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Effect of Yogic Packages and Mobility Training on Selected Bio-Chemical Variables among Volleyball Players

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Abstract

The purpose of the study was to find out the effect of yogic packages and mobility training on selected bio-chemical variables among volleyball players. To achieve the purpose of the present study, sixty men volleyball players from Kanyakumari district, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of twenty players each. Experimental Group I was exposed to yogic packages, Experimental Group II was exposed to mobility training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses. The yogic packages group had shown significant improvement in all the selected bio-chemical variables among volleyball players after undergoing yogic packages for a period of twelve weeks. The mobility training group had shown significant improvement in all the selected bio-chemical variables among volleyball players after undergoing mobility training for a period of twelve weeks.

Keywords: Yoga, Mobility, Volleyball, Total Cholesterol, Blood Sugar.

Introduction

Yoga enhances the intelligence, empowers the mind and makes the life pleasant. Yoga is a part of Indian Culture and Religion. Yoga is essentially an art of understanding all about the soul and to realize the self. The purpose of birth: The inherent aim of human birth is to understanding fully the self, the nature, the almighty and his order of function. Once the realization is achieved one should live respecting the order of function in peace and content. Yoga helps a man to reach this stage. As we care for our physique we also should care for the soul by giving it its due is safety cleanliness and rest. Yoga takes care of the soul. Yoga relieves one from selfishness, arrogance, lust for power and self. When man realizes the greatness of 'self' he reaches the highest peak of humanity. Yoga will bring out the sacred inner self and such attainment alone will secure peace in and around him. Yoga narrows down the distance between intelligence and emotion.

Scientific studies have shown that the practice of Yoga has curative abilities and can prevent disease by promoting energy and health. That is why more and more professionals have started using yoga techniques in patients with different mental and physical symptoms, such as psycho-somatic stresses and different diseases. Our bodies have a tendency to build up and accumulate poisons like uric acid and calcium crystals, just to mention a few. The accumulation of these poisons manifests in diseases and makes our bodies stiff. A regular Yoga practice can cleanse the tissues through muscle stretching and massaging of the internal organs. This brings the waste back into circulation so that the lungs, intestines, kidneys, and skin are able to remove toxins in a natural way (Swami Devaprasad, 1998).

Mobility is the ability to move a limb through the full range of motion with control. Mobility is based on voluntary movement while flexibility involves static holds and is often dependent upon gravity or passive forces. Mobility demands strength to produce full range movement, whereas flexibility is passive, thus not strength dependent. Some authorities refer to mobility as 'active flexibility'. It is possible to have good mobility without being especially flexible, just as one can be flexible with poor mobility, i.e., control. Of the two, mobility is more important. It is better to be inflexible with good mobility than flexible with poor mobility. The percent difference between your mobility and flexibility is the same percent chance of creating a musculo-skeletal injury during physical activities (Dick, 1997).

Volleyball is a worldwide popular game and ranks third as a recreational team sport. It is one of the

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few popular games that originated from the United States. The object of the game is to keep the ball in flight, going back and forth over the net without it touching the floor. Volleyball has been described as an 'interval' sport with both anaerobic and aerobic components. At the higher skill levels, technical performance may be limited by physical characteristics as well as physical fitness, and performance characteristics. Volleyball is an Olympic team sport in which two teams of six active players, separated by a high net, each trying to score points by trying to ground the ball on the other team's court under organized rules. The complete rules of volleyball are extensive, but in general, play proceeds as follows: Points are scored by grounding the ball on the opponents' court, or when the opponent commits a fault. The first team to reach 25 points wins the set and the first team to win three sets wins the match. Teams can contact the ball no more than three times before the ball crosses the net and consecutive contacts must be made by different players. The ball is usually played with the hands or arms, but players can legally strike or push (short contact) the ball with any part of the body. Spiking the ball is easy to hit and has a fair advantage that the other team will not be able to hit back.

