Original Article

EFFECTS OF VARIED PACKAGES OF AQUATIC PLYOMETRIC TRAINING ON LEG EXPLOSIVE POWER AMONG COLLEGE MALE BASKETBALL PLAYERS

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Abstract

The purpose of the study was to find out the effects of varied packages of Aquatic plyometric training on leg explosive power among college male basketball players. To achieve this purpose of the study, sixty basketball players of lovely professional University, (Punjab) were selected as subjects at random and their age were ranged between 18 to 23 years. The selected subjects were divided in to three equal groups of thirty subjects each. Group I underwent low intensity aquatic plyometric training, Group II underwent high intensity aquatic plyometric training for three days per week for twelve weeks. Group III acted as control that did not participate in any special training programme apart from their regular activities as per their curriculum. The following physical fitness components namely leg explosive power were selected as dependent variables. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences, if any. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered as an appropriate. . The result of the study indicates due to varied packages of aquatic plyometric training , leg explosive power max has been improved significantly.

Keywords: Aquatic plyometric Exercise, Leg Explosive Power, Scheffe's test.

INTRODUCTION

Plyometric training is important to all athlete because strength is always a key component to Sports. Plyometrics refers to exercises that enable a muscle to reach maximal strength in as short a time as possible. A type of exercise usually inculcates form of jumping, hoping bounding. The plyometric word comes from latin which means 'increase" and "measure", 'respectively; the combination thus means "measurable increase". Aquatic Plyometric exercise is a lower impact alternative to traditional plyometric drills. The buoyant properties of water reduce the impact forces on the musculoskeletal system during the landing phase which may also serve to reduce potential injury

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effects of varied packages of aquatic plyometric training on leg explosive power among college male basketball players.

METHODOLOGY

SELECTION OF THE SUBJECTS

The study was designed to find out the effects of varied packages (Low and High intensity) of aquatic plyometric training on leg explosive power among college male basketball players. For this purpose, sixty basketball players were selected as subjects at random and their age was between Eighteen and Twenty-three years.

EXPERIMENTAL DESIGN

Fifteen subjects were randomly assigned to each of the three groups. Experimental Group - I underwent the First packages of aquatic plyometric training (Low Intensity), Experimental Group II underwent the second packages of plyometric training (High Intensity) and Control Group was not exposed to any training.

TRAINING PROGRAME

The control group was not exposed to any specific Training However, they were participating in their regular Physical activities. The experimental groups I, and II were subjected to twelve week of Low Intensity (First Package), and High Intensity (Second Package) of Plyometric training respectively. Then training was given for three days per week (alternative days). Every training session lasted for 40 to 60 minutes. The training program was scheduled for the morning between 6.00 am and 7.00 am.

The subjects underwent their respective programme under strict supervision prior to and during every session. Subjects underwent 10 minutes warm up and warm -down exercises which included hoping, bounding, jogging, stretching, striding and push-ups. All the subjects involved in the training were questioned about their stature throughout the training period. None of them reported any injuries. However, muscle soreness was reported in the early weeks, but it subsided later.

PLYOMETRIC TRAINING PROGRAMME DESIGN

LOW INTENSITY PLYOMETRIC TRAINING (FIRST PACKAGE)

S.NO	DETAILS	DURATION
1.	Number of weeks	12 Weeks
2	Number of sessions per Week	3
3.	Duration of Each session	1 hour and 30 minutes
4.	Total number of foot contact	80-200 No
5	Rest interval between Repetition	3 to 5 minutes
6	Rest Interval between Exercises	2 to 3 minutes
7	warm up and warm down	20 Minutes

