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### The level of activity and use of body mechanics among geriatric age group residing at old age home in Pune city.

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#### ABSTARCT

**Background:** Aging is natural process. In the words of Seneca: “old age is an incurable disease”. Old age should be regarded as a normal inevitable biological phenomenon. According to recent “World Health Report” from World Health Organization states that more than 60% of adults can be classified as inactive in worldwide. World Health Organization found that scientific evidence indicated that regular physical activity fitness and exercise are a key determinant of health. Physical activity and body mechanics strong means of preventing of disease and improvement of health.

**Objective:** To assess the level of activity and use of body mechanics among geriatric age group residing at selected old age homes in Pune city.

**Method:** A quantitative research approach was used in this study. Research design was non-experimental: pre-test post-test. Sample size was 60 geriatric people who are living at Matoshree Vrudhashram. The level of activity was assessed of the 60 geriatric people before implementation of body mechanics and effectiveness was evaluated after implementation of body mechanics by Modified Katz Index.

**Result:** An average activity score In Pretest, 13.3% of them had poor level of activity (score 0-4) which decreased to 5% in post-test and while 73.3% of them had good activity level (score 5-8) which decreased to 25% in post-test and 13.3% off them had very good activity level (score 9-12) which increased to 70% in post-test. Average activity score of geriatric group in pretest was 6.9 which increased to 8.7 in posttest.

**Conclusion:** The findings of the study show that there is significant improvement in between the scores of pre-test and post-test.

**Key Words:** Geriatric people, Activity, Body mechanics

## Introduction:

Aging is natural process. In the words of Seneca: “old age is an incurable disease”, but more recently Sir James Sterling commented that, “you do not heal old age. You protect it; you promote it; You extend it.” Old age should be regarded as a normal inevitable biological phenomenon.<sup>(1)</sup>

The co-ordinated efforts of musculoskeletal and nervous system helps maintain balance, posture, and body alignment during, lifting, bending, moving, and performing activities of daily living and provide the foundation for body mechanics. The proper implementation of these activities reduces the risk of injury to the musculoskeletal system and facilitates body movements, allowing physical mobility without muscle strain and excessive use of muscle energy.<sup>(2)</sup>

Body mechanics can be both good and bad. Can have direct effects on back pain. Geriatric age group people require pushing, pulling, carrying and lifting during their daily activities. Prolonged performance of these action leads to muscles injury, bone fracture, dislocation, and fall. To avoid these problems, proper body mechanics should completing a task can cause severe musculoskeletal strains and fatigue there by increasing the risk be consciously used in performing a physical activity.<sup>(3)</sup>

“Body mechanics” is a two-word phrase used to describe the movements we make each day during normal activities, including lying in bed, sitting, lifting, pulling, pushing and walking good body mechanics will help remedy and prevent future back problems, while bad body mechanics contribute to back problems and other muscle and bone problems.<sup>(4)</sup>

The musculoskeletal system includes the bones, joints, muscles, tendons, ligaments and burse of the body. The problems associated with these structures are common and affect all age groups and deteriorate as age advances. Problems with the musculoskeletal system are generally not life threatening but as the age advances degeneration of body cells take place especially in the musculoskeletal system and they have significant effect on the individual’s normal activity and productivity.<sup>(5)</sup>

## Methodology:

A quantitative research approach was used in this study. Research design was non-experimental: pre-test post-test. Content validity was obtained by experts of medical surgical nursing opinion. Reliability of the tool was assessed by using test-retest method. Pearson’s correlation coefficient was found to be 0.96 for Modified Katz Index for geriatric age group. The consent was taken from the subjects for participation in study. Data collection was carried out from 31/03/2018 to 14/04/2108. Sample size was 60 geriatric people who are living at Matoshree Vrudhashram. The level of activity was assessed of the 60 geriatric people before implementation of body mechanics and effectiveness was evaluated after implementation of body mechanics by Modified Katz Index. Data was compiled and analysis was done by using inferential and descriptive statistics.

