

Examine the Changes on Explosive Power Due to Dismounting and Reschooling Training Process

Renchu. T¹, Dr. V. A. Manicka²

¹Ph.D Scholar (Part Time), Department of Physical Education & Health Sciences, Alagappa University
Karaikudi

²Associate Professor, Department of Physical Education & Health Sciences, Alagappa University
Karaikudi

ABSTRACT

The main task of the study was to examine the changes on explosive power due to dismounting and reschooling training process. To achieve the task of the study, sixty men students studying bachelor degree in Alagappa university college of physical education, Alagappa university, karaikudi, Tamil Nadu, India, were selected as subjects and they were divided into four equal groups of fifteen subjects each at random. Group I and Group II underwent weight training and plyometric training respectively for three days per week for twelve weeks whereas Group III underwent complex weight and plyometric training and they underwent weight training for first six weeks and plyometric training for remaining six weeks as three days per week for twelve weeks. And Group IV acted as control they did not undergo any special training programme apart from their regular physical education programme of the curriculum. All the subjects of the four groups were tested on explosive power at prior and immediately after the training programme as pre and posttests respectively, at every ten days of dismounting programme for forty days (four season) and after the four weeks of reschooling programme. The collected data were statistically analyzed by using 4×7 factorial ANOVA with last factor repeated measures to find out the significant differences between rows (groups) and columns (tests). Whenever, the obtained “F” ratio for interaction changes was found to be significant, the simple changes in test was used as a follow up test. Since, four groups and seven different stages of tests were compared, whenever the obtained “F” ratio value in the simple changes was significant the Scheffe’S test was applied as post hoc test to determine the paired mean differences, if any. The results of the study showed that there was significant difference exist between weight training group, plyometric training group and complex weight and plyometric training group when compared to control group on explosive power. Significant differences were found among the experimental groups on explosive power after first and second season of dismounting period. And no significant differences were found among the experimental groups on explosive power after third and fourth season of dismounting period. It is revealed that there were no significant decreases on explosive power after first and second season of dismounting period. And there were significant decreases on explosive power after third and fourth season of dismounting period. The results of the study also showed that there was significant difference exist between fourth season and after four weeks of training period on explosive power for weight training group, plyometric training group and complex weight and plyometric training group.

Keywords: Explosive power, Dismounting, Reschooling, Weight Training, Plyometric training and Complex Training.

INTRODUCTION

Sports training is the basic form of an athlete's training. It is the preparation systematically organized with the help of exercises, which in fact is a pedagogically organized process of controlling an athlete's development (his sporting perfection)

METHODOLOGY

The main task of the study was to examine the changes on explosive power due to dismounting and reschooling training process. To achieve the task of the study, sixty men students studying bachelor degree in Alagappa university college of physical education, Alagappa university, Karaikudi, Tamil Nadu, India, were selected as subjects and they were divided into four equal groups of fifteen subjects each at random. Group I and Group II underwent weight training and plyometric training respectively for three days per week for twelve weeks whereas Group III underwent complex weight and plyometric training and they underwent weight training for first six weeks and plyometric training for remaining six weeks as three days per week for twelve weeks. And Group IV acted as control who did not undergo any special training programme apart from their regular physical education programme of the curriculum. All the subjects of the four groups were tested on explosive power at prior and immediately after the training programme as pre and posttests respectively, at every ten days of dismounting programme for forty days (four season) and after the four weeks of reschooling programme. The collected data were statistically analyzed by using 4×7 factorial ANOVA with last factor repeated measures to find out the significant differences between rows (groups) and columns (tests). Whenever, the obtained F-ratio for interaction changes was found to be significant, the simple changes test was used as a follow up test. Since, four groups and seven different stages of tests were compared, whenever the obtained F-ratio value in the simple changes was significant the Scheffe'S test was applied as post hoc test to determine the paired mean differences, if any.

TRAINING PROGRAMME

Group I and Group II underwent weight training and plyometric training respectively for three days per week for twelve weeks whereas Group III underwent complex weight and plyometric training and they underwent weight training for first six weeks and plyometric training for remaining six weeks as three days per week for twelve weeks. And Group IV acted as control who did not undergo any special training programme apart from their regular physical education programme of the curriculum. Training was given in the morning session. The training session includes warming up and limbering down. Every day the workout lasted for 60 minutes. The subjects underwent their respective training programmes as per the schedules under the strict supervision of the investigator.

