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Effect of physical exercise and yoga practices on muscular endurance self-confidence and blood pressure

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Abstract

The purpose of the present study was to find the effect of physical exercise and yoga practice on muscular endurance, self-confidence and blood pressure (both systolic and diastolic). For this purpose, forty five middle aged women of Kasargod town, Kerala, in the age group of 35 – 40 years were selected. They were divided into three equal groups (n = 15), each group consisted of fifteen subjects, in which group – I underwent physical exercise, group – II underwent yoga practice and group – III acted as control group who did not participate in any special training. The training period for this study was six days in a week for twelve weeks. Prior to and after the training period the subjects were tested for self-confidence and blood pressure (systolic and diastolic). Muscular endurance was assessed by administering sit-ups test, self-confidence was assessed by using Agnihotri self-confidence inventory (ASCI) and blood pressure was assessed by using sphygmomanometer respectively. 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. Since there were three groups involved in this study the Scheffé' S test was used as pos-hoc test. It was concluded from the result of the study that the physical exercise and yoga practice has positively altered the criterion variables, such as, muscular endurance, self-confidence and blood pressure (both systolic and diastolic). The result of the study also shown that there was no significant difference occurred between the experimental groups, such as, physical exercise group and yoga practice group.

Keywords: Yoga practice, physical exercise, muscular endurance, self-confidence, systolic and diastolic blood pressure

Introduction

Wellbeing is the degree of useful and additionally metabolic effectiveness of a living being. In people, it is the overall state of an individual as a top priority, body and soul, generally importance to being liberated from disease, injury or torment (as "healthy" or "sound"). The World Health Organization (WHO) characterized wellbeing in its more extensive sense in 1946 as "a condition of complete physical, mental, and social prosperity and not just the nonappearance of infection or ailment".

Physical exercise is a term which refers involving any type of physical activity which develops or maintains the health well-being and wellness or total health [1]. Physical exercising is additionally related with a wonderful impact on depression, anxiety, mood, vanity and greater tutorial overall performance [2]. Physical exercising is viewed essential for keeping bodily health inclusive of healthful weight; constructing and preserving healthful bones, muscles, and joints; improving physiological well-being; decreasing surgical risks; and strengthening the immune system. Some research point out that exercising might also expand lifestyles expectancy and the common fine of existence [3].

Physical activity in the structure of out-door sports, gym, and athletics exhibiting bodily stamina and power date returned to the opening of 18th century [4]. The place they have been practiced merely for recreation in these days. They are additionally endorsed through clinical science as therapeutic equipments each for prevention and cure/correction of fitness disorders [5]. The word yoga comes from Sanskrit language and means association or consolidation. A definitive point of this way of thinking is to find some kind of harmony among brain and body and achieve self-illumination.

To accomplish this, yoga utilizes development, breath, stance, unwinding and reflection to set up a sound, vivacious and adjusted way to deal with life [6]. Joshi (1986) [7]. Says that the breaths of all of us are numbered and our life expectancy subject to the number of time we will breath in a given life and accordingly as an outcome of this reality, we should lessen the quantity of breaths in order to live more, this thought was answerable for the root of pranayama.

Muscular endurance is the capacity of a muscle or muscle gathering to perform rehashed withdrawal against a light (sub-maximal) load for an all-inclusive timeframe [8]. Blood pressure (BP) is a power applied by circling blood on the dividers of veins, and is one of the chief indispensable signs. During every heartbeat, BP fluctuates between a greatest (systolic) and a base (diastolic) pressure [9]. Self-confidence is a disposition about your abilities and capacities. It implies accept and confide in individual and have a feeling of control in the life. The individual should know his/her qualities and shortcoming admirably and have a positive perspective on them-self. Set practical assumptions and objectives, convey confidently, and can deal with analysis [10].

Methods

This study under investigation involves the experimentation

of physical exercise and yoga practice on muscular endurance, self-confidence and blood pressure (systolic and diastolic).

Only middle aged women those who were working as school teachers, in around Kasargod town, Kerala State and aged between 35 and 40 years were selected. Forty five subjects were randomly selected and divided into three groups of fifteen each, out of group - I (n = 15) underwent physical exercise, group - II (n = 15) underwent yoga practice 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 twelve weeks.

Muscular endurance was assessed by sit-ups test, self-confidence was measured with the help of Muktha Rani Rasthogi's self - confidence scale and blood pressure was measured by using sphygmomanometer.

Analysis of data

The data collected prior to and after the experimental periods on muscular endurance, self-confidence and blood pressure (systolic and diastolic) on physical exercise group, yoga practice group and control group were analysed and presented in the following table - I.

Table 1: Analysis of Covariance and 'F' ratio for Muscular endurance, Self-confidence and Blood Pressure (systolic and diastolic) for Physical exercise Group, Yoga Practice Group and Control Group

