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## **A survey study on effects of combined strength and endurance training on muscular strength endurance of volleyball interuniversity players**

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### **Abstract**

The reason for the present review was to find out the impact of simultaneous quality and continuance preparing on muscular quality perseverance on Volleyball Inter-University players. To accomplish this reason for the review, thirty young men from Chaudhary Charan Singh University (C.C.S.U.), Meerut, Uttar Pradesh were haphazardly chosen as subjects. The age of the subjects extended between 18 to 28 years. They chose subjects were separated into three gatherings of ten subjects each. Group - I outlined quality preparing before continuance preparing, Group - II planned quality preparing after perseverance preparing and Group III went about as control gathering did not take an interest in any extraordinary preparing program separated from their consistent exercises. The information was gathered at before and after the preparation program of nine weeks. Solid quality perseverance was picked as a foundation variable. The investigation of covariance (ANCOVA) was utilized to break down the information. The aftereffects of the review demonstrated that the Muscular quality continuance was altogether enhanced because of the simultaneous quality and perseverance preparing.

**Keywords:** Concurrent strength, endurance, muscular strength endurance, bent knee sit-up, ANCOVA

### **Introduction**

Simultaneous quality and continuance preparing is attempted by various competitors in Volleyball with an end goal to accomplish adjustments particular to both types of preparing. Writing discoveries to date, researching the neuromuscular adjustments and execution changes related with simultaneous quality and continuance preparing (alluded to as simultaneous preparing) have delivered conflicting outcomes. A few reviews have demonstrated that simultaneous preparing restrains the improvement of quality and power, yet does not influence the advancement of high impact wellness when contrasted with either method of preparing alone. Different reviews have demonstrated that simultaneous preparing has no inhibitory impact on the improvement of quality and perseverance. Strength and endurance adaptations. Strength and endurance training regimes represent and induce distinctly different adaptive responses when performed individually. Typically, quality preparing programs include expansive muscle gather initiation of high resistance low reiteration activities to build the compel yield capacity of skeletal muscle. Conversely, perseverance preparing is characterized as rehashed sub-maximal compressions with heaps of low resistance. (Dudley *et al.*, 1985)<sup>[4]</sup> When performed freely, these two particular types of preparing incite generally, inverse physiological adjustments inside the muscle. Thusly, the adjustment to preparing that the muscle continues is particular to the preparation boost.

At last, quality preparing upgrades drive generation of the skeletal muscles prepared. The expanded drive generation is joined by an expansion in muscle cross-sectional zone and quick jerk fiber region, alongside increments in muscle contractile protein. Mc Donagh *et al.* (1976) Conversely, continuance preparing viably builds the muscle's oxidative limit. This adjustment is licensed to increments in moderate jerk fibre range & muscle mitochondria and vigorous catalyst movement In this review an endeavor is made to discover the simultaneous quality and perseverance preparing on Muscular quality continuance.

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**Methodology**

Amid the preparation time frame, the trial bunches experienced their individual preparing program. Test aggregates in particular, Experimental Gathering - I quality preparing before perseverance preparing, exploratory Gathering - II quality preparing after continuance preparing and bunch - III went about as a control assemble, experienced their separate preparing program three days for every week for twelve weeks. Every day the preparation timetable was led just at night session that went on for 120 minutes. Earlier and after each instructional course subjects of exploratory gatherings had 20 minutes of warm-up and 20 minutes of warm down activities including running, portability and extending works out. Solid quality continuance measured by twisted knee sit ups test and the unit of estimation was scores in number of sit ups played out the subjects. Table (1) demonstrates the dissected information on Muscular Strength Endurance. The pretest method for Muscular Strength Endurance were 34.30 for trial amass I, 34.10 for exploratory gathering II and 33.90

for control assemble. They got "F" proportion of 0.14 was lesser than the Table F-proportion 3.35. Consequently the pre-test was not noteworthy at 0.05 level of certainty for the degrees of flexibility 2 and 27. The post-test method for Muscular Strength Endurance were 41.50 for trial amass I, 36.20 for trial bunch II and 35.20 for control aggregate. They got "F" proportion of 63.36 was higher than the table Fproportion 3.35.

Consequently the post-test was huge at 0.05 level of certainty for the degrees of opportunity 2 and 27. The balanced post-test method for Muscular Strength Endurance were 42.34 for exploratory gathering I, 36.20 for and trial bunch II and 34.36 for control aggregate. They got "F" proportion of 264.78 was higher than the table F-proportion 3.37. Consequently the balanced post-test was critical at 0.05 level of certainty for the degrees of flexibility 2 and 26. Since, three gatherings were looked at, at whatever point they got "F" proportion for balanced post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table (2).