## RESULT:

**Table 1: Effectiveness of body mechanics among geriatric age group**

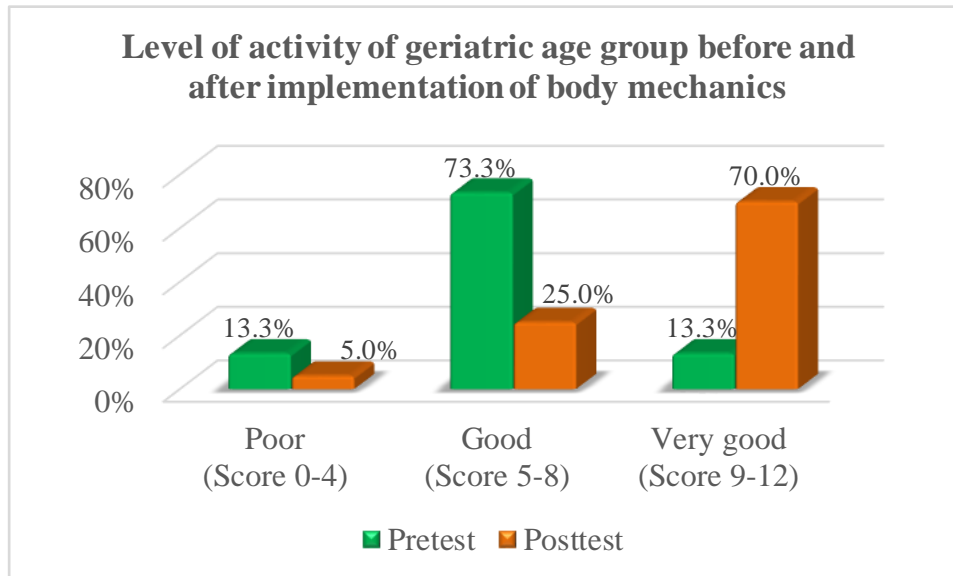
**N=60**

Level of activity	Pretest		Posttest	
	Freq	%	Freq	%
Poor (Score 0-4)	8	13.3%	3	5.0%

Good (Score 5-8)	44	73.3%	15	25.0%
Very good (Score 9-12)	8	13.3%	42	70.0%

In posttest, 5% of them had poor level of activity (score 0-4), 25% of them had good activity level (score 5-8) and 70% off them had very good activity level (score 9-12). This indicates that there is remarkable improvement in the activity level among geriatric group after body mechanics.

**Fig 1: LEVEL OF ACTIVITY BEFORE AND AFTER IMPLEMENTATION OF BODY MECHANICS**



In the pretest 13.3% had displayed poor level of activity. After implementation of education and demonstration regarding body mechanics, the posttest value of level of activity improved. There were only 5% of the geriatric group samples who scored (0-4) and were in the category of 'poor level'.

Similarly the % of value in level of activity improved in the posttest among the 'good' and 'very good' score as well. This indicates that there was remarkable improvement in the activity level among geriatric group after body mechanics.

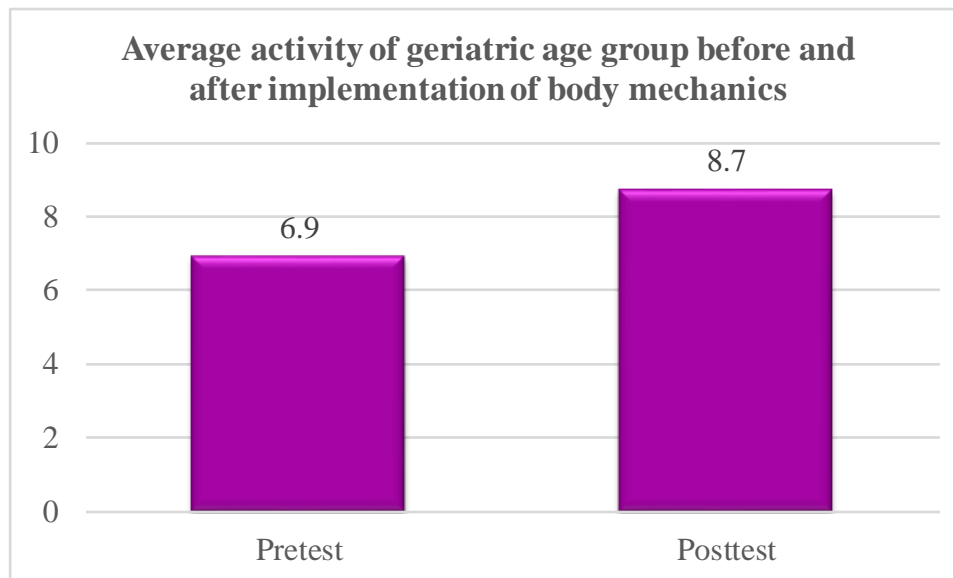
**Table 2: Paired t-test for the effectiveness of body mechanics among geriatric age group**

