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Effect of Yogic Practices and Physical Exercises on Leg Strength Self-Concept and Blood Pressure

Dr.S.Chidambara Raja

Associate Professor, Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India.

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Abstract

The aim of the study was to find out whether yogic practices or physical exercises enhancing the physical, mental and physiological fitness of middle aged men. The purpose of the present study was to find the effect of yogic practice and physical exercises on leg strength, self-concept and blood pressure (both systolic and diastolic). Forty-five middle aged men in 35 and 40 years of age group from in and around Annamalainagar, Chidambaram were selected as subjects. They were divided into three equal groups, each group consisted of fifteen subjects, in which group – I underwent yogic practices, group – II underwent physical exercises and group – III acted as control which did not participate any training apart from their day to day activities. The period of training for the present study was six days (Monday to Saturday) in a week for thirteen weeks. Prior to and after the training period the subjects were tested for leg strength, self-concept and blood pressure (systolic and diastolic). The leg strength was measured by using leg lift with dynamometer, self-concept was measured by using Muktha Rani Rasthoki's questionnaire and blood pressure (both systolic and diastolic) was measured by using sphygmomanometer. The analysis of covariance (ANCOVA) was applied as statistical tool and whenever the 'F' ratio for adjusted post-test means were significant, the Scheffé S test was used as post-hoc test to find out any significant difference between the training groups. It was concluded from the result of the study that yogic practices and physical exercises groups have improved ($P < 0.05$) all the criterion variables, such as, leg strength, self-concept and decreased the blood pressure (both systolic and diastolic). Moreover there was no significant difference ($P > 0.05$) was found between the experimental groups on selected criterion variables.

Keywords: Yogic Practices, Physical Exercise, Leg Strength, Self-Concept, Blood Pressure.

Introduction

Yoga is a complete science of life that originated in India many thousands of years ago. It is the oldest system of personal development in the world, encompassing body, mind and spirit.[1] Yoga is not an ancient myth buried in oblivion. It is the most valuable inheritance of the present. It is the essential need of today and the culture of tomorrow.[2] The yoga postures (known as asanas), help to stretch and relax the muscles and skeletal system. The physical release through these soothing movements can help create a sense of calmness and well-being.[3]

Physical exercise is any bodily activity that develops and maintains physical fitness and overhealth.[4] Frequent and regular aerobic exercise has been shown to help prevent or treat serious and life-threatening chronic conditions such as high blood pressure, obesity, heart disease, Type 2 diabetes, insomnia, and depression.[5] Leg strength is defined as "Leg strength is very essential for sports persons, especially athletes. The strength of a muscle is related to its cross sectional area or girth".[6] The socio-psychological concept of self-confidence relates to self-assuredness in one's personal judgment, ability, power, etc., sometimes manifested excessively.[7] Blood pressure (BP) is a force exerted by circulating blood on the walls of blood vessels, and is one of the principal vital signs.

Correspondence
Dr.S.Chidambara Raja,
E-mail: rajadi42@gmail.com, Ph: +9194435 40215

Methodology

This study under investigation involves the experimentation of yogic practices and physical exercises on leg strength, self-concept and blood pressure (systolic and diastolic). Forty five middle aged men those who were living around Annamalainagar, Chidambaram with age between 35 and 40 years were selected as subjects. The selected forty five subjects were randomly divided into three groups of fifteen each, out of which group - I (n = 15) underwent yogic practice, group - II (n = 15) underwent physical exercise training and group - III (n = 15) remained as control. The training programme was carried out for six days (Monday to Saturday) per week during morning session only (6 am to 8 am) for thirteen weeks. Leg strength was measured by administering sit – ups test, self-concept

was measured with the help of Muktha Rani Rasthogi's self – concept scale and blood pressure was measured by using sphygmomanometer. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between the experimental groups on selected criterion variables separately. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate. Since, there were three groups involved, the Scheffé *S* test was applied as post hoc test.

Results

The data collected prior to and after the experimental periods on leg strength, self-concept and blood pressure (systolic and diastolic) on yogic practices group, physical exercises group and control group were analysed and presented in the following tables.

