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Combined effect of resistance trainings on performance related variables among young volley ball players

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Abstract

The purpose of the study was to find out the effects of eight weeks resistance training (weight training and sand training) on performance related variables of junior level volleyball players. Total 28 states and university level male volleyball players were selected a subject for the study (16 subjects for experimental group and 12 subjects for control group) in the age group of 17-19 years. The experimental group was the weight training and sand training group and the second group acted as the control group. Prior to the administration of test and training a meeting was held with the subjects, who were made clear about the objective and purpose of the study. The testing and training procedure was explained to them in details.

Keywords: weight training, sand training, volleyball players

Introduction

The concept of progressive resistance training, or weight lifting in layman's terms, has been around at least since the 6th BC in Greece with the famous story of Milo. Throughout history resistance training has had different approaches, from the kind of weight used to different programming variables, but it has been around in one form or another for centuries.

Resistance training for volleyball is a common and routine part of any player's strength and conditioning program. Volleyball is a highly competitive sport that requires athletes to be quick, powerful and coordinated. Volleyball players are well-known for sticking to their resistance training program. They realize the extreme benefit that strength training for volleyball has on their performance. All sport-specific resistance training programs address the specific needs for each athlete. The exact needs will differ from sport to sport and even from position to position. Resistance training for volleyball programs must prevent injuries and improve game performance. Common injuries associated with volleyball are knee, shoulder, and abdominal injuries. Improved game performance includes jumping higher, moving faster, and serving/hitting harder. Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It uses the force of gravity (in the form of weighted bars, dumbbells or weight sacks) to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement. Sand training is other type of resistance training and most commonly used in training session. Sand training is a gentle on the joints but murder on the muscles way of improving your vertical jump. Sand, mud, dirt, grass and trails are excellent training surfaces

Statement of the Problem

The purpose of the study was to find out the effects of eight weeks weight and sand training, on performance related variables of junior level volleyball players.

Method and Procedure

Selection of subjects

Selected 16 volley ball players' subjects for experimental group and 12 volley ball players subjects for control group in the age group of 17-19 from junior level Alappuzha district team members. The experimental group was the weight training and sand training group and the second group acted as the control group. Prior to the administration of test and training a

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meeting was held with the subjects, who were made clear about the objective and purpose of the study. The testing and training procedure was explained to them in details.

Selection of variables and Criterion Measures

Selection of Variable	Instrument Reliability	Test	Facilities
Arm power	Stop watch (Casio)	Pull – ups	diameter 1.5 inches metal bar,
Leg power	Measuring Tape	Standing broad jump	Jumping pit
Flexibility	Sit and reach board	Sit and reach	Sit and reach box
Cardiovascular Endurance	Stop watch (Casio)	600 yard run	400m track
Agility	Stop watch (Casio)	Shuttle run	Blocks

- Cardio vascular endurance (endurance was measured by testing 600 yards run /walk and recorded to the nearest minutes/seconds.)
- Flexibility(Abdominal and low back- skeletal function, to measure the trunk and hip flexibility and sit and reach

test)

- Agility (measured by testing shuttle run and recorded to the nearest minutes/seconds.)
- Arm power (measured by testing maximum number of pull ups)
- Leg power (measured by testing standing broad jump and recorded to the maximum distance).

Experimental Design

In this study purposive random group design was used to determine the effect of two type resistance training on the junior level volleyball players. The subjects numbering 28 junior volleyball players of 17–19 years of age were divided in to experimental group and control group, consisting of 16 subjects each. The experimental group was given weight training 2 days per week and sand training programme given 1 day per week for a period of 8 week. Training programme had given 3:1 ratio. The training program was the same throughout increase in the intensity of exercises, and decreases the repetition after 3weeks. Check out the 1RM after every 3 weeks depending on the subjects.

