



Isolated Combined Sand and Water Based Plyometric Exercises Impact on Jump Serving Ability of Women Volleyball Players

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ABSTRACT

The study was to examine the isolated, combined sand and water based plyometric exercises impact on jump serving ability of volleyball players. Total N=48 women college level volleyball players age ranging from 19-23 years selected from A.S.N Women's Engineering College, Tenali, Guntur (DT), Andhra Pradesh. The recruited women a volleyball player was randomly assigned into four groups each group n=12 volleyball players i.e. empirical groups I volleyball players underwent: Sand based plyometric exercises [SPE], empirical group II volleyball players underwent: water based plyometric exercises [WPE], empirical group III underwent: combined sand and water based plyometric exercises [SWP], and control volleyball players group [CVP]. CVP was practiced only volleyball. The training period was for 12- week's duration. The measurement was done by conducting AAPHER Volleyball Skills (Serve) Test in points before and after the completion of training. The collected score's were analyzed by ANCOVA and level of significant was restricted at 0.05 levels. The study found that isolated, combined sand and water based plyometric exercises had positive significant impact to improve the jump serving ability performances of empirical group's volleyball players comparative to control group. Therefore combined training is better than isolated training for improving the jump serving ability performance of women volleyball players

Keywords: – weight, plyometric, jump, serving and ability

Introduction:

Developing good volleyball strength begins in the weight room. Volleyball is an explosive, fast-paced sport that relies heavily on quick reflexes, agility, and power. As such, many players are now turning to strength and conditioning programs to help them become better athletes. While traditional exercises such as plyometrics, agility drills, and jumping exercises are integral to the success of volleyball players.

Plyometric exercise is defined as a quick, powerful movement using a pre stretch, or countermovement, that incorporates the stretch-shortening cycle. Water based plyometric exercises can help decrease impact forces, the resistive forces and density make initial movements more difficult to perform correctly, so during initial plyometric training, more emphasis on the instruction of movements is required.

Statement of the Research Problem:

To analyze the “isolated combined sand and water based plyometric exercises impact on jump serving ability of volleyball players”.

Research Hypothesis:

- There will be a significant increase in score of jump serving test performance of empirical group's volleyball players after the twelve weeks impact of isolated, combined sand and water base plyometric when compared with control group women volleyball players.
- The combined sand and water based plyometric exercises will be superior to the isolated training.

Methodology:

The study was to examine isolated, combined sand and water based plyometric exercises impact on jump serving ability of volleyball players. Total N=48 women college level volleyball players age ranging from 19-23 years selected from A.S.N Women's Engineering College, Tenali, Guntur (DT), Andhra Pradesh. The recruited women a volleyball player was randomly assigned into four groups each group n=12 volleyball players i.e. empirical groups I volleyball players underwent: Sand based plyometric exercises [SPE], empirical group II volleyball players underwent: water based plyometric exercises [WPE], empirical group III underwent: combined sand and water based plyometric exercises [SWP], and control volleyball players group [CVP]. CVP was practiced only volleyball. The training period was for 12- week's duration. The measurement was done by conducting AAPER Volleyball Skills (Serve) Test in points before and after the completion of training. The collected score's were analyzed by ANCOVA and level of significant was restricted at 0.05 levels.

Table - I
Analysis of Covariance for Jump Serving Ability Performance on Pre Test and Post Test Data of SPE, WPE, SWP and CVP Groups Volleyball Players (In numbers)

GROUPS	SPE	WPE	SWP	CVP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED 'F'
Pre Test Mean SD	19.83 2.44	19.82 2.28	19.66 1.92	19.63 2.57	Between	7.33	3	2.44	0.454
					Within	236.67	44	5.37	
Post Test Mean SD	25.66 1.43	25.91 1.92	31.25 2.70	18.25 1.21	Between	1027.39	3	342.46	94.12*
					Within	160.08	44	3.63	
Adjusted Post Test Mean	25.62	26.00	31.22	18.22	Between	1028.89	3	342.963	94.71*
					Within	155.71	43	3.62	
Mean Diff	+5.83	+6.09	+11.59	-1.38	-	-	-	-	-

Table F-ratio value at 0.05 level of confidence for 3 and 44 (df) =2.82, 3 and 43 (df) =2.82

*Significant

SPE : Sand based plyometric exercises women volleyball players group
WPE : Water based plyometric exercises women volleyball players group
SWP : Combined sand and water based plyometric exercises women volleyball players group
CVP : Control women volleyball players group.

The above table-I shows that there is a significant difference on jump serving ability performance among the four groups such sand based plyometric exercises [SPE], water based plyometric exercises [WPE], combined sand and water based plyometric exercises [SWP], and control women volleyball players group [CVP]. Since the 'F' value required being significant at 0.05 level for 3, 44 d/f and 3, 43 are 2.82, but the computation values of serving ability performance post and adjusted posttest 'F' values are 94.12 and 94.71 respectively. Which are greater than the tabulated value. Since the obtained 'F' ratio is found significant.