Methodology

The purpose of the study was to find out the effect of yogic packages and mobility training on selected bio-chemical variables among volleyball players. To achieve the purpose of the present study, sixty men volleyball players from Kanyakumari district, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of twenty players each. Group I acted as Experimental Group I (Yogic packages), Group II acted as Experimental Group II (Mobility training) Group III acted as control group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study.

Pre test was conducted for all the subjects on selected bio-chemical variables. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group I, Experimental Group II and Control Group in an equivalent manner. Experimental Group I was exposed to yogic packages, Experimental Group II was exposed to mobility training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the sixty subjects were tested on their bio-chemical variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

Results

Table I. Computation of analysis of covariance of mean of yogic packages, mobility training and control groups on total cholesterol

	Yogic Packages	Mobility Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	188.50	191.05	188.70	**BG**	80.43	2	40.21	1.37*
				WG	1666.15	57	29.23	
Post-Test Means	172.75	173.05	188.05	**BG**	3061.20	2	1530.60	58.17*
				WG	1499.65	57	26.31	
Adjusted Post-Test Means	172.79	172.97	188.08	**BG**	3054.64	2	1527.32	57.16*
				WG	1496.11	56	26.71	

An examination of table - I indicated that the pre test means of yogic packages, mobility training and control groups were 188.50, 191.05 and 188.70 respectively. The obtained F-ratio for the pre-test was 1.37 and the table F-ratio was 3.15. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 57. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the yogic packages, mobility training and control groups were 172.75, 173.05 and 188.05 respectively. The obtained F-ratio for the post-test was 58.17 and the table F-ratio was 3.15. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 57. This proved that the differences between the post test means of the subjects were

significant. The adjusted post-test means of the yogic packages, mobility training and control groups were 172.79, 172.97 and 188.08 respectively. The obtained F-ratio for the adjusted post-test means was 57.16 and the table F-ratio was 3.16. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 56. This proved that there was a significant difference among the means due to the experimental trainings on total cholesterol. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-II.

Table II. The scheffe's test for the differences between the adjusted post test paired means on total cholesterol

Adjusted Post-test means			Mean Difference	Required CI
Yogic Packages	Mobility Training	Control Group		
172.79	172.97	---	0.18	4.23
172.79	---	188.03	15.24*	
---	172.97	188.03	15.06*	

**** Significant at 0.05 level of confidence***

The multiple comparisons showed in table II proved that there existed significant differences between the adjusted means of yogic packages and control group (15.24), mobility training with control group (15.06). There was no significant difference between yogic packages and mobility training (0.18) at 0.05 level of confidence with the confidence interval value of 4.23. The pre, post and adjusted means on total cholesterol were presented through bar diagram for better understanding of the results of this study in Figure-I.

Figure I. Pre post and adjusted post test differences of the, yogic packages, mobility training and control groups on total cholesterol