FIRST PACKAGE PLYOMETRIC TRAINING PROGRAMME

LOW INTENSITY

Weeks	Exercises	Repetitions	Contacts

I & II weeks	**1.Squat Jump** **2.Split squat Jump** **3. Two-foot ankle Hop** **4. plyometric sit ups** **5. under hand throw**	**2** **2** **2** **2** **2**	**8** **8** **8** **8** **8**
III & IV weeks	**1.Squat Jump** **2.Split squat Jump** **3. Two foot ankle Hop** **4. plyometric sit ups** **5. under hand throw**	**2** **2** **2** **2** **2**	**8** **8** **8** **8** **8**
V & VI weeks	**1.Squat Jump** **2.Split squat Jump** **3. Two foot ankle Hop** **4. plyometric sit ups** **5. under hand throw**	**3** **3** **3** **3** **3**	**8** **8** **8** **8** **8**
VII & VIII weeks	**1.Squat Jump** **2.Split squat Jump** **3. Two foot ankle Hop** **4. plyometric sit ups** **5. under hand throw**	**3** **3** **3** **3** **3**	**10** **10** **10** **10** **10**
IX & X weeks	**1.Squat Jump** **2.Split squat Jump** **3. Two foot ankle Hop** **4. plyometric sit ups** **5. under hand throw**	**4** **4** **4** **4** **4**	**8** **8** **8** **8** **8**
XI & XII weeks	**1.Squat Jump** **2.Split squat Jump** **3. Two foot ankle Hop** **4. plyometric sit ups** **5. under hand throw**	**4** **4** **4** **4** **4**	**10** **10** **10** **10** **10**

Number of the Contacts = number set x Repetition

PLYOMETRIC TRAINING PROGRAMME DESIGN HIGH INTENSITY

PLYOMETRIC TRAINING (SECOND PACKAGE)

S.NO	DETAILS	DURATION
1.	Number of weeks	12 Weeks
2	Number of sessions per Week	3
3.	Duration of Each session	1 hour and 30 minutes
4.	Total number of foot contact	80-200 No
5	Rest interval between Repetition	3 to 5 minutes
6	Rest Interval between Exercises	2 to 3 minutes
7	warm up and warm down	20 Minutes

THIRD PACKAGE PLYOMETRIC TRAINING PROGRAMME

HIGH INTENSITY

Weeks	Exercises	Repetitions	Contacts
I & II weeks	**1.Double Leg vertical Power Jump** **2. Multiple box to box squat jump**	**2** **2**	**8** **8**

	3. stadium hops	**2**	**8**
	4. Power drop	**2**	**8**
	5. low post drills	**2**	**8**
III & IV weeks	**1.Double Leg vertical PowerJump**	**2**	**10**
	.2. Multiple box to box squat jump	**2**	**10**
	3. stadium hops	**2**	**10**
	4. Power drop	**2**	**10**
	5. low post drills	**2**	**10**
V & VI weeks	**1.Double Leg vertical PowerJump**	**3**	**8**
	.2. Multiple box to box squat jump	**3**	**8**
	3. stadium hops	**3**	**8**
	4. Power drop	**3**	**8**
	5. low post drills	**3**	**8**
VII & VIII weeks	**1.Double Leg vertical PowerJump**	**3**	**10**
	.2. Multiple box to box squat jump	**3**	**10**
	3. stadium hops	**3**	**10**
	4. Power drop	**3**	**10**
	5. low post drills	**3**	**10**
IX & X weeks	**1.Double Leg vertical PowerJump**	**4**	**8**
	2. Multiple box to box squat jump	**4**	**8**
	3. stadium hops	**4**	**8**
	4. Power drop	**4**	**8**
	5. low post drills	**4**	**8**
XI & XII weeks	**1.Double Leg vertical PowerJump**	**4**	**10**
	2. Multiple box to box squat jump	**4**	**10**
	3. stadium hops	**4**	**10**
	4. Power drop	**4**	**10**
	5. low post drills	**4**	**10**

Number of the Contacts = number set x Repetition

STATISTICAL TECHNIQUES

In this study, analysis of co-variance statistical techniques was used to find out the selected Motor ability components and Physiological variables among College Men students. When the adjusted post test was significant, the Scheffe's post hoc test was used to find out the paired mean significant difference.