Training Schedule

FOR ONEWEEK	Resistance Training					
	Mon	Squat	Bench Press	Biceps Curl	Triceps Curl	Bent Over Row
	Tue	Rest	Rest	Rest	Rest	Rest
	Resistance Training					
	Wed	Squat	Bench Press	Biceps Curl	Triceps Curl	Bent Over Row
	THU	REST	REST	REST	REST	REST
	Sand Training					
	Fri	Hopping	Passive Resistance Training	Crub Walk	Squat Jump	Clap Push-Up
	Sat	Rest	Rest	Rest	Rest	Rest
	Sun	1rm Test	1rm Test	1rm Test	1rm Test	1rm Test

Statistical Technique

ANCOVA is use as the statistics for this study. Analysis of co-variance is essentially an extension of analysis of variance, which allows the comparison between initial final scores. Analysis of covariance is popularly written as ANCOVA

Analysis of Data and Results of the Study

Standing Broad Jump

Control Factors	Pre test			Post test			df	t value
	N	Mean	SD	N	Mean	SD		
Experimental	16	2.31	21.85	16	2.32	22.08	15	2.960*
Control	12	2.33	26.36	12	2.33	.26	11	0.838

*significant at 0.05 level of, the tabulated value is 2.960 Shuttle Run

Control Factors	Pre test			Post test			df	t value
	N	Mean	SD	N	Mean	SD		
Experimental	16	10.32	.91	16	10.28	0.90	15	2.020
Control	12	10.40	.78	12	10.40	.78	11	1.301

*significant at 0.05 level of, the tabulated value is 2.960 Sit Reach

Control Factors	Pre test			Post test			df	t value
	N	Mean	SD	N	Mean	SD		
Experimental	16	4.37	3.00	16	5.75	3.13	15	4.793*
Control	12	3.41	2.74	12	2.42	0.78	11	0.321

significant at 0.05 level of, the tabulated value is 2.960 600yard Run

Control Factors	Pre test			Post test			df	t value
	N	Mean	SD	N	Mean	SD		
Experimental	16	2.50	0.33	16	2.45	0.40	15	3.250*
Control	12	2.53	0.42	12	2.53	0.42	11	0.692

*significant at 0.05 level of, the tabulated value is 2.960 Pull Up

Control Factors	Pre test			Post test			df	t value
	N	Mean	SD	N	Mean	SD		
Experimental	16	9.87	3.11	16	10.62	3.32	15	4.392*
Control	12	8.66	3.98	12	8.50	3.42	11	0.692

significant at 0.05 level of, the tabulated value is 2.960

Discussion

The experimental group had to undergo weight training and sand training program for duration of eight weeks with three days session in a week. The control group did not participated in any sort of resistance programme during the same period. The total duration of each workout session (warming up, training & cooling down) of one hour. All the subject were tested on performance related variables, such as cardiovascular endurance, agility, flexibility, arm power and leg power before and after four week of resistance training programme. Endurance was recorded as the time required completing 600 yard Run/Walk to the nearest minute and seconds. Flexibility was measured by sit and reach test recorded to the nearest 1/10 of the cm. Agility was recorded as the time required to completing 9 meters dash nearest seconds and microseconds. Leg Power measured by standing long jump recorded as an arm power measured by push up. The data pertaining to performance related variable analyzed by paired ‘t’ test and independent ‘t’ test to determine the difference between initial and final mean for experimental and control groups. The level of significant chosen was 0.05 levels. In experimental group, significant different were seen in endurance capacity flexibility, agility, leg power and arm power. In the case of control group there were no changes or decrease is any of the performance related variables for the same period.

Conclusion

The results of the study permit the following conclusions;

- Significant difference in agility as a result of 8 week of resistance training programme.
- Significant difference in flexibility as a result of 8 week resistance training programme.
- Participation in 8 weeks of resistance training programme result in improvement of cardiovascular endurance.
- Significant difference in leg power as a result of 8 week resistance training programme.

Recommendations

The following recommendations are made,

- Resistance training programme should be added to improve the performance related variable of J volleyball players.
- Resistance training programme should be included in volleyball training schedule.
- It helps to improve playing ability of the volleyball players.
- Similar study may be undertaken with age group and sex other than one selected in this study.

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