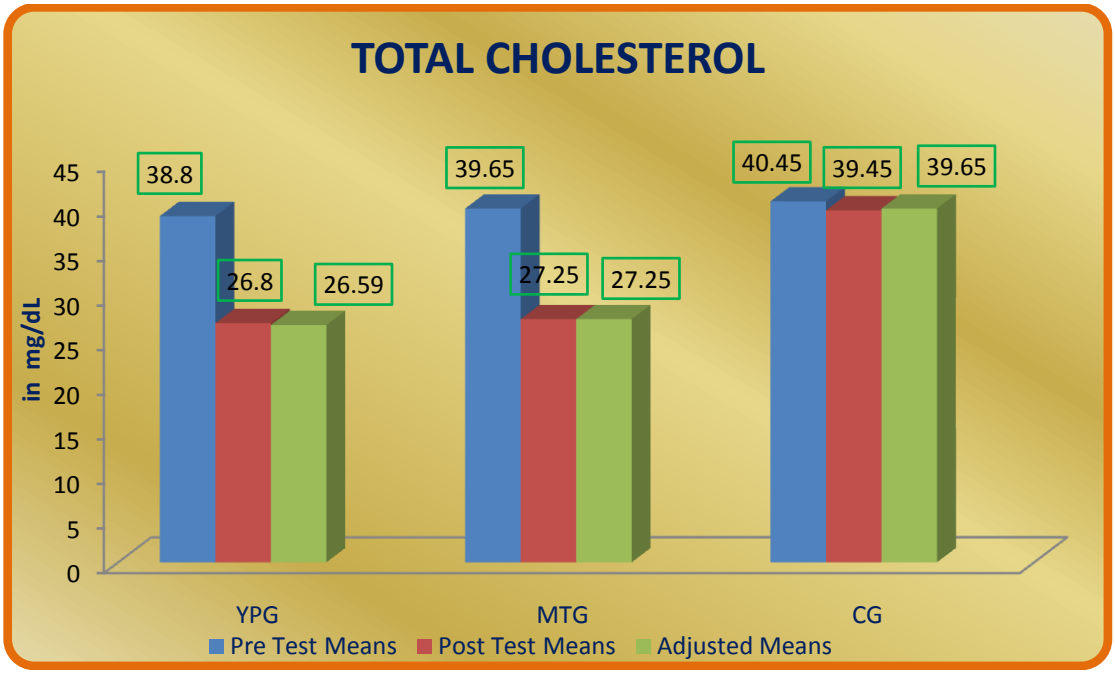


Table III. Computation of analysis of covariance of mean of yogic packages, mobility training and control groups on blood sugar

	Yogic packages	Mobility training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	146.55	146.35	146.95	**BG**	3.73	2	1.86	0.11
				WG	934.45	57	16.39	
Post-Test Means	135.40	135.35	145.70	**BG**	1421.43	2	710.71	58.24*
				WG	695.55	57	12.20	
Adjusted Post-Test Means	135.40	135.38	145.65	**BG**	1397.35	2	698.67	57.75*
				WG	677.50	56	12.09	

An examination of table – III indicated that the pre test means of yogic packages, mobility training and control groups were 146.55, 146.35 and 146.95 respectively. The obtained F-ratio for the pre-test was 0.11 and the table F-ratio was 3.15. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 57. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the yogic packages, mobility training and control groups were 135.40, 135.35 and 145.70 respectively. The obtained F-ratio for the post-test was 58.24 and the table F-ratio was 3.15. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 57. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the yogic packages, mobility training and control groups were 135.40, 135.38 and 145.65 respectively. The obtained F-ratio for the adjusted post-test means was 57.75 and the table F-ratio was 3.16. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 56. This proved that there was a significant difference among the means due to the experimental trainings on blood sugar. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-IV.