ANALYSIS OF THE DATA

The two-way analysis of variance values on explosive power of all four groups at seven different stages of test have been presented in below Table.

TABLE THE TWO-WAY ANALYSIS OF VARIANCE ON EXPLOSIVE POWER OF WEIGHT TRAINING, PLYOMETRIC TRAINING, COMPLEX WEIGHT AND PLYOMETRIC TRAINING AND CONTROL GROUPS AT SEVEN DIFFERENT STAGES OF TESTS

Source of variance	Sum of squares	Df	Mean squares	Obtained "F" ratio
Between				
A factor (groups)	62.49	3	20.83	5.20*
Error	224.36	56	4.01	
Within				
B factor (tests)	96.72	6	16.12	201.50*
AB factor (interaction)	34.71	18	1.93	24.13*
Error	26.57	336	0.08	

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 3 and 56, 6 and 336 & 18 and 336 were 2.772, 2.1264 and 2.10 respectively.

The above table shows that the obtained F-ratio value 5.20 for row (groups) on explosive power which is greater than the required table value 2.772 for significance with df 3 and 56. It further shows that the obtained F-ratio value 201.50 for column (tests) on explosive power which is greater than the required table value 2.1264 for significance with df 6 and 336. It also shows that the obtained 'F' ratio value 24.13 for interaction effect (groups × tests) on explosive power which is also greater than the required table value 2.10 for significance with df 18 and 336.

The results of the study indicated that there was a significant difference among rows (groups) and among columns (different stages of tests) on explosive power.

The results of the study indicated that there was a significant difference in the interaction effect [between rows (groups) and columns (tests)] on explosive power. Since, the interaction effect was significant, the simple test was applied as follow up test and they are presented in below table.

TABLE THE SIMPLE EFFECT VALUES OF ALL FOUR GROUPS (ROWS) AT SEVEN DIFFERENT STAGES OF TESTS (COLUMNS) ON EXPLOSIVE POWER

Sources of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Groups and Pre-Test	0.18	3	0.06	0.75
Groups and Post Test	25.40	3	8.47	105.88*
Groups and First Cessation	23.38	3	7.79	97.38*
Groups and Second Cessation	21.47	3	7.16	89.50*
Groups and Third Cessation	0.40	3	0.13	1.63

Groups and Fourth Cessation	0.18	3	0.60	0.75
Groups and After Retraining Period	26.18	3	8.73	109.13*
Tests and Weight Training Group	21.30	6	3.55	44.38*
Tests and Plyometric Training Group	42.90	6	7.15	89.38*
Tests and Complex Weight and Plyometric Training Group	61.12	6	10.19	127.38*
Tests and Control Group	0.11	6	0.02	0.25
Error	26.57	33	0.08	
		6		

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 3 and 336, and 6 and 336 were 2.60 and 2.1264 respectively).

The above table shows that the obtained F-ratio values 105.88, 97.38, 89.50 and 109.13 for groups and posttest values, groups and first season values, groups and second season values and groups and after reschooling period values respectively on explosive power which are greater than the required table value 2.60 for significance with df 3 and 336 at .05 level of confidence. And also, the obtained “F” ratio value 44.38, 89.38 and 127.38 respectively for tests and weight training group, tests and plyometric training group and tests and complex weight and plyometric training group on explosive power which are greater than the required table value 2.1264 for significance with df 6 and 336 at .05 level of confidence.

The above table also shows that the obtained “F” ratio values 0.75, 1.63 and 0.75 for groups and pretest values, groups and third season values and groups and fourth season values respectively on explosive power which are less than the required table value 2.60 for significance with df 3 and 336, at .05 level of confidence. It further shows that the obtained “F” ratio value 0.25 and tests and control group respectively on explosive power which is also less than the required table value 2.1264 with df 6 and 336 for significance at .05 level of confidence.

Hence, the results of the study showed that there was a significant difference between groups and posttest values, groups and first season values, groups and second season values, groups and after reschooling period values, tests and weight training group, tests and plyometric training group and tests and complex weight and plyometric training group on explosive power. And no significant difference was found between groups and pretest values, groups and third season values, groups and fourth season values and tests and control group on explosive power.

Since, four groups and seven different stages of tests were compared, whenever the obtained “F” ratio value in the simple effect was significant, the Scheffe’S test was applied as post hoc test to find out the paired mean difference, if any and it was presented below.

THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON EXPLOSIVE POWER (POST TEST)

Weight training group	Plyometric training group	Complex weight and plyometric training group	Control group	Mean difference	Confidence interval
49.13	49.53	-	-	0.40*	0.26
49.13	-	49.87	-	0.74*	0.26
49.13	-	-	48.13	1.00*	0.26
-	49.53	49.87	-	0.34*	0.26
-	49.53	-	48.13	1.40*	0.26
-	-	49.87	48.13	1.74*	0.26

* Significant at .05 level of confidence.

THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON EXPLOSIVE POWER (FIRST SEASON)

Weight training group	Plyometric training group	Complex weight and plyometric training group	Control group	Mean difference	Confidence interval
49.07	49.47	-	-	0.40*	0.26
49.07	-	49.80	-	0.73*	0.26
49.07	-	-	48.13	0.94*	0.26
-	49.47	49.80	-	0.33*	0.26
-	49.47	-	48.13	1.34*	0.26
-	-	49.80	48.13	1.67*	0.26

* Significant at .05 level of confidence.

THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON EXPLOSIVE POWER (SECOND SEASON)

Weight training group	Plyometric training group	Complex weight and plyometric training group	Control group	Mean difference	Confidence interval
49.00	49.40	-	-	0.40*	0.26
49.00	-	49.73	-	0.73*	0.26
49.00	-	-	48.13	0.87*	0.26
-	49.40	49.73	-	0.33*	0.26
-	49.40	-	48.13	1.27*	0.26
-	-	49.73	48.13	1.60*	0.26

* Significant at .05 level of confidence.

THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIREDMEANS OF GROUP ON EXPLOSIVE POWER (AFTER RESCHOOLING PERIOD)

Weight training group	Plyometric training group	Complex weight and plyometric training group	Control group	Mean difference	Confidence interval
49.20	49.47	-	-	0.27*	0.26
49.20	-	49.93	-	0.73*	0.26
49.20	-	-	48.13	1.07*	0.26
-	49.47	49.93	-	0.46*	0.26
-	49.47	-	48.13	1.34*	0.26
-	-	49.93	48.13	1.80*	0.26

* Significant at .05 level of confidence

THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF TESTS ON EXPLOSIVE POWER (WEIGHT TRAINING GROUP)

Pre test	Post test	First Season	Second Season	Third Season	Fourth Season	After retraining period	Mean difference	Confidence interval
48.13	49.13	-	-	-	-	-	1.00*	0.41
48.13	-	49.07	-	-	-	-	0.94*	0.41
48.13	-	-	49.00	-	-	-	0.87*	0.41
48.13	-	-	-	48.27	-	-	0.14	0.41
48.13	-	-	-	-	48.20	-	0.07	0.41
48.13	-	-	-	-	-	49.20	1.07*	0.41
-	49.13	49.07	-	-	-	-	0.06	0.41
-	49.13	-	49.00	-	-	-	0.13	0.41
-	49.13	-	-	48.27	-	-	0.86*	0.41
-	49.13	-	-	-	48.20	-	0.93*	0.41
-	49.13	-	-	-	-	49.20	0.07	0.41
-	-	49.07	49.00	-	-	-	0.07	0.41
-	-	49.07	-	48.27	-	-	0.80*	0.41
-	-	49.07	-	-	48.20	-	0.87*	0.41
-	-	49.07	-	-	-	49.20	0.13	0.41
-	-	-	49.00	48.27	-	-	0.73*	0.41
-	-	-	49.00	-	48.20	-	0.80*	0.41
-	-	-	49.00	-	-	49.20	0.20	0.41
-	-	-	-	48.27	48.20	-	0.07	0.41
-	-	-	-	48.27	-	49.20	0.93*	0.41
-	-	-	-	-	48.20	49.20	1.00*	0.41

* Significant at .05 level of confidence.

**THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF TESTS
ON EXPLOSIVE POWER
(PLYOMETRIC TRAINING GROUP)**

Pre test	Post test	First Season	Second Season	Third Season	Fourth Season	After retraining period	Mean difference	Confidence interval
48.20	49.53	-	-	-	-	-	1.33*	0.41
48.20	-	49.47	-	-	-	-	1.27*	0.41
48.20	-	-	49.40	-	-	-	1.20*	0.41
48.20	-	-	-	48.20	-	-	0.00	0.41
48.20	-	-	-	-	48.13	-	0.07	0.41
48.20	-	-	-	-	-	49.47	1.27*	0.41
-	49.53	49.47	-	-	-	-	0.06	0.41
-	49.53	-	49.40	-	-	-	0.13	0.41
-	49.53	-	-	48.20	-	-	1.33*	0.41
-	49.53	-	-	-	48.13	-	1.40*	0.41
-	49.53	-	-	-	-	49.47	0.06	0.41
-	-	49.47	49.40	-	-	-	0.07	0.41
-	-	49.47	-	48.20	-	-	1.27*	0.41
-	-	49.47	-	-	48.13	-	1.34*	0.41
-	-	49.47	-	-	-	49.47	0.00	0.41
-	-	-	49.40	48.20	-	-	1.20*	0.41
-	-	-	49.40	-	48.13	-	1.27*	0.41
-	-	-	49.40	-	-	49.47	0.07	0.41
-	-	-	-	48.20	48.13	-	0.07	0.41
-	-	-	-	48.20	-	49.47	1.27*	0.41
-	-	-	-	-	48.13	49.47	1.34*	0.41

**THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS
OF TESTS ON EXPLOSIVE POWER COMPLEX WEIGHT
AND PLYOMETRIC TRAINING GROUP)**

Pre test	Post test	First Season	Second Season	Third Season	Fourth Season	After retraining period	Mean difference	Confidence interval
48.20	49.87	-	-	-	-	-	1.67*	0.41
48.20	-	49.80	-	-	-	-	1.60*	0.41
48.20	-	-	49.73	-	-	-	1.53*	0.41
48.20	-	-	-	48.27	-	-	0.07	0.41
48.20	-	-	-	-	48.20	-	0.00	0.41
48.20	-	-	-	-	-	49.93	1.73*	0.41
-	49.87	49.80	-	-	-	-	0.07	0.41

-	49.87	-	49.73	-	-	-	0.14	0.41
-	49.87	-	-	48.27	-	-	1.60*	0.41
-	49.87	-	-	-	48.20	-	1.67*	0.41
-	49.87	-	-	-	-	49.93	0.06	0.41
-	-	49.80	49.73	-	-	-	0.07	0.41
-	-	49.80	-	48.27	-	-	1.53*	0.41
-	-	49.80	-	-	48.20	-	1.60*	0.41
-	-	49.80	-	-	-	49.93	0.13	0.41
-	-	-	49.73	48.27	-	-	1.46*	0.41
-	-	-	49.73	-	48.20	-	1.53*	0.41
-	-	-	49.73	-	-	49.93	0.20	0.41
-	-	-	-	48.27	48.20	-	0.07	0.41
-	-	-	-	48.27	-	49.93	1.66*	0.41
-	-	-	-	-	48.20	49.93	1.73*	0.41

The results of the study showed that there was a significant difference between weight training group and plyometric training group, weight training group and complex weight and plyometric training group, weight training group and control group, plyometric training group and complex weight and plyometric training group, plyometric training group and control group and complex weight and plyometric training group and control group on explosive power at posttest period, at after first season of dismounting period, at after second season of dismounting period and at after reschooling period.

The results of the study showed that there was a significant difference between pretest and posttest values, pretest and first season values, pretest and second season values, pretest and after reschooling period values, posttest and third season values, posttest and fourth season values, first season and third values, first season and fourth season values, second a season and third season values, second season and fourth season values, third season and after reschooling period values, fourth season and after reschooling period values on explosive power of weight training group and plyometric training group and complex weight and plyometric training group.

RESULTS

1. The results of the study showed that there was significant difference exist between weight training group, plyometric training group and complex weight and plyometric training group when compared to control group on explosive power in terms of vertical distance.
2. Significant differences were found among the experimental groups on explosive power in terms of vertical distance after first and second season of dismounting period.
3. And no significant differences were found among the experimental groups on explosive power in terms of vertical distance after third and fourth season of dismounting period.
4. It is revealed that there were no significant decreases on selected explosive power in terms of vertical distance after first and second season of dismounting period.
5. And there were significant decreases on selected power parameters after third and fourth season of dismounting period.
6. The results of the study also showed that there was significant difference exist between fourth season

and after four weeks of training period on explosive power in terms of vertical distance for weight training group, plyometric training group and complex weight and plyometric training group.

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