ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-journal)

Effect of Power Yoga Practice on Selected Physiological Parameters among Middle Aged Men

T. S. Mohan Raj[1], Dr. A. Pushparajan[2]

[1]*Ph.D., Research Scholar, Department of Physical Education, Karpagam University, Coimbatore, Tamil Nadu, India.*
[2]*Dean, Department of Physical Education, Karpagam University, Coimbatore, Tamil Nadu, India.*

Received 17th November2014, Accepted 1st January 2015

Abstract

The present study is to analyze the effect of power yoga practice on selected physiological parameters among middle aged men. For this study 100 middle age male persons were selected from Coimbatore city, after the scrutiny by the scholar and experts 40 middle aged men were selected as subjects by adopting purposive random sampling technique. The age of the subjects ranged from 35 to 42 years. They were divided into two equal groups namely, power yoga group and control group. The subjects were tested to find out the resting pulse rate, vital capacity and blood pressure. The pulse rate was assessed by arterial pulse, vital capacity was measured by digital Spiro meter and blood pressure was measured by sphygmomanometer. The power yoga group participated in power yoga practice for a period of twelve weeks and control group did not participate in any special practice. The data were collected before and after the training period and the pretest, posttest and the adjusted posttest were analyzed by Analysis of Covariance (ANCOVA). The level of significance for the study was chosen as 0.05. It is concluded from the results that the power yoga practice group has significant improvement in resting pulse rate, vital capacity and blood pressure among middle aged men.

Keywords: Power yoga, resting pulse rate, vital capacity, blood pressure.

Introduction

Power yoga is a general term used in the West to describe a vigorous, fitness-based approach to vinyasa-style yoga. Most power yoga is closely modeled on the Ashtanga style of practice. The term "power yoga" came into common usage in the mid 1990s, when several yoga teachers were looking for a way to make Ashtanga yoga more accessible to western students. Unlike Ashtanga, power yoga does not follow a set series of poses. Therefore, any power yoga class can vary widely from the next. What they have in common is an emphasis on strength and flexibility. The advent of power yoga heralded yoga's current popularity, as people began to see yoga as a way to work out. Power yoga brought yoga into the gyms of America (Power yoga, 2012). A dynamic fitness based derivative of yoga, is modelled on Ashtanga yoga. A dynamic fitness based derivative of yoga, is modelled on Ashtanga yoga. With new power yoga centres cropping up in every Indian metro today, it is no longer restricted within the realm of the rich and famous. Power yoga is fast becoming an increasingly budget-friendly and viable fitness option for all of us. If you've been wondering about whether power yoga is the right choice for you, or not, look no further. We ask holistic health expert, Mickey Mehta, to tell us about why you should consider switching to power yoga today.

Correspondence
T.S.Mohan Raj,
E-mail: ts.mohanraj@yahoo.in, Ph. +91944431 15117

men football players. Football is also referred to as soccer in some parts of the world, is a high energy athletic team sport in this new age. It would be a joy to trace the birth and growth of this popular sport. It said that the number of countries that are FIFA members even outnumber the members of United Nations Organizations – another undeniable proof of the game's popularity. Since 1900, football has also been integral part of the greatest sports extravaganza in the world, the Olympics. The game, as we know it today, has been followed in a feverish fashion in Europe, especially in England, for centuries. In fact, the game has been followed by men and women throughout the world.

While an hour of a good all out cardio session may burn twice as many calories, power yoga feeds your muscles as it works on your core and helps tone and streamline your body, and builds lean muscle. Since power yoga not only burns calories, but also builds lean muscle it is very effective for weight loss, as building lean muscle means it increases metabolism thus being more effective in burning fat. A cardio session may burn more calories but it does not necessarily burn fat, and doing more and more cardio may even deplete your muscle reserves, which is not a good idea for long-term weight loss (While an, 2012). There are different modules in power yoga. Typically, you would do one asana followed by strength training. This makes your body strength work for you and makes the whole workout more dynamic. For example: During the Surya Namaskar, one asana closely resembles the push-up

position. During one module, the instructor may decide to have the class do regular push ups. The next time, the instructor could ask the class to do push-ups on their knees with their feet crossed in the air. It increases lean muscle tissue, which means improved calorie burning, reduction in your body's fat percentage and increased BMR (Basal Metabolic Rate).

