilateral and bilateral power training programme on upper body power. To achieve the purpose of the present study, forty five soccer players were selected as subjects at random from Pudukkottai district, Tamilnadu, India and their ages ranged from 18 to 21 years. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=45) were randomly assigned into three equal groups of fifteen soccer players each. The groups were assigned as unilateral power training group (UPTG), bilateral power training group (BPTG) and control group (CG) in an equivalent manner. With the guidance of supervisor and experts in the field of physical education and coaching, the investigator had designed two training programmes namely unilateral power training and bilateral power training. The subjects belong to unilateral training and bilateral power training was treated on them for about 12 weeks in their respective training programmes. The training programmes were scheduled at 6.00 to 7.30 am for alternate three days in a week for both the groups. The subjects belonging to control group was not treated with any training program. After completion of the treatment the subjects belong to all the groups were again tested on criterion measures as measured during the initial test. The collected data on criterion measures were treated by dependent 't' test and analysis of covariance to test the significance of mean difference among the three groups on performance related factors. Further if its significance was observed, as post-hoc test, scheffe's post hoc test was applied.

Results:

Table 1: Computation of Analysis of Covariance of Mean of Unilateral Power Training, Bilateral Power Training and Control Groups on Upper Body Power (in Metres)

	Unilateral Power Training	Bilateral Power Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	5.64	5.48	5.61	BG	0.22	2	0.11	0.99
				WG	4.72	42	0.11	
Post-Test Means	6.78	7.12	5.57	BG	20.11	2	10.05	180.27*
				WG	2.34	42	0.05	
Adjusted Post-Test Means	6.77	7.14	5.56	BS	20.18	2	10.09	185.33*
				WS	2.23	41	0.05	

An examination of table 1 indicated that the pre test means of unilateral power training, bilateral power training and control groups were 5.64, 5.48 and 5.61 respectively. The obtained F-ratio for the pre-test was 0.99 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was not significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant differences between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the unilateral power training, bilateral power training and control groups were 6.78, 7.12 and 5.57 respectively. The obtained F-ratio for the post-test was 180.27 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the unilateral power training, bilateral power training and control groups were 6.77, 7.14 and 5.56 respectively. The obtained F-ratio for the adjusted post-test means was 185.33 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on upper body power. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in table 2.

Table 2: The Scheffe's Test for the Differences between the Adjusted Post Test Paired Means on Upper Body Power

Adjusted Post-test means			Mean Difference	CI
Unilateral Power Training	Bilateral Power Training	Control Group		
6.77	7.14	---	0.37*	0.20
6.77	---	5.56	1.21*	
---	7.14	5.56	1.58*	

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table II proved that there existed significant differences between the adjusted means of unilateral power training with bilateral power training (0.37), unilateral power training with control group (1.21), bilateral power training with control group (1.58) at 0.05 level of confidence with the confidence interval value of 0.20. The pre, post and adjusted means on upper body power were presented through bar diagram for better understanding of the results of this study in figure 1.

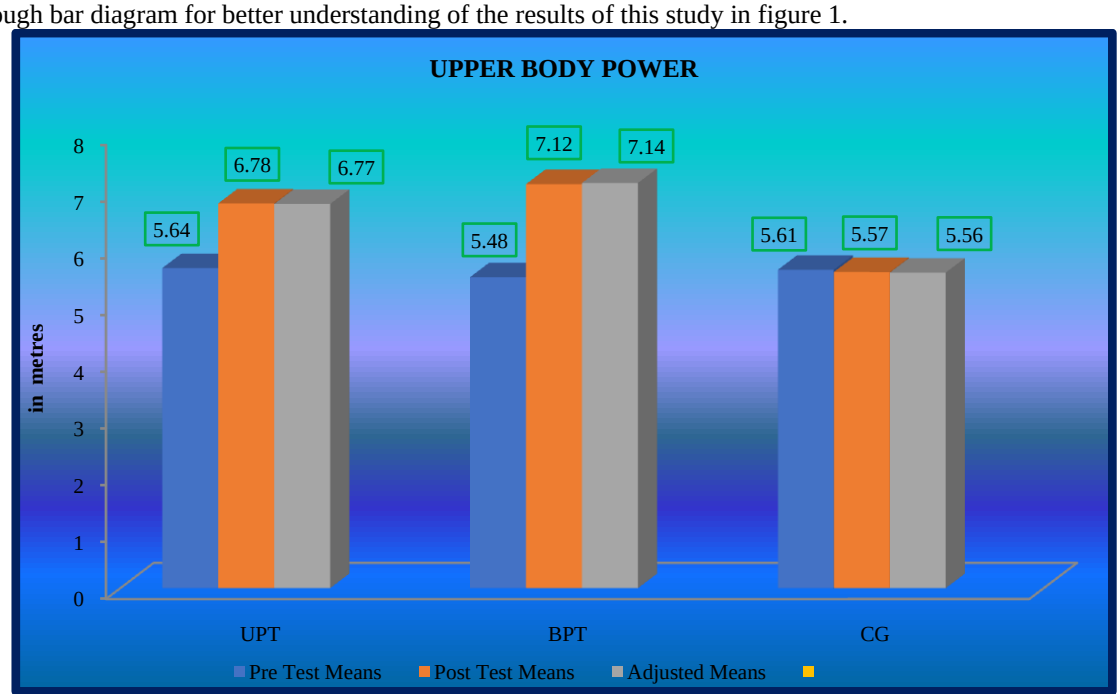

Figure 1: Pre Post and Adjusted Post Test Differences of the, Unilateral Power Training, Bilateral Power Training and Control Groups on Upper Body Power

Conclusions:

From the analysis of the data, the following conclusions were drawn:

- The result reveals that upper body power the unilateral power training group showed significant differences than the control group.
- The result reveals thatupper body power the bilateral power training group showed significant differences than the control group.
- The bilateral power training group showed significant differences on upper body power than unilateral power training group and control group.

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