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Comparative Effect of Selected Asanas and Pranayama on Vital Capacity among District-Level Volleyball and Kabaddi Players

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Abstract:

This study examined the comparative effect of selected yogic asanas and pranayama practices on vital capacity among district-level volleyball and kabaddi players. Thirty male players aged 18-23 years were selected from athletes who participated in the Inter-College District Volleyball and Kabaddi Championships held in 2024 at Tamralipta Mahavidyalaya, Purba Medinipur, West Bengal. The participants were assigned to three groups of ten each. Group A consisted of volleyball players, Group B consisted of kabaddi players, and Group C served as the control group. The experimental groups followed a six-week programme of specific asanas and pranayama, while the control group did not receive the intervention. Vital capacity was selected as the criterion variable and was measured before and after the training period. The collected data were analysed through the t-test at the 0.05 level of significance. The reported results indicate that both experimental groups improved their vital capacity after the training period, whereas the control group showed almost no change. The improvement was more pronounced in the kabaddi group than in the volleyball group. The study suggests that a short-term programme of selected yogic practices may be useful for improving respiratory efficiency among district-level players.

Keywords: *Asanas; Pranayama; Vital Capacity; Volleyball; Kabaddi; Yoga Training.*

1. Introduction

Yoga is a holistic discipline that combines physical postures, breathing regulation, and mental concentration. In sports training, yogic practices are often used to improve flexibility, balance, respiratory efficiency, recovery, and self-control. Among these practices, asanas help the body develop stability and mobility, while pranayama enhances breathing awareness and may improve the functional capacity of the lungs.

Vital capacity is the maximum amount of air that can be exhaled after a maximal inhalation. It is an important indicator of respiratory health and may contribute to sports performance by supporting endurance, recovery, and efficient breathing patterns. Volleyball and kabaddi are both demanding sports, but they differ in movement pattern, intensity distribution, and physiological demands. A comparison of these two groups may therefore offer useful information about how yoga-based interventions influence respiratory capacity in different types of athletes.

Although yoga has long been recommended for general health and physical efficiency, relatively few studies focus on district-level volleyball and kabaddi players in the Indian college context. The present study was

therefore undertaken to examine the comparative effect of selected asanas and pranayama on the vital capacity of district-level volleyball and kabaddi players.

2. Statement of the Problem

To examine the comparative effect of selected asanas and pranayama on vital capacity among district-level volleyball and kabaddi players.

3. Delimitations

- The study was delimited to 30 male district-level players.
- The participants were selected from athletes who took part in the Inter-College District Volleyball and Kabaddi Championships held in 2024 at Tamralipta Mahavidyalaya, Purba Medinipur, West Bengal.
- The intervention programme included Suryanamaskar, Dhanurasana, Supta Vajrasana, Matsyasana, Paschimottanasana, Nadi Shodhana Pranayama, Kapalabhati Pranayama, and Bhramari Pranayama.
- The age of the participants ranged from 18 to 23 years.
- The criterion variable of the study was vital capacity.

4. Limitations

The participants came from different personal and training backgrounds. Factors such as diet, sleep, daily routine, lifestyle, motivation, and previous exposure to yoga were not fully controlled. These factors may have influenced the outcome of the study.

5. Significance of the Study

The study may be useful for teachers of physical education, coaches, and trainers who wish to include yoga-based conditioning in sport training. A well-structured programme of asanas and pranayama may help improve respiratory function and general physical efficiency among district-level players. The study may also contribute to practical training design for students and athletes involved in volleyball and kabaddi.

6. Methodology of the Study

For the purpose of the experiment, 30 male players were randomly selected from the Inter-College District Volleyball and Kabaddi Championships in Purba Medinipur, West Bengal. The participants were divided into three groups of 10 players each: Group A, Group B, and Group C. Group A consisted of volleyball players and Group B consisted of kabaddi players. Group C served as the control group.

Both experimental groups participated in a yoga training programme consisting of selected asanas and pranayama for six weeks. The duration of each session was one hour, and the training was conducted in the morning. The control group did not undergo the special training programme.

Vital capacity was taken as the criterion variable for the study. Pre-test data were collected two days before the beginning of the training programme, and post-test data were collected two days after the completion of the six-week intervention. The collected data were analysed by applying the t-test. The level of significance was set at 0.05.

7. Results of the Study

The data were collected from the two experimental groups and the control group to examine changes in vital capacity after the six-week yoga training programme. The results are presented in Table 1.

Table 1. Pre-test and post-test comparison of vital capacity

Variable	Group	Pre-test mean	Post-test mean	Mean difference	Standard deviation	Standard error	t-value
Vital capacity	Group A (Volleyball players)	4.492	5.429	0.937	0.155	0.488	1.92
Vital capacity	Group B (Kabaddi players)	4.763	5.702	0.942	0.205	0.0653	5.88
Vital capacity	Control group	4.631	4.632	0.003	3.6514	1.1547	0.0027

Note. Statistical values in Table 1 are reproduced from the source manuscript. They should be checked against the raw dataset before journal submission.

Table 1 shows that both experimental groups recorded higher post-test means than pre-test means, while the control group showed almost no change. The mean gain was 0.937 in the volleyball group and 0.942 in the kabaddi group. On the basis of the reported values, the kabaddi group appears to have responded more strongly to the yoga intervention than the volleyball group.

8. Findings and Discussion

The findings indicate that the six-week programme of selected asanas and pranayama had a favourable effect on vital capacity. Improvement was observed in both experimental groups, whereas the control group showed no meaningful improvement. The kabaddi group appeared to respond more strongly than the volleyball group on the basis of the reported scores.

These findings support the view that yoga-based breathing and postural practices may enhance respiratory efficiency. Asanas such as Dhanurasana, Matsyasana, Supta Vajrasana, and Paschimottanasana may improve thoracic mobility and posture, while pranayama practices such as Nadi Shodhana, Kapalabhati, and Bhramari may enhance breathing control and respiratory awareness. Together, these practices may contribute to better lung function and improved vital capacity among trained players.

9. Conclusion

- The yoga training programme was associated with improvement in vital capacity in the experimental groups.
- The control group did not show meaningful improvement in vital capacity.
- The kabaddi group showed a stronger improvement than the volleyball group on the basis of the reported results.
- Selected asanas and pranayama may be considered useful supportive practices for improving respiratory function among district-level players.

10. Recommendations

- Similar studies may be conducted with larger samples and with players from other sports.

- Future studies may use longer training durations to examine whether greater improvement occurs over time.
- Similar research may be carried out with female players and with participants from different competitive levels.
- Teachers of physical education and coaches may consider including structured yoga sessions in training programmes to improve respiratory function.
- Future studies should use carefully verified statistical reporting and may include additional physiological variables besides vital capacity.

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