Methodology

Forty middle aged men selected as subjects by adopting purposive random sampling technique and they were selected from Coimbatore city. The age of the subjects were ranged from 35 to 42 years. For this study 100 middle age male persons were selected from Coimbatore city, after the scrutiny by the scholars and experts 40 middle aged men were selected as subjects by adopting purposive random sampling technique. The age of the subjects ranged from 35 to 42 years. They were divided into two equal groups namely, power yoga group and control group. The subjects were tested to find out the resting pulse rate, vital capacity and blood pressure. The pulse rate was assessed by arterial pulse, vital capacity was measured by digital Spiro meter and blood pressure was measured by sphygmomanometer. The power yoga group participated in power yoga practice for the period of twelve weeks and control group did not participate in any special practice. The data were collected before and after the training period and the pretest, posttest and the adjusted posttest were analyzed by Analysis of Covariance (ANCOVA). The level of significance for the study was chosen as 0.05. Measurements were made during the weeks prior to and immediately following the 12 week training programme. All procedures were demonstrated prior of testing. Stethoscope is used to find out the resting heart rate. The heartbeat of the individual is measured with the earphones of the stethoscope placed in the tester's ears, the bell of the stethoscope would be placed on the radial pulse, so that one could measure his own heartbeat. Pulse rate was measured for one minute. Spirometer is used to measure the vital capacity. Helios 401 is a spirometer which is used in conjunction with a Windows based computer. It has a hand piece which houses a turbine transducer. This hand piece is connected to a computer through a USB interface cable. The software given along with the system is used to record spirometry maneuvers and to suggest a diagnosis. The computer monitor is used to display the spirometry parameters, the device parameters, information messages and user guide messages. A printer attached to the computer can be used to obtain a hard-copy record of the maneuver and the related parameter values. The helios spirometer was placed at a height that allow the subject to stand erect at the beginning of the test. The subject forcefully inhaled and exhaled twice before the test. The subject was cautioned not to allow air to escape through a nose or around the mouth piece. The subject at completion should bend slightly forward to blow as much air as possible in to the spirometer. The reading is shown in the Helios spirometer graph and the result was recorded as a score. Sphygmomanometer is used to find out the blood pressure. The method has used to measure the systolic and diastolic blood pressure is relatively simple. The cuff of the sphygmomanometer is wrapped around the forearm above the elbow, with earphones of the stethoscope in the tester's ears; the bell of the stethoscope has placed on the bronchial artery just above the hollow of the elbow. The cuff has pumped up until the artery collapsed, which is no pulse beat could be heard. Pressure has been then slowly released as the tester watched the gauge or mercury column. When the first sound of the pulse has heard, the reading in millimeters of mercury at that instant has recorded as systolic blood pressure. The tester has continued, to release pressure slowly until a very dull, weak beat has noted. At that time the pressure in millimeters of mercury is noted as diastolic pressure. The measure has recorded with the systolic blood pressure first and the diastolic blood pressure later. The blood pressure was measured in millimeters of mercury (mmHg).

Power yoga practice was given for five days per week, from 6.00 am to 7.00 am for 12 weeks. The researcher is a certified yoga instructor; he himself led all the power yoga classes. Each yoga session consisted of 1 hour of power yoga practice. Power yoga practice consisted of Chair Poses on Toes, Boat Pose, One Legged Bridges, Side Plank Hip Lifts, Dolphin Plank, Hindu Push Ups, L Stand, Full Side Plank Pose, Warrior Poses, Dolphin Pose up a Wall, Locust Pose, Half Squat and Supported Shoulder Stand. Although individual yoga techniques are universally standard, various exercises, sequences, and duration of each movement are dependent on individual instructors. Whereas the power yoga protocols were practiced in their ability, only a limited number of power yoga was completed at each yoga session. The subjects were beginners in the practice of power yoga, only fundamental power yoga poses were introduced in this study. The subjects were encouraged to do all exercises as accurately as possible.

Analysis of Data

Analysis of covariance was applied to determine whether the training programmes produced significantly different improvements in resting pulse rate, vital capacity and blood pressure among power yoga and control group. The analysis is presented in the following tables.

