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Impact of three varied systems of training on selected physiological variables among the college level volleyball players

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Abstract

Background: The purpose of the study was to investigate the impact of three varied systems of training on selected physiological variables among the college level Volleyball players. It was hypothesized that there would have been a critical significant influence of eight weeks three varied systems of training such as physical activity group, gym or modern activity group and Yogic practice group on selected physical fitness variables among the college level Volleyball players.

Methods: For the present study forty-five intercollegiate men volleyball players were selected from Selvam Institutions, Namakkal, Tamilnadu, India were selected as subjects at random and their age ranged from 18 to 24 years men. The subjects had been randomly assigned to three equal groups of fifteen each and named as Group 'A' underwent Physical Activity Group 'B' underwent Gym or Modern Activity and Group 'C' underwent yogic practice. The data was collected before and after eight weeks of training. The data was analyzed by means of applying Analysis of Co-Variance (ANCOVA), Scheffe's hoc technique to find out the impact of three varied systems of training on selected physiological variables among the college level Volleyball players. The level of significance was set at 0.05.

Result: Breath Holding Time was assessed using Into Water, Blood pressure systolic was assessed using Sphygmomanometer and Blood Pressure Diastolic was assessed using Sphygmomanometer. Finally in the result of the study physical activity group had a significant improvement on speed, in gym or modern activity group had a better improvement on muscular strength and leg explosive power, then in the yogic practices group had a better improvement on flexibility of 0.05 levels of confidence.

Conclusion: The findings of the present study have strongly indicates that the physical activity group, gym or modern activity group and yogic practices group of eight weeks training have significant effect on selected physical fitness variables among the college level Volleyball player. Hence the hypothesis earlier set that three varied training groups could have been significant impact on selected physical fitness variables in light of the same the hypothesis was accepted.

Keywords: Physical activity, gym or modern activity, yogic practice

Physiological Variables: Breath holding time, blood pressure systolic and blood pressure diastolic

Introduction

Physical Activity

Although academic achievement was not significantly related to physical education enrolment, higher grades were associated with vigorous physical activity, particularly activity meeting recommended Healthy People 2010 levels (Dawn Podulka Coe) [15]. PE instruction could be improved by focussing on skill instruction and fitness in a games-based PE instruction model. Further research for increasing teacher promotion of Physical Activity during Physical Education is needed (Dean A Dudley *et al.*) [8]. The study was found PE-related policies and implementation in schools. However, schools' PE requirement seems to improve children's PA with some gender variation. The association between schools' PE requirement and children's weight is less clear (Jinsook Kim) [6]. Physical activity can be defined as any movement of the body that requires energy expenditure. This includes any motion you do through the day excluding sitting still or lying down. For example, walking to class, taking the stairs, mowing the lawn, and even cleaning your house can be considered physical activity. Exercise is a type of physical activity but not every physical activity is exercise. Exercise is a planned, structured, and repetitive activity for the purpose of improving or maintain physical fitness.

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Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity includes exercise as well as other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities. Regular physical activity is proven to help prevent and manage non-communicable diseases such as heart disease, stroke, diabetes and several cancers. It also helps prevent hypertension, maintain healthy body weight and can improve mental health, quality of life and well-being.

Regular physical activity can

- improve muscular and cardiorespiratory fitness
- improve bone and functional health
- reduce the risk of hypertension, coronary heart disease, stroke, diabetes, various types of cancer (including breast cancer and colon cancer), and depression
- reduce the risk of falls as well as hip or vertebral fractures and
- Help maintain a healthy body weight.

Gym or Modern Activity

Gym apparatus such as bar-bells, parallel bars, jumping board, running path, tennis-balls, cricket field, fencing area, and so forth are used as exercises. In safe weather, outdoor locations are the most conducive to health. Gyms were popular in ancient Greece. Their curricula included Gymnastic militaries or self-defence, gymnastic medical, or physical therapy to help the sick and injured, and gymnastic athletic for physical fitness and sports, from boxing to dance. While gyms are potentially sites for health promotion, they are also places where gendered inequities in health opportunities emerge (Stephanie E Coen) [18]. These facilities are used for physical education, intramural sports, and school gatherings a gym, short for gymnasium, is an open air or covered location for gymnastics and athletics and gymnastic services such as in schools and colleges, from the ancient Greek gymnasium.