RESULT

COMPUTATION OF ANALYSIS OF CO-VARIANCE OF PRE TEST, POST TEST AND ADJUSTED POST TEST ON LEG EXPLOSIVE POWER OF DIFFERENT EXPERIMENTAL AND CONTROL GROUPS

(scores in centimeters)

Test	**Low Intensity**	**High Intensity**	**Control Group**	**Source of Variance**	**Sum of Squares**	**df**	**Mean Squares**	**Obtained 'F' Ratio**
Pre Test								
Mean	2.225	2.231	2.230	Between	0.0009	3	0.0003	0.552

S.D.				Within	0.0616	116	0.0005	
Post Test								
Mean	2.259	2.325	2.231	Between	0.1428	3	0.0476	53.953*
S.D.				Within	0.1024	116	0.0009	
Adjusted Post Test								
Mean	2.262	2.322	2.229	Between	0.1377	3	0.0459	128.917*
				Within	0.0409	115	0.0004	

THE ORDERED SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS

ON LEG EXPLOSIVE POWER

(scores in centimeters)

Low Intensity		High Intensity	Control Group	Mean Differences	Confidence Interval Value
2.262	-	2.322	-	0.060*	0.014
2.262	-	-	2.229	0.033*	0.014
-	-	2.322	2.229	0.093*	0.014

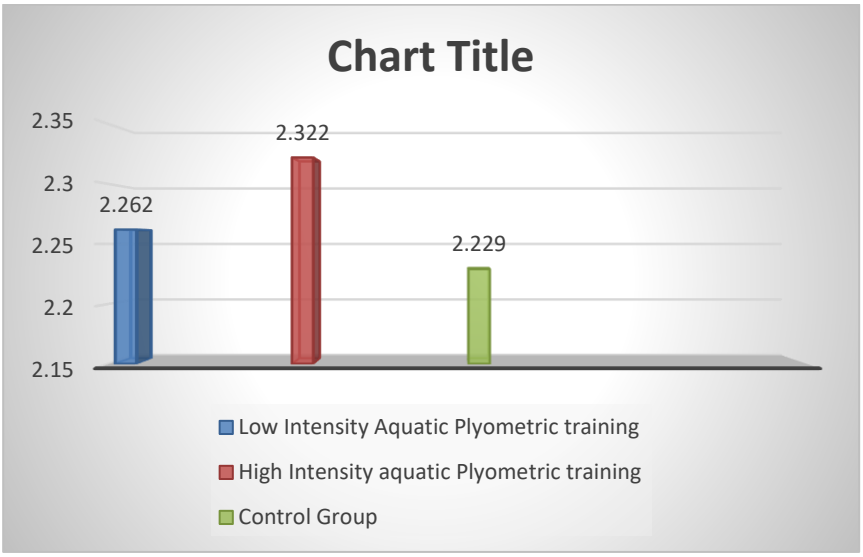
* Significant at .05 level of confidence.

The table shows that the pre-test mean values on leg explosive power of low intensity aquatic plyometric training , high intensity aquatic plyometric training and control groups are, 2.225, 2.231 and 2.230 respectively. The obtained 'F' ratio of 0.552 for pre-test scores is less than the table value of 2.684 for df 3 and 116 required for significance at .05 level of confidence on leg explosive power. The post-test mean values on leg explosive power of low intensity plyometric training, high intensity plyometric training and control groups are 2.259, 2.325 and 2.231 respectively. The obtained "F" ratio of 53.953 for post-test scores is more than the table value of 2.684 for df 3 and 116 required for significance at .05 level of confidence on leg explosive power.

The adjusted post-test means on leg explosive power of low intensity plyometric training, high intensity plyometric training and control groups are 2.262, 2.322 and 2.229 respectively. The obtained "F" ratio of 128.917 for adjusted post-test means is greater than the table value of 2.685 for df 3 and 115 required for significance at .05 level of confidence on leg explosive power.

The results of the study indicated that there was a significant difference between the adjusted post-test means of low intensity aquatic plyometric training, high intensity aquatic plyometric training and control groups on leg explosive power.

LEG EXPLOSIVE POWER



CONCLUTION

Significant improvements noticed on leg explosive power among male basketball player due to low intensity aquatic plyometric training and high intensity plyometric training groups.

Among the experimental groups, high intensity aquatic plyometric training group significantly improved the leg explosive power than that of low intensity aquatic plyometric training groups.

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