Variable Name	Group Name Test ± S.D	Physical Exercise Group	Yoga Practice Group	Control Group	'F' Ratio
Muscular Endurance (in nos./min)	Pre-test Mean ± S.D	9.00 ± 1.96	8.40 ± 1.77	8.13 ± 2.13	0.769
	Post-test Mean ± S.D.	11.40 ± 2.23	11.33 ± 1.60	8.13 ± 2.03	13.50*
	Adj. Post-test Mean	10.971	11.431	8.48	40.48*
Self - confidence (in points)	Pre-test Mean ± S.D	29.13 ± 1.36	28.60 ± 1.30	28.47 ± 1.13	1.17
	Post-test Mean ± S.D.	26.93 ± 1.34	26.40 ± 1.18	28.20 ± 1.08	8.84*
	Adj. Post-test Mean	26.688	26.482	28.364	18.03*
Systolic Blood Pressure (in mmHg)	Pre-test Mean ± S.D	132.47 ± 3.68	134.20 ± 2.68	134.20 ± 2.40	1.70
	Post-test Mean ± S.D.	130.40 ± 3.58	131.60 ± 2.70	134.93 ± 2.72	9.05*
	Adj. Post-test Mean	131.531	131.081	134.496	42.56*
Diastolic Blood Pressure (in mmHg)	Pre-test Mean ± S.D	95.80 ± 2.04	94.20 ± 1.86	94.93 ± 2.40	2.15
	Post-test Mean ± S.D.	93.80 ± 2.11	91.53 ± 2.13	94.87 ± 2.20	9.42*
	Adj. Post-test Mean	93.026	92.265	94.906	41.03*

* Significant at .05 level of confidence. (The table value required for significant at .05 level with df 2 and 42 and 2 and 41 are 3.22 and 3.23 correspondingly)

Table - I displays the 'f' - ratio values of pre-test mean of muscular endurance for physical exercise group, yoga practice group and control group was 0.769, which was less significant. The 'f' - ratio of post- and adjusted post-test means were 13.50 and 40.48 was superior to the requisite table value of 3.23 for significance with df 2 and 41 at .05 level of confidence. The result of this study showed that there was a significant dissimilarity among physical exercise group, yoga practice group and control group on muscular endurance.

The above table shows the 'f' - ratio values of pre-test mean of self-confidence for physical exercise group, yoga practice group and control group was 1.17, which was less significant. The 'f' - ratio of post- and adjusted post-test mean was 8.84 and 18.03, which was superior to the requisite table value of 3.23 for significance with df 2 and 41 at .05 level of confidence.

Table - I shows the 'f' - ratio values of pre-test mean of systolic blood pressure for physical exercise group, yoga

practice group and control group was 1.70, which was not significant at 0.05 level of confidence. The 'f' - ratio of post- and adjusted post-test means was 9.05 and 42.56 was superior to the requisite table value of 3.23 for significance with df 2 and 41 at .05 level of confidence.

The above table shows the 'f' - ratio values of pre-test mean of diastolic blood pressure for physical exercise group, yoga practice group and control group was 2.15, which was not significant at 0.05 level of confidence. The 'f' ratio of post and adjusted post-test means was 9.42 and 41.03 was superior to the requisite table value of 3.23 for significance with df 2 and 41 at .05 level of confidence.

The result of this study showed that there was a significant dissimilarity among physical exercise group, yoga practice group and control group on muscular endurance.

Further to determine which of the paired means has a significant difference, Scheffé S test was applied as post-hoc test. The result of the follow-up test is presented in Table - II.

Table 2: Scheffé S Test for the Difference between the Adjusted Post-Test Means of Muscular Endurance, Self-confidence and Blood Pressure (systolic and diastolic)

Adjusted Post-test Mean of Muscular Endurance				
Physical Exercise Group	Yoga Practice Group	Control Group	Mean Difference	CI
10.971	11.431		0.46	0.895
10.971		8.48	2.491*	0.895
	11.431	8.48	2.951*	0.895
Adjusted Post-test Mean of Self-confidence				
26.688	26.482		0.206	0.866
26.688		28.364	1.676*	0.866
	26.482	28.364	1.882*	0.866
Adjusted Post-test Mean of Systolic Blood Pressure				
131.531	131.081		0.45	0.990
131.531		134.496	2.965*	0.990
	131.081	134.496	3.415*	0.990
Adjusted Post-test Mean of Diastolic Blood Pressure				
93.206	92.265		0.941	0.762
93.206		94.906	1.70*	0.762
	92.265	94.906	2.641*	0.762

* Significant at 0.05 level of confidence

Results

After applying the analysis of covariance, the result of this study showed that there was a significant difference among physical exercise, yoga practice and control groups on the changes in muscular endurance, self-confidence and blood pressure after twelve weeks of training. The criterion variables such as, muscular endurance and self-confidence was improved for both the physical exercise group and yoga practice group and systolic and diastolic blood pressure has significantly decreased after the physical exercise, yoga practice period. Basically the physical exercise and yoga practice has tremendously improves the physical fitness, physiological and psychological variables.

Conclusions

Both, physical exercise group and yoga practice group have significantly improved their muscular endurance when compared with the control group. The aerobic exercise programme has a significant role in muscular endurance improvement^[11, 12]. It was proved that yoga practice improves the muscular endurance due to performing various poses for prolong period involving various muscles and joints of human body^[13, 14]. Moreover, the result of the study shows that there was no significant difference was found between the experimental groups. Daily routine physical exercise or yoga practice may also improve the self-esteem or self-confidence^[15]. The physical exercise group and yoga practice group has significantly decreased the systolic and diastolic blood pressure when compared with the control group. A research produced that there was a significant reduction in systolic and diastolic blood pressure after physical exercise and yoga practices among middle aged working women^[16]. Walking exercise also reduces the systolic and diastolic blood pressure because performing any continuous activity can increase the energy expenditure and improves the body working condition^[17, 18]. Some research studies found that there was a significant decrease in blood pressure, both in systolic and diastolic due to the yoga practice^[19, 20].

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