Results

Table I. Computation of analysis of covariance of power yoga practice group and control group on resting pulse rate

	Power yoga Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	78.35	78.70	**BG**	1.225	1	1.22	0.23
			WG	200.75	38	5.28	
Post-Test Means	72.50	77.90	**BG**	291.60	1	291.60	66.43*
			WG	166.80	38	4.38	
Adjusted Post-Test Means	72.59	77.80	**BG**	268.90	1	268.90	97.37*
			WG	102.17	37	2.76	

*Significant, BG- Between Group Means, WG- Within Group Means, df- Degrees of Freedom, Table Value for 0.05 level for df 1& 38 = 4.09 and 1 & 37 = 4.10

An examination of table – I indicates that the results of ANCOVA for pre test scores of the power yoga practice group and control group. The obtained F-ratio for the pre-test is 0.23 (P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.10. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 38. The obtained F-ratio for the post-test is 66.43 (P<0.05) and the table F-ratio is 4.10. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 38. The adjusted post-test means of power yoga practice group and control group are 72.59 and 77.80 respectively. The obtained F-ratio for the adjusted post-test means is 97.37 (P < 0.05) and the table F-ratio is 4.11. Hence the adjusted post-test mean resting pulse rate F-ratio is significant at 0.05 level of confidence for the degree of freedom 1and 37. Pre test, post test and adjusted post test mean difference of the power yoga practice group and control group on resting pulse rate are presented in Figure I.

Figure I. Bar diagram showing the pre test, post test and adjusted post test mean differences of power yoga practice group and control group on resting pulse rate

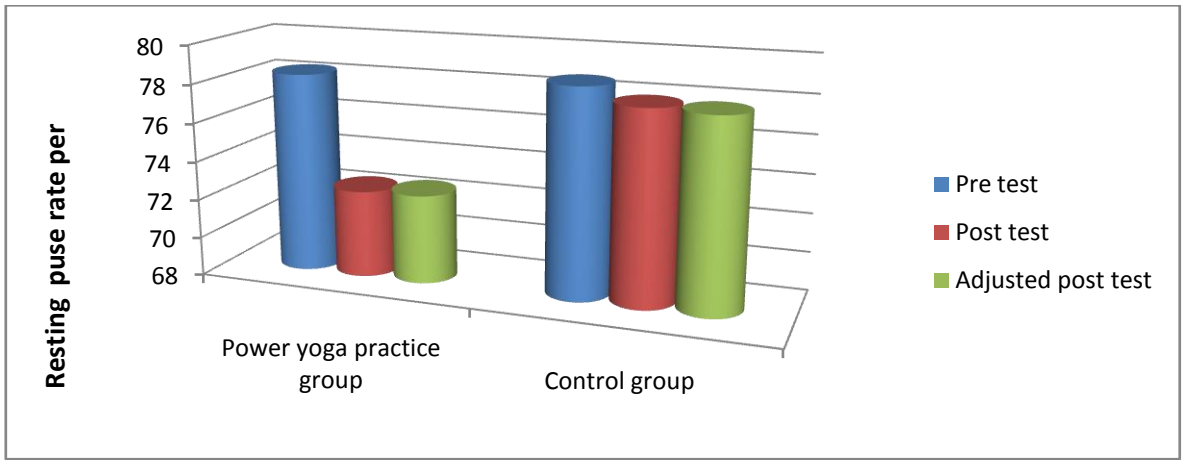


Table II. Computation of analysis of covariance of power yoga practice group and control group on systolic blood pressure

	Power yoga Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	124.20	124.55	**BG**	1.22	1	1.22	0.03
			WG	1434.15	38	37.74	
Post-Test Means	120.95	124.30	**BG**	112.22	1	112.22	4.31*
			WG	989.15	38	26.03	
Adjusted Post-Test Means	121.05	124.20	**BG**	99.27	1	99.27	6.92*
			WG	530.64	37	14.34	

An examination of table – II indicates that the results of ANCOVA for pre test scores of the power yoga practice group and control group. The obtained F-ratio for the pre-test is 0.03 (P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.10. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 38. The obtained F-ratio for the post-test is 4.31 (P<0.05) and the table F-ratio is 4.10. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 38. The adjusted post-test means of power yoga practice group and control group are 121.05and124.20respectively. The obtained F-ratio for the adjusted post-test means is 6.92 (P < 0.05) and the table F-ratio is 4.11. Hence the adjusted post-test mean systolic blood pressure F-ratio is significant at 0.05 level of confidence for the degree of freedom 1and 37. Pre test, post test and adjusted post test mean difference of the power yoga practice group and control group on systolic blood pressure is presented in Figure II.