Yogic Practice

Yogic practices for volleyball players to not only stretch and relax but also to tone up muscles, burn calories, and even to sleep better. It is less strenuous on the body, making it a great choice for anyone. It specifically can help athletes because it keeps muscles "loose". This is especially helpful for volleyball players, who are oftentimes stuck in specific positions, making them more flexible in some areas than others. Different yoga moves can actually target specific areas and benefit volleyball athletes in numerous ways. Yoga is one of the methods by which a goal of positive mental health can be achieved (Verma LP) [9]. In the last few decades, the philosophy and practice of yoga has assumed importance in improving the quality of life and the treatment of number of psychiatric and psychosomatic disorders (Vahia NS *et al.*) [10]. Investigated the effect of asana and jogging on selected physiology and haematological variables. Among school boys, Asanas were found to be more effective than jogging in improving pulse rate, vital capacity, breath holding time and serum cholesterol. There has been a lot of talk about the importance of pre-match mental preparation in volleyball. It's important to note that volleyball athletes must be prepared for games both physically and mentally. A volleyball player is unlikely to demonstrate great results on the court if he/she feels stressed all the time. It's clear that a volleyball player has to be mentally strong to be able to demonstrate excellent

results on the court. Doing yoga exercises is one of the best ways to improve your mental game on the volleyball court. The reality is yoga relieves stress as well as anxiety and improves the quality of sleep. All of this definitely has a huge positive impact on the athlete's performance on the court.

Methodology

To achieve the purpose of the study, (45) forty-five men intercollegiate men volleyball players were selected from Selvam Institutions, Namakkal, Tamilnadu, India were selected as subjects at random and their age ranged from 18 to 24 years men respectively. The subjects selected for this study are randomly divided into three groups of 15 subjects each. The experimental group I were named as Physical Activity group, group II were named as Gym or Modern Activity group and group III were named as yogic practice. All the subjects in the experimental group (three) was given their respective training program three alternative days in a week for 8 weeks duration in addition to the regular physical education activities of the department as per the curriculum. The subjects are free to withdraw their consent in case of feeling any discomfort or injuries during the period of their participation, however there were no drop out in the study. Analysis of Co-Variance (ANCOVA), Scheffe's hoc technique to find out the impact of three varied systems of training on selected physiological variables among the college level Volleyball players. The level of significance was set at 0.05.

Analysis of Data

Table I: The Summary of Mean Deferent Pre and Post Test on Breath Holding Time Non- Physical Activity, Gym or Modern Activity and Yogic Practice Groups

Test	PAG	GRMAG	YPG
Pre Test Mean	31.16	40.07	45.75
Post Test Mean	45.16	52.65	54.55
Adjusted Post	56.85	55.45	69.96

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group

Table-I shows that breathe holding time pre-test means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 31.16, 40.07 and 45.75 respectively. Shows that the post-test means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 45.16, 52.65 and 54.55 respectively. Shows that the adjusted post means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 56.85, 55.45 and 69.96 respectively.

Table II: Analysis of Covariance of the Data of Breath Holding Time of Adjusted Post Test Scores On Physical Activity, Gym or Modern Activity and Yogic Practice Groups

Source of Variance	Sum of Square	DF	Mean Square	'f' Ratio
Between	1438.5	2	719.25	16.30*
Within	1411.72	42	44.12	

*Significant at 0.05 level of confidence.

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group

Table-II shows that the breath holding time of adjusted post-test between, within of Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 719.25 and 44.12 respectively. The obtained 'f' ratio of 16.30 for adjusted post-test means was greater than the table value of 3.22 for df 2

and 42 required significant at 0.05 level of confidence on breathing holding time.

Table III: The Summary of Mean Post Test Scheffe’s Test on Breath Holding Time of Adjusted Post Test Scores on Physical Activity, Gym or Modern Activity and Yogic Practice Groups

PAG	GRMAG	YPG	MD	CI
56.85	55.45		1.39	6.93
56.85		69.96	13.72*	
	55.45	69.96	14.52*	

*Significant at 0.05 level of confidence.

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group, **MD**- Mean Difference, **CI**-Confidence Interval

Table-III shows that the breath holding time of mean difference between physical activity group, gym or modern activity and yogic practice group were significant at the level of confidence interval 6.93. But the mean difference between physical activity group and gym or modern activity group are not significant at the level of confidence interval 6.93. The result of the study indicated that there was significant difference between the groups the yogic practices group was given a better result than the physical activity group & gym or modern activity group for breath holding time.

Table IV: The Summary of Mean Deferent Pre and Post Test on Blood Pressure Systolic Physical Activity, Gym or Modern Activity and Yogic Practice Groups

TEST	PAG	GRMAG	YPG
Pre Test Mean	122.92	125	125.75
Post Test Mean	103.75	111.75	108.25
Adjusted Post	104.06	111.66	108.02

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group

Table-IV shows that blood pressure systolic pre-test means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 122.92, 125 and 125.75 respectively. Shows that the post-test means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 103.75, 111.75 and 108.25 respectively. Shows that the adjusted post means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 104.06, 111.66 and 108.02 respectively.