**Table 1:** Analysis of Covariance of Pre-test Post Test and Adjusted Post Test on Muscular Strength Endurance of Experimental Group I Experimental Group II and Control Group (Scores in Numbers)

Test	Exp. Group I	Exp. Group II	Control Group	SV	SS	df	MS	F Value
Pretest Mean	34.30	34.10	33.90	Between	0.80	2	0.40	0.14
S.D.	1.73	1.58	1.51	Within	77.90	27	2.89	
Post test Mean	41.50	36.20	35.20	Between	284.60	2	142.30	63.36*
S.D.	1.43	1.54	1.25	Within	59.70	27	2.21	
Adjusted Post test Mean	42.34	36.20	34.36	Between	258.92	2	128.96	264.78*
				Within	12.71	26	0.49	

\*Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 27 and 2 and 26 are 3.35 and 3.37 respectively).

**Table 2:** Scheffe's Post Hoc Test-mean Differences on Muscular Strength Endurance among Three Groups (Scores in Numbers)

Experimental Group I	Experimental Group II	Control Group	Mean Differences	Confidence Interval Value
41.34	36.20	--	5.14*	0.18
42.34	--	34.36	7.95*	0.18
--	36.20	34.36	1.84*	0.18

\*Significant at .05 level of confidence.

Table (2) demonstrates the Scheffe's Post-Hoc Test comes about. The requested balanced final mean distinction for Muscular Strength Endurance of test gatherings I, II and control gathering were tried for importance at 0.05 level of certainty against classified interim esteem. The mean contrasts between test assemble I and test aggregate II, exploratory gathering I and control amass and test bunch II and control gathering were 5.14, 7.95 and 1.84 separately and it supposedly was more noteworthy than the classified interim estimation of 0.18. Thus every one of the examinations was huge.

Discourse on discoveries the most vital purpose behind checking quality execution is to aid the assessment and movement of resistance-preparing programs. By and by, most fragments of the populace perform resistance preparing, from kids to the elderly, and the American College of Sports Medicine (1998, 2002) prescribes resistance preparing for incorporation as a rule wellbeing and wellness practice programs in grown-ups. The projects, and in addition the objectives for preparing, are different.

The measure of quality improvement relies on upon the underlying level of strong wellness, practice remedy, time accessible, and targets of the program. Standard appraisal of solid quality empowers legitimate assessment of the practice medicine and adjustments when proper. The rate of quality increment contrasts impressively amongst untrained and prepared people, with prepared people indicating much slower rates of change. A general audit of around 150 reviews uncovered that increments in solid quality, by and large, are roughly 40% in untrained people, 20% in reasonably prepared people, 16% in prepared people, 10% in propelled people, and 2% in first class people over periods going from 4 weeks to 2 years. In spite of the fact that the preparation projects, lengths, and testing strategies of these reviews contrasted extensively, these information unmistakably demonstrate a specific incline towards slower rates of movement of quality advancement with preparing knowledge. Performing practices that include a low number of reiterations on a heap that is of high resistance adequately expands quality. It is of significance that competitors have elevated amounts of quality as well as perseverance. Hence many competitors' preparation programs include synchronous quality and perseverance preparing.

Various reviews have been directed to research the conceivable obstruction impacts of performing quality preparing and continuance preparing simultaneously. Most have demonstrated that simultaneous quality and continuance preparing does in truth affect the advancement of quality or drive creation. Nelson *et al.* (1990) <sup>[1]</sup> directed

a review on already untrained subjects in which one gathering; quality prepared 4 days/wk for 20 weeks while another gathering played out a similar routine additionally performed perseverance on that days. The outcomes demonstrated that albeit both gatherings indicated increments in constrain generation, yet the quality preparing bunch indicated more prominent upgrades. Similar outcomes were found by Kraemer *et al.* (1995) <sup>[10]</sup>. Subjects in both the quality and simultaneous gathering demonstrated increments in muscle quality, however the quality just gathering indicated essentially more prominent increments than that of the simultaneous gathering. In addition, in a 10-week think about by Hickson *et al.* (1980) <sup>[7]</sup>, subjects in both the quality and simultaneous gatherings demonstrated increments in constrain generation.

Be that as it may, while the quality gathering expanded compel 6 generation for the whole 10 weeks, the simultaneous gathering showed a lessening in the most recent 2 weeks of the preparation program. These reviews display that preparation simultaneously for quality and perseverance affects the improvement of quality. Dudley *et al.* (1985) <sup>[4]</sup>, Hunter *et al.* (1987) <sup>[8]</sup> additionally observed comparable outcomes in their reviews.

Table (2) demonstrates the Scheffe's Post-Hoc Test comes about. The requested balanced final mean distinction for Muscular Strength Endurance of trial gatherings I, II and control gathering were tried for centrality at 0.05 level of certainty against private interim esteem. The mean contrasts between test bunch I and test assemble II, trial aggregate I and control amass and test Gather II and control gathering were 5.14, 7.95 and 1.84 separately and it apparently was more noteworthy than the private interim estimation of 0.18. Consequently every one of the examinations was huge.

### Conclusion

1. The simultaneous quality perseverance preparing has delivered critical change on solid quality continuance more noteworthy than control gathering of school young men.
2. Solid quality perseverance exceedingly supported to quality preparing before continuance preparing more prominent than quality preparing after continuance preparing and control gathering of school young men.
3. Quality preparing after perseverance preparing likewise create little impact on strong quality continuance when contrast and control amass.

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