Figure II. Bar diagram showing the pre test, post test and adjusted post test mean differences of power yoga practice group and control group on systolic blood pressure

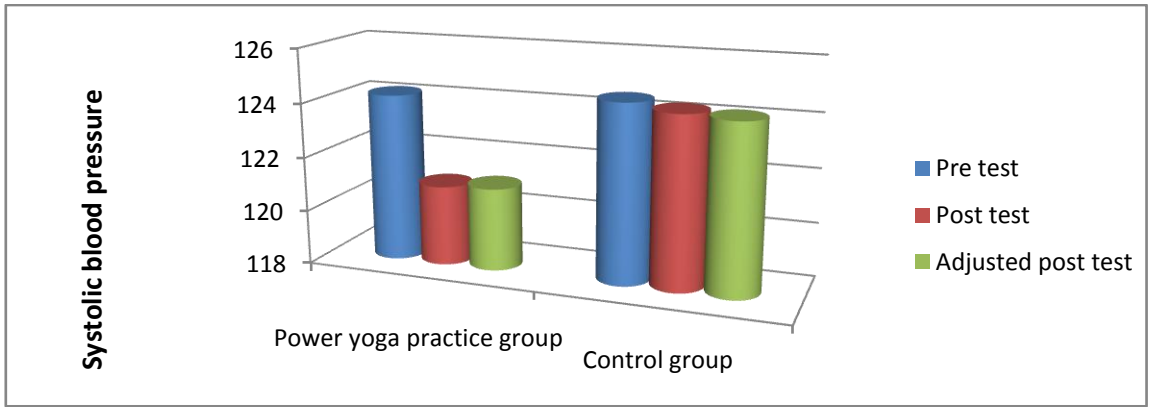


Table III. Computation of analysis of covariance of power yoga practice group and control group on diastolic blood pressure

	Power yoga Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	86.70	85.90	**BG**	6.40	1	6.40	0.90
			WG	270.00	38	7.10	
Post-Test Means	81.50	85.20	**BG**	136.90	1	136.90	28.24*
			WG	184.20	38	4.84	
Adjusted Post-Test Means	81.37	85.32	**BG**	153.10	1	153.10	36.33*
			WG	155.90	37	4.21	

An examination of table – III indicates that the results of ANCOVA for pre test scores of the power yoga practice group and control group. The obtained F-ratio for the pre-test is 0.90 (P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.10. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 38. The obtained F-ratio for the post-test is 28.24 (P<0.05) and the table F-ratio is 4.10. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 38. The adjusted post-test means of power yoga practice group and control group are 81.37and85.32respectively. The obtained F-ratio for the adjusted post-test means is 36.33 (P < 0.05) and the table F-ratio is 4.11. Hence the adjusted post-test mean diastolic blood pressure F-ratio is significant at 0.05 level of confidence for the degree of freedom 1and 37. Pre test, post test and adjusted post test mean difference of the power yoga practice group and control group on diastolic blood pressure is presented in Figure III.

Figure III. Bar diagram showing the pre test, post test and adjusted post test mean differences of power yoga practice group and control group on diastolic blood pressure

