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# Effects of varied regimens of concurrent resistance and aerobic training on selected skills and performance variables of college volleyball players

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**Abstract**
In the present world, sport is a sine quo none. Now, it is gaining an immense growth. At present, it has two subdivisions. It is used either for recreation or competition. To achieve top level performance, scientific systematic training is required. Due to scientific developments, the field of sports has gained significance as never before. So, people are ready to select sports as their profession. Due to this free flow of people in sports, the competitive level has become high. In case, an individual wants to establish himself as a professional sportsman, his trained basic skills should be systemized along with technical and tactical skills. The purpose of the study was to find out the effects of varied regimens of concurrent resistance and aerobic training on selected skills and performance variables of college volleyball players. In this study 80 inter collegiate Male volleyball players were selected as subjects, who have entered into the quarter finals among the affiliated colleges of Bharathiar University, Coimbatore. Their age ranged from 19 to 25 years. They were randomly divided into four groups of 20 each. The segmented groups were named as concurrent progressive resistance with high intensity interval step aerobics training group, concurrent progressive resistance with high intensity interval run aerobic training group, concurrent sequential resistance with high intensity interval step aerobics training group, the control group was allowed to play their regular volleyball game, but they were not given any treatments. The following statistical techniques were adopted to treat the data in connection with the established hypothesis and objectives of the study. The findings observed on testing the comparison effects of concurrent progressive resistance with high intensity interval step aerobics training group on selected skills and performance variables of college volleyball players significant mean difference was observed. The mean different between pre and post of on selected skills and performance variables namely speed, and agility. Skill performance jump serve was statistically significant. It was concluded that all the three training methods of concurrent progressive resistance preceded with high intensity interval step aerobics training, concurrent progressive resistance preceded with high intensity interval run aerobic training and concurrent sequential resistance with high intensity interval step aerobics training produced significant improvements in the performance of college volleyball players.

**Keywords:** Aerobic training and concurrent progressive resistance

## Introduction
In the present world, sport is a sine quo none. Now, it is gaining an immense growth. At present, it has two subdivisions. It is used either for recreation or competition. To achieve top level performance, scientific systematic training is required. Due to scientific developments, the field of sports has gained significance as never before. So, people are ready to select sports as their profession. Due to this free flow of people in sports, the competitive level has become high. In case, an individual wants to establish himself as a professional sportsman, his trained basic skills should be systemized along with technical and tactical skills. So, as a professional volleyball player one has to develop longevity in exposing his physical and mental capabilities along with proper required approach. For this, exclusive professional training is required for individuals to enhance their longevity in speed, explosive power and strength endurance in each and every chosen movement.

## Methodology
To achieve the purpose of the study 80 inter collegiate Male volleyball players were selected as subjects, who have entered into the quarter finals among the affiliated colleges of Bharathiar

University, Coimbatore. Their age ranged from 19 to 25 years. They were randomly divided into four groups of 20 each. The segmented groups were named as concurrent progressive resistance with high intensity interval step aerobics training group, concurrent progressive resistance with high intensity interval run aerobic training group, concurrent sequential resistance with high intensity interval step aerobics training group, the control group was allowed to play their regular volleyball game, but they were not given any treatments. The subjects were free to withdraw their consent in case of discomfort during the period of training, but there was not a single dropout during the study.

## Result and Discussion

**Table 1:** Significance of mean gains/losses between pre and post test of concurrent progressive resistance with high intensity interval step aerobics training on selected skills and performance variables of college volleyball players

| Variables | Pretest Mean ± SD | Posttest Mean ± SD | Mean Diff | SEM | 't' - ratio |
|---|---|---|---|---|---|
| **Performance Variables** | | | | | |
| Speed (in Seconds) | 7.25±0.30 | 6.83 ±0.34 | 0.42 | 0.05 | 7.82* |
| Agility (in Seconds) | 17.49±.44 | 16.87±0.54 | 0.62 | 0.05 | 11.23* |
| **Skill Performance Variables** | | | | | |
| Jump Serve (in points) | 6.76±0.40 | 7.91±0.36 | 1.15 | 0.08 | 15.01* |

* Significant at the 0.05 level (2.09)

Table – 1indicate that the obtained "t" ratio of skills and performance variables were speed (7.82), Agility (11.23) and Jump Serve (15.01) the obtained „t" ratios on selected skills and performance variables were greater than the critical value of 2.09 for degrees of freedom 19. It was observed that the mean gain and losses made from pre and posttest were statistically showing that twelve weeks practice of Concurrent progressive Resistance with high intensity interval step aerobics training produced significant improvement.

