Effect of Adaptive Yoga Module on Psychomotor Abilities among Elderly Men Living in Old Age Homes

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Abstract

    The purpose of the study was to investigate the effect of sixteen weeks Adapted Yoga module intervention on elderly men living in old age homes. It was hypothesized that there would have been a significant effect of sixteen weeks of Adapted Yoga programme on psychomotor abilities among elderly men living in old age homes. Finger dexterity and Static balance were selected as variables for Psychomotor abilities. For the present study thirty (n=30) untrained elderly men were selected as subjects at random from the Government Old Age Homes of Kannur District, Kerala under the age range of 65 to 70 years. Pre test – post test randomized group design which consists of control group and experimental group was used for the present study. The subjects were randomly assigned to two equal groups of fifteen each (n=15) and named as Yoga Group (YG) and Control Group (CG). Group 'YG' underwent Adapted Yoga training and Group 'CG' did not undergo any training program rather than their normal daily routine work. Finger dexterity was assessed by using Finger Tapping Test developed by Halstead and static balance was assessed by One legged Stance Test for Elderly developed by Vellas. The data was collected before and after sixteen weeks of training. The data was analyzed by applying dependent 't test. The level of significance was set at 0.05. The result showed that there was a significant improvement in the frequency of finger tapping and in the holding time of static balance in the Yoga group while there was no significant change in the control group. On the basis of findings and within the limitations of the study it was concluded that practice of Adaptive Yoga Module can improve psychomotor abilities in elderly men.

Keywords: Adaptive Yoga, Psychomotor, Finger Dexterity, Static balance.

Introduction

        The problems of elderly population are many. As the age advances, there is age-related decline in psychomotor abilities leading to delayed response by elderly individuals. Houx (1993). Malnutrition, stress, lack of emotional support, poverty, worthlessness, lack of exercise are the precipitating factors not only for declining psychomotor abilities but also for many types of age-related diseases. Psychomotor abilities are skills such as coordination, balance, manual dexterity, reaction time etc. That arise from a unity of cognitive and physical functions. Fleishman (1972). Finger dexterity and Standing balance were selected as psychomotor variables for the present study. Practicing yoga has been shown to improve motor functions and attention.

        Yoga is an ancient science, originated in India which includes specific postures, voluntary breath regulation, meditation, and certain philosophical principles. Taimini (1986). It is a science of life. Practice of yoga will help to keep the homeostasis of

the body and mind because Yoga works on the holistic principle of harmony and unification based on six main principles. They are the proper cleansing of the body that are done through *Shadkarmas,* the six purification techniques, proper diet which is based on the concept of yogic diet or moderate bland vegetarian diet , proper exercises which are done through asanas, mudras and bandhas, proper breathing by different kinds of pranayamas, and proper relaxation by relaxation asanas and yoga nidra, and proper thinking by cultivation of yama, the social code of conduct, and niyamas, the personal code of conduct, and through meditations. It is said in the Hatha Yoga Pradeepika that the young, or old, very old, sick or feeble can practice yoga for success in life.

Methodology

        The study was conducted with thirty (n=30) untrained elderly men selected randomly from the Government Old Age Home, Azhikode and Santhvanam Old Age Home, Poothappara of Kannur District, Kerala under the age range of 65 to 70 years. Pre test – post test randomized group design which consists of control group and experimental group were used for the present study. The subjects were randomly assigned to two equal

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groups of fifteen each (n=15) and named as Yoga Group (YG) and Control Group (CG). Group 'YG' underwent Integrated Yoga training and Group 'CG' did not undergo any training program rather than their normal daily routine work. Finger dexterity and Static balance were selected as variables for Psychomotor abilities. Finger dexterity was assessed by using Finger Tapping Test developed by Halstead and static balance was assessed by One legged Stance Test for Elderly developed by Vellas. Finger dexterity is the ability of doing maximum oscillation of the rate of the preferred finger that is index finger. Balance refers to the ability to keep the body steady by standing on one leg. An Adapted Yoga training schedule consisting of selected asanas that were modified safely and effectively to meet the needs and ability of the elderly with the help of adaptive devices

such as chair, stool , strap, pillows and blankets, pranayamas, mudras and meditations were prepared for the Yoga Group and administered for one hour a day, three days in a week for sixteen weeks. The data was collected before and after sixteen weeks of training. The data was analyzed by applying dependent 't test to find out the effect of Adaptive Yoga module on psychomotor abilities among elderly men living in old age homes. The level of significance was set at 0.05.