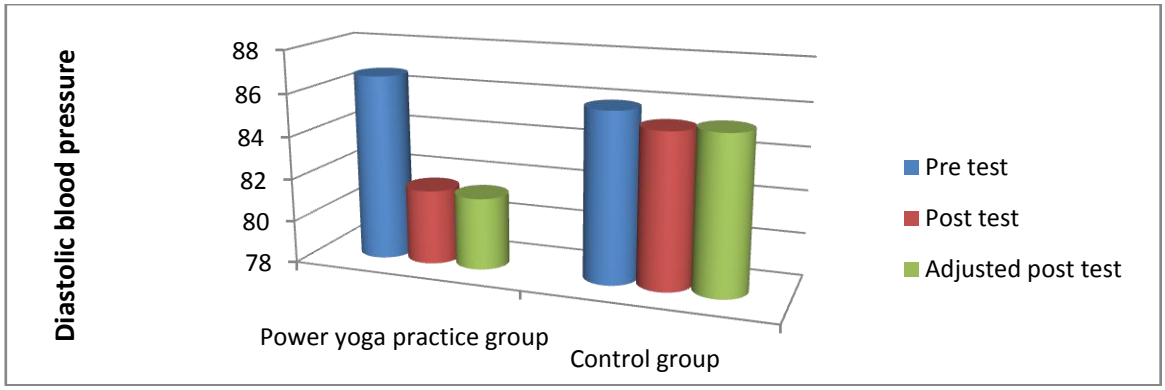
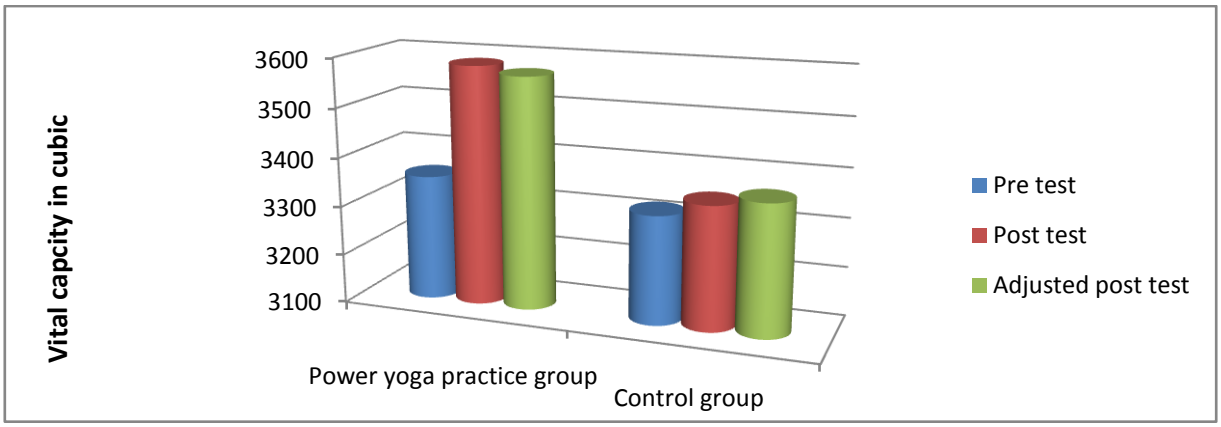


Table IV. Computation of analysis of covariance of power yoga practice group and control group on vital capacity

	Power Yoga Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	3355.00	3320.00	**BG**	12250	1	12250.00	0.16
			WG	2881500	38	75828.94	
Post-Test Means	3585.00	3350.00	**BG**	552250	1	552250.0	8.83*
			WG	2375500	38	62513.15	
Adjusted Post-Test Means	3570.14	3364.86	**BG**	419630	1	419630.0	52.04*
			WG	298331	37	8063.0	

An examination of table – IV indicates that the results of ANCOVA for pre test scores of the power yoga practice group and control group. The obtained F-ratio for the pre-test is 0.16 (P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.10. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 38. The obtained F-ratio for the post-test is 8.83 (P<0.05) and the table F-ratio is 4.10. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 38. The adjusted post-test means of power yoga practice group and control group are 3570.14 and 3364.86 respectively. The obtained F-ratio for the adjusted post-test means is 52.04 (P < 0.05) and the table F-ratio is 4.11. Hence the adjusted post-test mean vital capacity F-ratio is significant at 0.05 level of confidence for the degree of freedom 1and 37. Pre test, post test and adjusted post test mean difference of the power yoga practice group and control group on vital capacity is presented in Figure IV.

Figure IV. Bar diagram showing the pre test, post test and adjusted post test mean differences of power yoga practice group and control group on vital capacity



Discussion on Findings

This study shows that twelve weeks of hatha yoga practice has significant benefits in improving the resting pulse rate and blood pressure, vital capacity. Rajakumar (2010)indicates that physiological variables and their magnitude of improvement through yogic practice. Our results indicate that power yoga practice increased significantly on resting pulse rate (Table I), systolic blood pressure (Table II), diastolic blood pressure (Table III)and vital capacity (Table IV). The increase range of motion can most likely be attributed to the proper training of the yoga. Shenbagavalli & Divya (2010) expressed that practice of the combination of specific yogic exercises with autogenic training and specific yogic exercises programme is significantly effective in promoting desirable changes on pulse rate, and vital capacity. Jesintha & Parthiban (2007) shows that yoga practice significantly increase the resting pulse rate, Breath holding time and cardio respiratory endurance. Limitation of this study includes a small sample group that consisted of a self- selected group of middle aged men subjects. Resting pulse rate, blood pressure and vital capacity showed significant improvements. Furthermore, the positive results of this study indicate that power yoga is a form of physical activity that would meet the objectives of current recommendations to enhance the physiological functions.

Conclusions

The result of this investigation indicates that twelve weeks of power yoga practice and significantly reduce the resting pulse rate and systolic blood pressure and diastolic blood pressure. And significantly can increase the vital capacity among middle aged men.

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