**Table 2:** Significance of mean gains/losses between pre and post test of concurrent progressive resistance with high intensity interval run aerobic training on selected skills and performance variables of college volleyball players

| Variables | Pretest Mean ± SD | Posttest Mean ± SD | Mean Diff | SEM | 't' - ratio |
|---|---|---|---|---|---|
| **Performance Variables** | | | | | |
| Speed (in Seconds) | 7.24±0.29 | 6.98±0.30 | 0.26 | 0.04 | 7.06* |
| Agility (in Seconds) | 17.48±0.6 | 17.01±0.63 | 0.47 | 0.05 | 9.53* |
| **Skill Performance Variables** | | | | | |
| Jump Serve (in points) | 6.77±0.48 | 7.47±0.35 | 0.70 | 0.06 | 11.33* |

Table – 2 indicate that the obtained "t" ratio of skills and performance variables were speed (7.06), Agility (9.53) and Jump Serve (11.33). The obtained „t" ratios on selected skills and performance variables were greater than the critical value of 2.09 for degrees of freedom 19. It was observed that the mean gain and losses made from pre and posttest were statistically showing that twelve weeks practice of concurrent progressive resistance with high intensity interval run aerobic training with produced significant improvement.

**Table 3:** Significance of mean gains/losses between pre and post test of concurrent sequential resistance with high intensity interval step aerobics training on skills and performance variables of college volleyball players

| Variables | Pretest Mean ± SD | Posttest Mean ± SD | Mean Diff | SEM | 't' - ratio |
|---|---|---|---|---|---|
| **Performance Variables** | | | | | |
| Speed (in Seconds) | 7.24±0.40 | 6.65±.23 | 0.58 | 0.06 | 9.64* |
| Agility (in Seconds) | 17.54±0.5 | 16.40±.56 | 1.14 | 0.06 | 20.53* |
| **Skill Performance Variables** | | | | | |
| Jump Serve (in points) | 6.76±0.33 | 8.19±0.41 | 1.43 | 0.12 | 12.37* |

Table – 3 indicate that the obtained "t" ratio of skills and performance variables were speed (9.64), Agility (20.53) and Jump Serve (12.37). The obtained "t" ratios on selected skills and performance variables were greater than the critical value of 2.09 for degrees of freedom 19. It was observed that the mean gain and losses made from pre and posttest were statistically showing that twelve weeks practice of concurrent sequential resistance with high intensity interval step aerobics training produced significant improvement.

**Table 4:** Significance of mean gains/losses between pre and post test of control groups on selected skills and performance variables of college volleyball players

| Variables | Pretest Mean ± SD | Posttest Mean ± SD | Mean Diff | SEM | 't' - ratio |
|---|---|---|---|---|---|
| **Performance Variables** | | | | | |
| Speed (in Seconds) | 7.24±0.29 | 7.23±0.29 | 0.02 | 0.012 | 1.23 |
| Agility (in Seconds) | 17.50±0.61 | 17.52±0.64 | 0.02 | 0.06 | 0.33 |
| **Skill Performance Variables** | | | | | |
| Jump Serve (in points) | 6.76±0.41 | 6.78±0.42 | 0.02 | 0.008 | 1.83 |

Table –4 indicate that the obtained "t" ratio of skills and performance variables were speed (1.23), Agility (0.33) and Jump Serve (1.83). The obtained „t" ratios on selected skills and performance variables were greater than the critical value

of 2.09 for degrees of freedom 19. It was observed that the mean gain and losses made from pre and posttest were statistically insignificant, showing that they were not exposed to any kind of treatment.