Results

The findings pertaining to analysis of dependent 't' test between experimental group and control group on psychomotor abilities among elderly men living in old age homes for pre-post test respectively have been presented in table No. I to II.
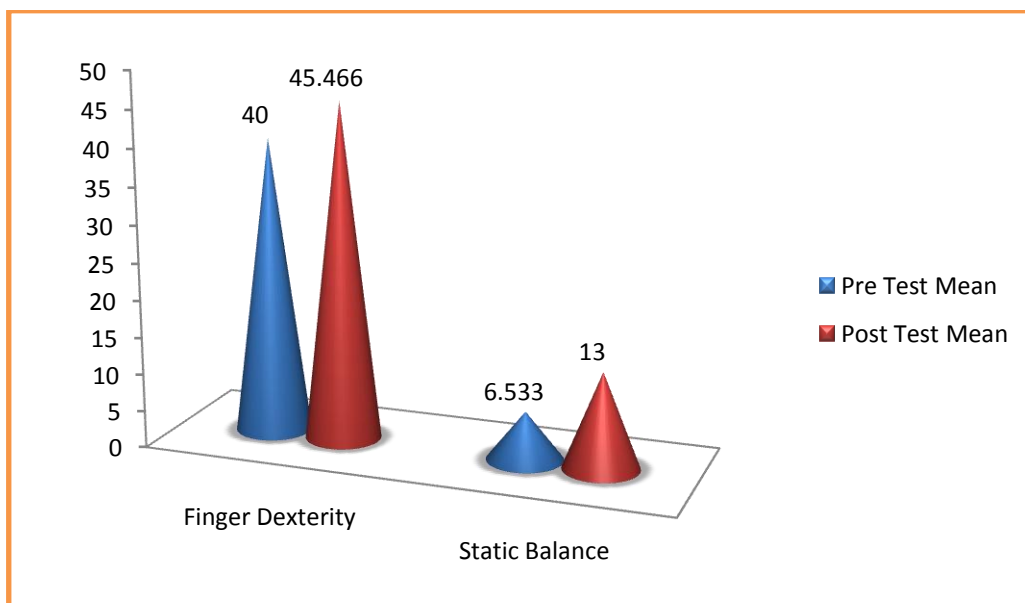
Table I. Significance of mean gains & losses between Pre and Post Test scores on Finger Dexterity and Static Balance of Yoga Group

Sl. No	Variables	Pre-Test Mean	Post - Test Mean	Mean Deviation	Standard Deviation ($\pm$)	Standard Error	't' Ratio
1	Finger Dexterity	40.000	45.466	5.466	2.386	.616	8.872*
2	Static Balance	6.533	13.000	6.466	2.416	.623	10.366*

Table I indicates that the obtained 't' ratios 8.872 and 10.366 for Finger Dexterity and Static balance respectively are higher than the table 't' value of 2.145 at 0.05 level of significance for 14 degrees of freedom. The result is statistically significant at $p \leq 0.05$. The graphical representation of data has been presented in figure I.

Figure I. Comparisons of Pre-Test Means and Post-Test Means for Experimental Group in relation Finger Dexterity and Static Balance

Table II. Significance of mean gains & losses between Pre and Post Test scores on Finger Dexterity and Static Balance of Control Group

S.No	Variables	Pre-Test Mean	Post - Test Mean	MD Difference	Standard Deviation (±)	Standard Error	't' Ratio
1	Finger Dexterity	37.400	38.600	1.200	6.201	1.601	0.749
2	Static Balance	7.266	8.000	.733	2.763	0.713	1.028

Table II indicates that the obtained 't' ratios 0.749 and 1.028 for Finger Dexterity and Static balance respectively are lesser than the table 't' value of 2.145 at 0.05 level of significance for 14 degrees of freedom . Hence the result is not significant. The graphical representation of data has been presented in figure II.