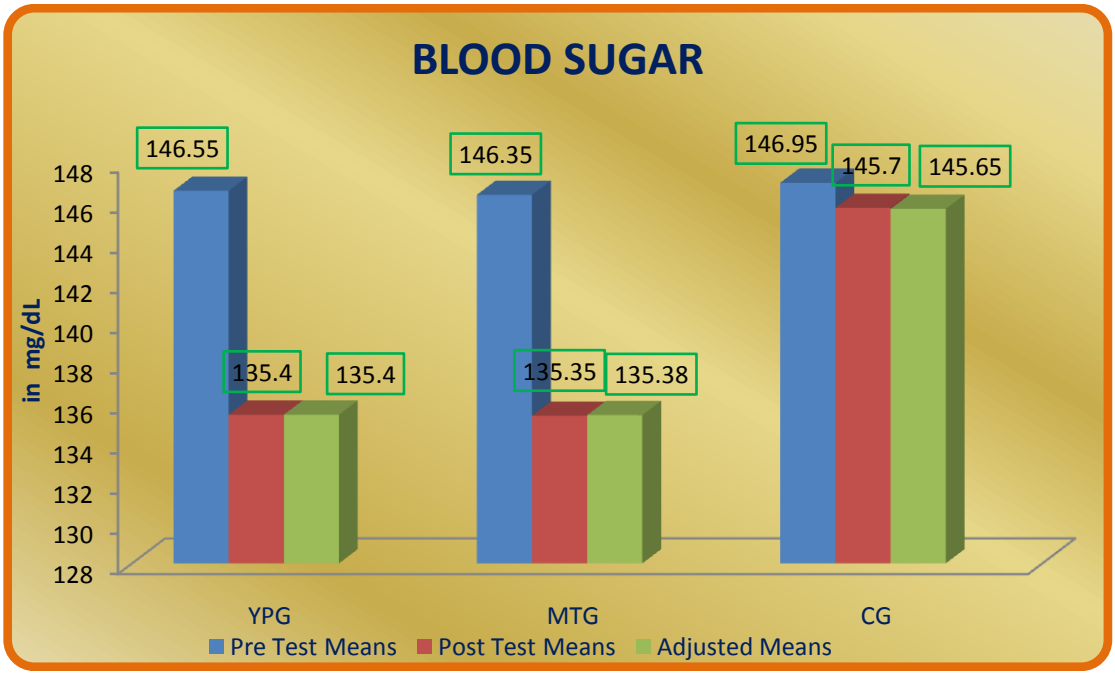
Table IV. The scheffe's test for the differences between the adjusted post test paired means on blood sugar

Adjusted Post-test means			Mean Difference	Required CI
Yogic Packages	**Mobility Training**	**Control Group**		
135.40	135.38	---	0.02	2.84
135.40	---	145.65	10.25*	
---	135.38	145.65	10.27*	

**** Significant at 0.05 level of confidence***

The multiple comparisons showed in table IV proved that there existed significant differences between the adjusted means of yogic packages and control group (10.25), mobility training with control group (10.27). There was no significant difference between yogic packages and mobility training (0.02) at 0.05 level of confidence with the confidence interval value of 2.84. The pre, post and adjusted means on blood sugar were presented through bar diagram for better understanding of the results of this study in Figure-II.

Figure II. Pre post and adjusted post test differences of the, yogic packages, mobility training and control groups on blood sugar



Conclusions

From the analysis of the data, the following conclusions were drawn:

1. The yogic packages group had shown significant improvement in all the selected bio-chemical variables among volleyball players after undergoing yogic packages for a period of twelve weeks.
2. The mobility training group had shown significant improvement in all the selected bio-chemical variables among volleyball players after undergoing mobility training for a period of twelve weeks.