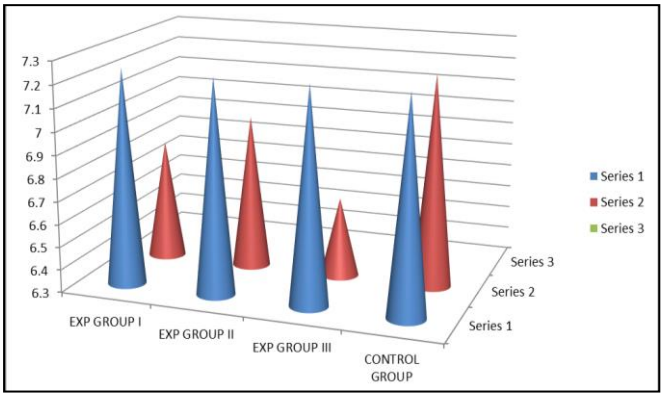


**Fig 1:** Graphical representation of pre and post – test means of speed (CPRHIISAT), (CPRHIIRAT), (CPRHIIRAT), (CSRHIISAT) and Control Group (CG) on speed

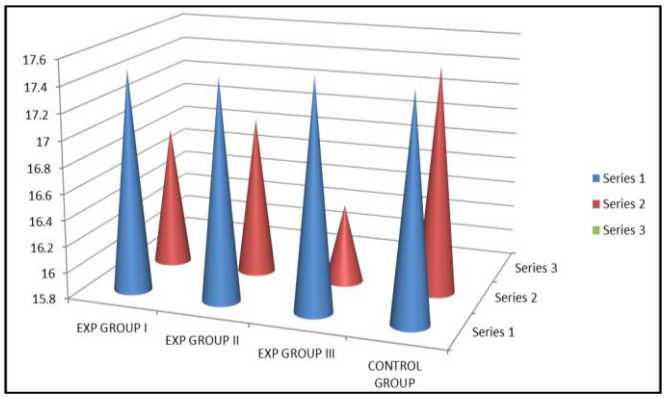


**Fig 2:** Graphical representation of pre and post – test means of (CPRHIISAT), (CPRHIIRAT), (CPRHIIRAT), (CSRHIISAT) and Control Group (CG) on Agility.

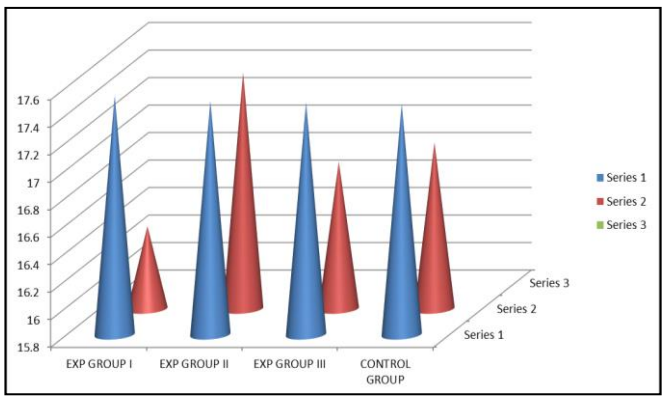


**Fig 3:** Graphical representation of pre and post – test means of (CPRHIISAT), (CPRHIIRAT), (CPRHIIRAT), (CSRHIISAT) and Control Group (CG) on Jump Serve

## Findings

The findings observed on testing the comparison effects of concurrent progressive resistance with high intensity interval step aerobics training, concurrent progressive resistance with high intensity interval run aerobic training, concurrent sequential resistance with high intensity interval step aerobics training and control group on selected motor fitness components and skill performance variables of male volleyball players are enlisted below. The mean different between pre and post of concurrent progressive resistance with high intensity interval step aerobics training on selected skills and performance variables, namely speed, agility and jump serve was statistically significant.

1. The mean different between pre and post of concurrent progressive resistance with high intensity interval run aerobic training on selected skills and performance variables, namely speed, agility and jump serve was statistically significant.
2. The mean different between pre and post of concurrent sequential resistance with high intensity interval step aerobics training on selected skills and performance variables, namely speed, agility and jump serve was statistically significant.
3. The mean different between pre and post of control group on selected skills and performance variables, namely speed, agility and jump serve was statistically not significant,

## Conclusion

It was concluded that all the three training methods of concurrent progressive resistance proceeded with high intensity interval step aerobics training, concurrent progressive resistance proceeded with high intensity interval run aerobic training and concurrent sequential resistance with high intensity interval step aerobics training produced significant improvements in the performance of college volleyball players. It was further concluded that the concurrent sequential resistance with high intensity interval step aerobics training is the best training method to improve the skills and performance variables college of college volleyball player.

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