Figure II. Comparisons of Pre-Test Means and Post-Test Means for Experimental Group in relation Finger Dexterity and Static Balance
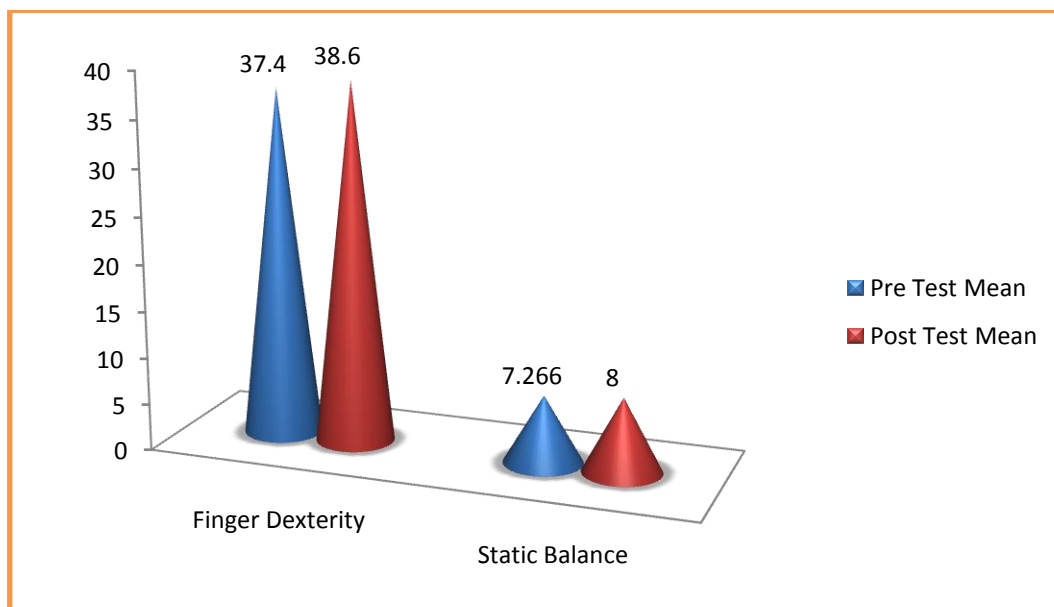
Discussion

It is evident from Table I and II that the number of oscillations in the finger tapping task increased significantly ($p \leq 0.05$) in the Yoga Group from the pre training mean value of 40 to 45.66 in 10 seconds and a significant increase ($p \leq 0.05$) in the holding time of balance in the One legged stance test in the Yoga Group from the pre training mean value of 6.533 to 13 after the sixteen weeks of Adapted Yoga programme, while the Control Group did not record any significant changes in these parameters. The result indicates that the practice of Adapted Yoga module helped to improve the psychomotor abilities of the elderly men living in old age homes. Manjunath (1999) concluded that yoga training had positively influenced the scores of manual dexterity. The gentle movement and static nature of asanas with coordinated breathing combined with mudras had possibly helped to improve the muscle tone thereby improving the neuromuscular coordination, and the subjects could do more number of finger tapping during the Adapted Yoga Intervention. The balancing asanas especially standing on one leg such as Eka Pada Pranamasana had resulted in the smooth functioning of vestibular system which plays an important role in maintaining the physical balance. The balancing asanas also helped them to improve attention and concentration. The Pranayama practice in Kaki Mudra where in the normal breathing is deliberately prolonged helped the subjects to improve the vital energy and the practice of Yoga Nidra provided them psychophysical relaxation that further helped them for increasing the number of oscillations in the finger tapping test.

Conclusions
1. The practice of Adapted Yoga Intervention Module brought significant improvement in finger dexterity task and in static balance.
2. The present study reveals that daily yoga practice is an excellent technique for improvement of psychomotor skills in elderly population.

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