Table – I. Analysis of Covariance and 'F' ratio for Leg strength, Self-concept and Blood Pressure (systolic and diastolic) for Yoga Practice Group, Physical Exercise Group and Control Groups

Variable Name	Group Name	Yoga Practice Group	Physical Exercise Group	Control Group	'F' Ratio
Leg strength (in numbers)	**Pre-test Mean ± S.D**	48.86 ± 2.88	47.93 ± 3.97	48.31 ± 3.13	0.945
	Post-test Mean ± S.D.	49.91 ± 2.08	49.33 ± 3.001	47.32 ± 4.16	10.876*
	Adj. Post-test Mean	50.337	50.574	47.853	22.531*
Self – Concept (in points)	**Pre-test Mean ± S.D**	137.80 ± 2.908	138.93 ± 2.086	139.33 ± 1.291	1.966
	Post-test Mean ± S.D.	142.87 ± 2.560	143.93 ± 2.154	139.67 ± 1.759	15.531*
	Adj. Post-test Mean	143.653	143.717	139.097	99.604*
Systolic Blood Pressure (mmHg)	**Pre-test Mean ± S.D**	131.87 ± 5.64	129.87 ± 7.96	131.40 ± 6.01	0.375
	Post-test Mean ± S.D.	129.87 ± 5.59	128.60 ± 7.92	132.87 ± 5.99	1.665
	Adj. Post-test Mean	129.060	129.755	132.518	42.863*
Diastolic Blood Pressure (mmHg)	**Pre-test Mean ± S.D**	86.40 ± 3.996	85.60 ± 5.654	85.93 ± 4.301	0.109
	Post-test Mean ± S.D.	84.07 ± 4.026	84.33 ± 5.512	87.13 ± 4.086	2.052
	Adj. Post-test Mean	83.666	84.691	87.175	39.898*

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 43 and 2 and 42 were 3.21 and 3.22 respectively).

The data are presented in the above table – I and the result shows that there was a significant improvement was occurred on all criterion variables such as, leg strength, self-concept, systolic and diastolic blood pressure after the yogic practices and physical exercises when compared with the control group. Further to determine which of the paired means has a significant improvement, Scheffĕ *S* test was applied as post-hoc test. The result of the follow-up test is presented in Table - II.

Table II. Scheffĕ S Test for the Difference Between the Adjusted Post-Test Mean of Leg Strength, Self-concept and Blood Pressure (systolic and diastolic)

Adjusted Post-test Mean of Leg strength				
Yoga Practice Group	**Physical Exercise Group**	**Control Group**	**Mean Difference**	**Confidence interval at .05 level**
50.337		47.853	2.484*	1.085532

50.337	50.574		0.237	1.085532
	50.574	47.853	2.721*	1.085532
Self-concept				
143.653		139.097	4.556*	0.932646
143.653	143.717		0.064	0.932646
	143.717	139.097	4.620*	0.932646
Systolic Blood Pressure				
129.060		132.518	3.458*	1.0023173
129.060	129.755		0.695	1.0023173
	129.755	132.518	2.763*	1.0023173
Diastolic Blood Pressure				
83.666		87.175	3.509*	1.024767
83.666	84.691		1.025	1.024767
	84.691	87.175	2.484*	1.024767

* Significant at .05 level of confidence.

Before applying the experiment all the subjects of the yoga practice, physical exercise and control groups were attended the pre-test, which was conducted a day prior to the commencement of the training and the data were collected on leg strength, self-concept and blood pressure (systolic and diastolic). After eight weeks of training the post-test was conducted one day after the training period to find out any changes in the criterion variables.

The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental groups and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate. Since there was three groups were involved in this study, the Scheffĕ *S* test was used as pos-hoc test and it was shown in Table - II.