	Mean	SD	T	df	p-value
Pretest	6.9	2.1			
Posttest	8.7	2.0	11.9	59	0.000

N=60

The investigator applied paired t-test for the effectiveness of body mechanics among geriatric age group. Average activity score of geriatric group in pretest was 6.9 which increased to 8.7 in posttest. T-value for this test was 11.9 with 59 degrees of freedom. Corresponding p-value was 0.000 which is small (less than 0.05), the null hypothesis is therefore **rejected**. It is evident that the body mechanics among geriatric group improved their activity level significantly.

**Fig 2: AVERAGE ACTIVITY OF GERIATRIC AGE GROUP BEFORE AND AFTER IMPLEMENTATION OF BODY MECHANICS**



The above figure shows that the investigator applied paired t-test for the effectiveness of body mechanics among geriatric age group. Average activity score of geriatric group in pretest was 6.9 which increased to 8.7 in posttest. T-value for this test was 11.9 with 59 degrees of freedom. Corresponding p-value was 0.000 which is small i.e. less than 0.05, the null hypothesis is therefore **rejected**. It is evident that the body mechanics among geriatric group improved their activity level significantly.

#### **Discussion:**

The literature includes some studies that support the use of body mechanics in geriatric people. However, researches involving body mechanics have evolved over the past years, acquiring better methodological quality.

The studies found in this review assessed individuals geriatric age person and showed similar effects concerning the effectiveness of body mechanics on daily living activity.

The above findings of the study are supported by a study conducted by **Tinetti et al. (1994)**, one of the major consequences of fear of falling is activity restriction, which is itself a risk factor for falls because it can lead to muscle atrophy, deconditioning, and ultimately reduced health and physical functioning (Lachman et al., 1998). Reduced activity arising from fear of falling can lead to social isolation and consequently a reduction in total quality of life. Fear of falling may also impact post fall rehabilitation in that it can inhibit activity levels and overall improvement. According to Murphy and Tickle-Degnen(2001), an estimated 30% to 55% of the general population of older adults acknowledge being afraid of falling, and approximately one third of them report restricting their activities.<sup>(6)</sup>

The above findings of the study are supported by a study conducted by **Vaibhav Khatri, Priyanka Sharma, Samar Hossain, Vandna Sen (2017)**, "Study to disability level of daily activity in geriatric population living in rural area of an Indian city", the aim of this study is find out the disability level of daily activity among geriatric population,. Sample size were 400 for conducting this study. Community based cross sectional study. Population include all persons 60 and above age group, residing in the field practice area of RHTC Achrol village. In the present study , it was observed that out of 400 elderly 62.3% were male and 37.7% female and majority of the elderly i.e. 76.5% were in the age group 60 to 69 yrs followed by 20.0% in 70 to 79 yrs and 3.5% in yrs in 80 yrs. 19% elderly could not perform the activities of daily living and 12.7% required assistance in performing instrumental activities. 47.8% were have normal activity, 31.2% normal but slow and 21.0% were limited physical mobility. while the elderly having normal but slow and limited physical activity was 31.2% and 21.0% respectively. The difference were found to be statistically significant ( $p < 0.05$ ). while the elderly having normal but slow and limited

physical activity was found to increase with in age group 60 to 65 years to 42.8% and 57.1% respectively in  $\geq 80$  age group.<sup>(7)</sup>

**Conclusion:**

The findings of the study show that there is significant improvement in between the scores of pre-test and post-test. The findings shows that the body mechanics brought a significantly effect in pre-test and post-test on level of activity of geriatric people.

**Conflict of interest:** Nil declared

**Source funding:** Self

**Ethical clearance:** This study is ethically approved by Symbiosis College of nursing, Symbiosis International (Deemed University)

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