Table V: Analysis of Covariance of the Data of Blood Pressure Systolic Of Adjusted Post Test Scores on Physical Activity, Gym or Modern Activity and Yogic Practice Groups

Source of Variance	Sum of Square	DF	Mean Square	‘f’ Ratio
Between	337.93	2	168.97	5.42*
Within	998.48	42	31.2	

*Significant at 0.05 level of confidence.

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group

Table-V shows that the blood pressure systolic of adjusted post-test between, within of Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 168.97 and 31.2 respectively. The obtained ‘f’ ratio of 5.42 for adjusted post-test means was greater than the table value of 3.22 for df 2 and 42 required significant at 0.05 level of confidence on

blood pressure systolic.

Table VI: The Summary of Mean Post Test Scheffe’s Test on Blood Pressure Systolic of Adjusted Post Test Scores on Physical Activity, Gym or Modern Activity and Yogic Practice Groups

PAG	GRMAG	YPG	MD	CI
104.06	111.66		7.59*	5.83
104.06		108.02	3.95	
	111.66	108.02	3.64	

*Significant at 0.05 level of confidence.

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group, **MD** - Mean Difference, **CI**- Confidence Interval

Table-VI shows that the speed of mean difference between physical activity group and gym or modern activity were significant at the level of confidence interval 5.83. But the mean difference between physical activity group and yogic practices group, gym or modern activity group and yogic practices group or not significant at the level of confidence interval 5.83. The result of the study indicated that there was significant difference between the groups the physical activity group was given a better result than the gym or modern activity group & yogic practices group for blood pressure systolic.

Table VII: The Summary of Mean Deferent Pre and Post Test on Blood Pressure Diastolic Physical Activity, Gym or Modern Activity and Yogic Practice Groups

TEST	NLG	LG	YG
Pre Test Mean	73.92	80.42	82
Post Test Mean	70.92	71.92	72.25
Adjusted Post	67.56	74.37	72.39

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group

Table-VII shows that blood pressure diastolic pre-test means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 73.92, 80.42 and 82 respectively. Shows that the post-test means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 70.92, 71.92 and 72.25 respectively. Shows that the adjusted post means Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 67.56, 74.37 and 72.39 respectively.

Table VIII: Analysis of Covariance of the Data of Blood Pressure Diastolic of Adjusted Post Test Scores on Physical Activity, Gym or Modern Activity and Yogic Practice Groups

Source of Variance	Sum of Square	DF	Mean Square	‘f’ Ratio
Between	273.73	2	136.86	7.54*
Within	580.49	42	18.14	

*Significant at 0.05 level of confidence.

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group

Table-VIII shows that the blood pressure diastolic of adjusted post-test between, within of Physical Activity, Gym or Modern Activity and Yogic Practice Groups were 136.86 and 18.14 respectively. The obtained ‘f’ ratio of 7.54 for adjusted post-test means was greater than the table value of 3.22 for df 2 and 42 required significant at 0.05 level of confidence on blood pressure diastolic.

Table IX: The Summary of Mean Post Test Scheffe's Test on Blood Pressure Diastolic of Adjusted Post Test Scores on Physical Activity, Gym or Modern Activity and Yogic Practice Groups

PAG	GRMAG	YG	MD	CI
67.56	74.37		6.81*	4.44
67.56		72.39	4.83*	
	74.37	72.39	1.97	

*Significant at 0.05 level of confidence.

PAG - Physical Activity Group, **GRMAG** - Gym or Modern Activity Group, **YPG** - Yoga Practices Group, **MD** - Mean Difference, **CI** - Confidence Interval

Table-IX shows that the speed of mean difference between physical activity group and gym or modern activity were significant at the level of confidence interval 4.44. But the mean difference between gym or modern activity group and yogic practices group or not significant at the level of confidence interval 4.44. The result of the study indicated that there was significant difference between the groups the physical activity group was given a better result than the gym or modern activity group & yogic practices group for speed.

Finding of Result

Breath Holding Time was assessed using Into Water, Blood pressure systolic was assessed using Sphygmomanometer and Blood Pressure Diastolic was assessed using Sphygmomanometer. Finally in the result of the study physical activity group had a significant improvement on speed, in gym or modern activity group had a better improvement on muscular strength and leg explosive power, then in the yogic practices group had a better improvement on flexibility of 0.05 levels of confidence.

Conclusions

1. Physical Activity, Gym or Modern Activity and Yogic practices group methods had contributed significantly towards Volleyball playing ability on court perform of Jumping, passing and attacking among the college level Volleyball players.
2. It was also concluded that physical activity group was significantly better than the Gym or Modern Activity and Yogic Practice Group in improving Blood pressure systolic and Blood pressure diastolic among college level volleyball players.
3. It was also concluded that Yogic practice group was significantly better than the Physical Activity, Gym or Modern Activity in improving Breath holding time among college level volleyball players.

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