After applying the analysis of covariance, the result of this study showed that there was a significant difference among yoga practice, physical exercise and control groups on the changes in leg strength, self-concept and blood pressure after eight weeks of training. The criterion variables such as, leg strength and self-concept was improved for both the yoga practice group and physical exercise group and systolic and diastolic blood pressure has significantly decreased after the yoga practice, physical exercise period. Further, comparing the adjusted post-test means of all the criterion variables, such as, leg strength, and self-concept both the training groups were significantly increased the performance after the training period, when compared with the control group.

Conclusions

Leg strength and self-concept has improved for both the experimental groups, such as yogic practice group and physical exercise group, when compared with the control group. The blood pressure has also decreased in yogic practice group and physical exercise group when compared with the control group. But there was no significant difference was found between the experimental groups on selected criterion variables. There are so many evidences shows that selected yogasana practices has enhanced the health related physical fitness such as, strength, endurance, flexibility, body composition and pulmonary function.[8,9] Moreover performing yogasana postures which helps to improve self-efficacy and self-confidence.[10,11] There is a significant improvement in social self – esteem after selected yogasana practices and physical exercise.[12] Blood pressure was also reduced significantly after the selected yogic practices which will avert the hyper or hypotension for normal human beings who were attained the above 40 years of age.[13] Involving the physical activity improves the muscle strength, balance and endurance for people who were attained 40 years of age.[14]

References

1. Baljit Singh Sekhon and P.V. Shelvam, "Effect of Selected Yogic Practices on Bio-Motor Variables among University Men Students", International Journal of Humanities and Social Science Invention, 2:9, (September 2013), 25 – 26.
2. Bryan, S.G. Pinto Zipp and R. Parasher, "The Effects of Yoga on Psychological Variables and Exercise Adherence: A Randomized, Controlled Pilot Study", Altern Ther Health Med., 18:5, (September 2012), 50-9.
3. Ferreira M.L., C. Sherrington, K. Smith, P. Carswell, R. Bell, M. Bell, D.P. Nascimento, L.S. Maximo Pereira and P. Vardon, "Physical Activity Improves Strength, Balance and Endurance in Adults Aged 40-65 Years: A Systematic Review", J Physiothe, 58:3, (2012), 145 – 56.
4. Indla Devasana and Pandurang Narhare, "Effect of Yoga on Heart Rate and Blood Pressure and Its Clinical Significance", International Journal of Biological and Medical Research, 2:3, (2011), 750-753.

5. Nan Little, "Breathe Deep: Yoga and Anxiety", www.anxiety-and-depression-solutions.com
6. Ramesh, R. "Effect of Selected Yogasana Practices on Self-confidence and Level of Stress of Teacher Educands at Secondary Level", Quest International Multidisciplinary Research Journal, 2:1, (June 2013), 15-18.
7. Retrieved from http://en.wikipedia.org/wiki/Physical_exercise on 26-12-2011.
8. Retrieved from http://en.wikipedia.org/wiki/Physical_exercise on 25-01-2012
9. S.M. Johnson and D.C. Stolbery, Sports Exercise and Youth, (New York: Half Rinchard and Winston", 1976), p. 461.
10. Shirley Telles, Nilkamal Singh, Abhishek Kumar Bhardwai, Ankur Kumar, Acharya Balkrishna, "Effect of Yoga or Physical Exercises on Physical, Cognitive and Emotional Measures in Children: A Randomized Control Trial", Child and Adolescent Psychiatry and Mental Health, 7:37, (November 2013), 1-16.
11. Swami Satyanand Saraswath, Asana Pranayama Mudra Bandha, (Varanasi: Bharagava Bushan Press, 1999), p.1.
12. Swami Vishnu Devananda, The Sivananda Companion to Yoga, (New York: Fireside Book, Simon and Schuster, 2000), p. 10.
13. The Macquaire Dictionary, compared by Raymond J. Corsini, The Dictionary of Psychology, (New York: Brunner-Routledge, 2002), p.875.
14. Tran, M.D. R.G. Holy, J. Lashnrook and E.A. Amsterdam, "Effects of Hatha Yoga Practice on the Health-Related Aspects of Physical Fitness", Preventive Cardiology, 4:4, (2001), 165-170.