References

1. George, S., Hayes, A., Chen, C. & Crotty, M. (2011). The effect of static scanning and mobility training on mobility in people with hemianopia after stroke: a randomized controlled trial comparing standardized versus non-standardized treatment protocols. *BMC Neurol.* 11:87.
2. Gosewade, N.B., Shende, V.S. & Kashalikar, S.J. (2013). Effect of Various Eye Exercise Techniques along with pranayama on Visual Reaction Time: A Case Control Study. *J Clin Diagn Res.* 2013 Sep;7(9):1870-3.
3. Govindaraj, R., Karmani, S., Varambally, S. & Gangadhar, B.N. (2016). Yoga and physical exercise - a review and comparison. Int Rev Psychiatry. 2016 Apr 4:1-12.
4. Greendale, G.A., Kazadi, L., Mazdyasni, S., Ramirez, E., Wang, M.Y., Yu, S.S. & Salem, G. (2012). Yoga Empowers Seniors Study (YESS): Design and Asana Series. *J Yoga Phys Ther*. 27;2(1).
5. Hagins M, Haden SC, Daly LA. (2013). A randomized controlled trial on the effects of yoga on stress reactivity in 6th grade students. *Evid Based Complement Alternat Med.* 607134.
6. Hofmann, S.G., Andreoli, G., Carpenter, J.K. & Curtiss, J. (2016). Effect of Hatha Yoga on Anxiety: A Meta-Analysis. J Evid Based Med. 2016 May 20.
7. Indla Devasena & Pandurang Narhare (2011). Effect of yoga on heart rate and blood pressure and its clinical significance. *Int J Biol Med Res*. 2(3): 750-753.
8. *Indranil Manna, Gulshan Lal Khanna, Prakash Chandra Dhara (2012).* Effect of training on anthropometric, physiological and biochemical variables of U-19 volleyball players. Journal of Human Sport and Exercise, 7,1.
9. Jerome, B. L., Debbi, A. G., Lisa, W. B. & Adrienne, M. L. (2003). Effects of Long-Term Resistive Training on Mobility and Strength in Older Adults With Diabetes. *The Journals of Gerontology: Series A*, 58,8,740-745.
10. Jesintha, R. & Parthiban, J. (2007). Influence of yogic practices on resting pulse rate breath holding time and cardio respiratory endurance of school Khokho players" paper presented at the international conference on "*Metabolic Syndrome in Yoga and Naturopathy*" Alagappa University, Karaikudi.
11. Judith, B., Rixt, Zijlstra, G.A., Judith, B., & Gertrudis, I. & Kempen, J.M. (2012). Usefulness and acceptability of a standardised orientation and mobility training for partially-sighted older adults

using an identification cane. BMC Health Serv Res. 12: 141.
12. Karthikeyan, R. (2015). Influence of Asana with Meditation on Selected Hematological Variables among Residential School Boys. *International Journal of Recent Research and Applied Studies*, 2, 2(8), 35 - 38.
13. Kasirajan, A. & Karuppiah. L. (2016). Effect of Selected Yogic Practices on Physical Variables among School Level Handball Players. International Journal of Recent Research and Applied Studies, 3, 2(16), 88 - 89.
14. Kato, E. Kurihara, T. Kanehisa, H. Fukunaga T.& Kawakami Y. (2013). Combined Effects of Stretching and Resistance Training on Ankle Joint Flexibility. Physiology Journal, ID 171809, 8.
15. Klatte, R., Pabst, S., Beelmann, A. & Rosendahl, J.S. (2016). The Efficacy of Body-Oriented Yoga in Mental Disorders. Dtsch Arztebl Int. 113(12):195-202.
16. Klinge, K., Magnusson, S.P., Simonsen, E.B., Aagaard, P., Klausen, K. & Kjaer, M. (1997). The effect of strength and flexibility training on skeletal muscle electromyographic activity, stiffness, and viscoelastic stress relaxation response. *Am J Sports Med.* 25(5):710-6.
17. Barrow, H. M. & McGee, R. M. (1979). *A Practical Approach to Measurement in Physical Education*, Philadelphia: Lea and Febiger, p. 1.
18. Thirumoolar (1962). *Thirumanthram*, Madras: Varthaman Publication.
19. Yadav, Y.P. & Rachna (1998). *Art of Yoga*. India: Friends Publications.
20. McGown, Carl. (1994). Science of coaching Volleyball. Campaign, Illinois: Human kinetics publishers, Inc.
21. Muscandar, S. (1996). *Yogic Exercises.* Calcutter Orient Longmans Ltd.
22. Swami Devaprasad (1998). *Yoga for integral Health and Growth*. Bangalore, N.B.C.L.C.
23. Chandrasekaran.K (2003). *Yoga for Health*, Delhi; Khel Sathiya Kendra.
24. Dick Frank W. (1997). *Sports Training Principles*, London: A&C Black Publishers Ltd.,
25. Eugene S.Rawles, (1997). *Yoga for Beauty and Health.* New York: Parker Publishing CompanyInc.
26. Bompa, Tudur, O. (2000). Total Training for Young Champions. Human Kinetics Publishers, Inc. United States.