Table – II

SCHEFFE'S CONFIDENCE INTERVAL TEST FOR PAIRED ADJUSTED FINAL MEAN DIFFERENCES SPE, WPE, SWP and CVP GROUPS WOMEN VOLLEYBALL PLAYERS ON JUMP SERVING ABILITY PERFORMANCE

SPE	WPE	SWP	CVP	MD	CI
25.62	26.00	-	-	0.38	4.31
25.62	-	31.22	-	5.60*	
25.62	-	-	18.22	7.40*	
-	26.00	31.22	-	5.22*	
-	26.00	-	18.22	7.78*	
-	-	31.22	18.22	13.00*	

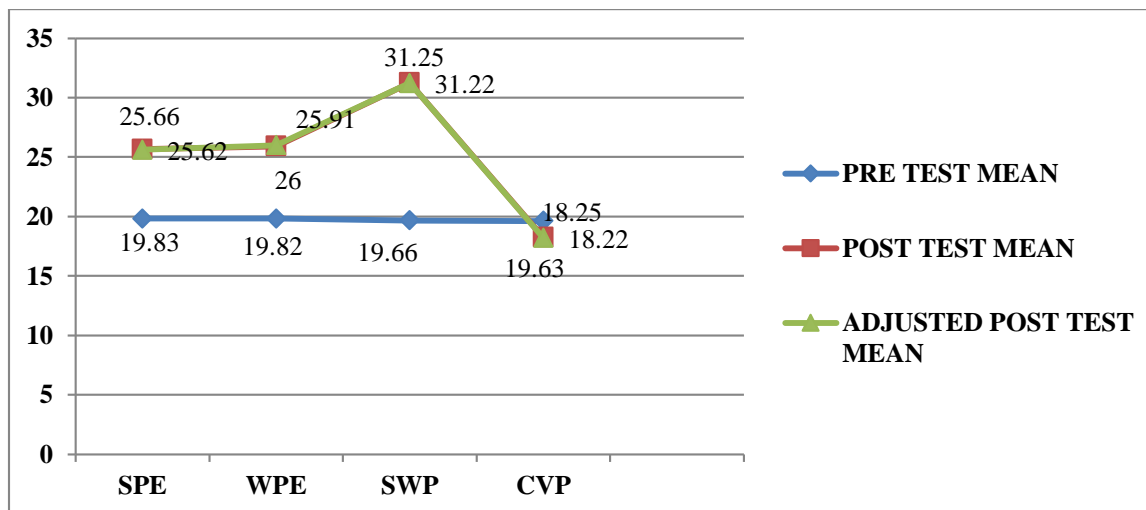
*Significant

SPE : Sand based plyometric exercises women volleyball players group
WPE : Water based plyometric exercises women volleyball players group
SWP : Combined sand and water based plyometric exercises women volleyball players group
CVP : Control women volleyball players group.

The above table II shows that significant differences present in between SPE and SWP, SPE and CVP, WPE and SWP, WPE and CVP & SWP and CVP are 5.60, 7.40, 5.22, 7.78 and 13.00 values is higher than 4.31. There is no significant differences exist between SPE and WPE is 0.38 value is lower than CI value 4.31

The initial, final and adjusted final mean values of jump serving ability score for the four group's volleyball players namely SPE, WPE, SWP and CVP present in line graph for clear understand purpose in figure:

1



Discussion on Hypothesis:

- The first hypotheses stated that there will be significant increase in score of jump serving ability test performance of empirical group's women volleyball players after the twelve weeks impact of isolated, combined sand and water based plyometric exercises when compared with control group volleyball players. The statistical analysis proved that isolated, combined sand and water based plyometric significantly increased the jump serving ability performance. Hence research hypothesis accepted.
- The second hypotheses stated that combined sand and water based plyometric exercises will be superior to the isolated training. The statistical analysis proved combined sand and water based training is better than isolated training. Hence research hypotheses accepted.

Discussion and Findings:

The study reported, on the bases of analysis table 1 &2 that isolated and combined twelve weeks training impact of sand and water based plyometric exercises positively increased the scores of women volleyball players in serving ability test. The experimental studies on above finding were Ana et al., (2015) 8-weeks of volleyball training combined jump and ball throwing training significantly improved muscular performance in female volleyball players. Nayak and Suthakar (2016) plyometric training with skill training group and Skill training group improved significantly on serving ability of volleyball players. Sandipkumar et al., (2014) plyometric and pilates exercises significantly improved jump height Jump distance, the Block jump, and the attack jump in volley ball players. Sudhir et al., (2016) training program on volleyball skills positively changed in the mean scores of Brady's volleyball test &volleyball skills

Conclusions:

On the bases of analysis report table I and II, the study shows that isolated and combined sand and water based plyometric exercises had positive impact on trained women groups volleyball players namely: SPE, WPE and SWP to increase the score of jump serving ability skills test when comparison done with control women volleyball players group. The study concluded that combined sand and water based plyometric exercises were more effective than isolated sand base plyometric exercises and water based plyometric exercises to increase the jump serving ability score of volleyball players. Further the study confirmed that isolated sand and water based training plyometric exercises are equally effective to improve the jump serving ability of women volleyball players.

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