

# EXERCISE IMPROVES PHYSICAL FUNCTION IN GERIATRICS

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## Abstract—

**Background and Purpose:** To analyze the effect of aerobic exercises in geriatrics population.

**Study Duration:** The duration of the study was 1 year.

**Methods:** It was Cross sectional study design. It was survey analysis or a qualitative study in which participant was from Ameen Medical and Dental clinic Rehabilitation centers in Karachi and home base. A self-administered and health assessment questionnaire was used and also visual analogue scale use for pain in this study to identify the health assessment among the geriatric population. The participants are included who are above 60 year. Questionnaire along with informed consent were sent out to the participants. Questionnaires used in this study contained closed ended questions.

**Results:** A total of 65 subjects participated and out of which 50.8% (a frequency of 33) of them male and 49.2% (a frequency of 32) of them were female. The concluded results that the patients at the age of 60 to 65years were affected more. They had problem in performing daily life activities as per questionnaire parameter.

**Conclusions:** It has been concluded from the study that due to inactivity older adults lose their functional abilities and fear of fall was the probable cause of reduced recreational physical activity level in geriatric population. The conclusion shows that most of the patients had musculoskeletal pain.

**Key words:** Fear of fall, Pain, Memory loss, geriatric

## 1. INTRODUCTION

Gerontology is a specialty that focuses on health care of elderly people .It aims to promote health by preventing and treating diseases and disabilities in older adults. Significant decline in muscle mass and neuromuscular functions is associated with Aging. Day by day the world population is getting older and the percentage of elderly people is continually increasing. The percentage of elderly persons above 65 years was approximately 8% of the global population in 2010. The estimate for 2050 is approximately 16%, which will present around 1.5 billion people. (1, 2) Gradual changes in the organism, which leads to loss of function, weakness, disease and death commonly observed in geriatrics. This is due to sedentary and physically inactive life style of geriatrics.Centering at the aging muscles, we realize that there is a loss of muscles mass of 0.5%-1% every year bringing about a reduction of strength and decay of fast power creation, so pivotal for avoiding falls in old. (3, 4) The World Health Organization (WHO) distributed rules on the significance of physical action in geriatrics. According to these rules, practicing exercise is an efficient and cost effective method for preventing the decline of older people's functional capacity. Physical movement can help in avoiding and dealing with certain incessant sicknesses and conditions. Flexibility, strength and balance exercise are the best procedures to anticipate falls among geriatrics. The beneficial outcomes of physical movement are longer independency in self-care exercises, higher

confidence, better personal satisfaction, higher future, and diminished mortality.(5) Though exercise and different types of physical movement have perceived useful impacts on the physiological and psychosocial working in older adults, we know far less about the impacts of physical action on the support of their everyday functioning. Numerous randomized, clinical preliminaries have recommended that physical movement can improve the physical and job working of geriatrics who are loaded by perpetual sicknesses, for example, joint inflammation,' cardiovascular disease,\* and perpetual obstructive pulmonary disease.(6) It has been recommended that people who maintain a physically active lifestyle for the duration of their lives don't encounter the normal age-related decrease in psychomotor and physical working that is commonly found for sedentary individual. (7,8) The more prominent utilitarian save related with people who take part in aerobic activity may enable the older people to perform exercises of day by day living with less exhaustion and may prolong an independent lifestyle.(9) Having even one geriatric condition, except hearing impairment, significantly increased the risk for ADL dependency. The risk associated with geriatric conditions was similar to or greater than the risk associated with chronic diseases (e.g., heart disease).Cognitive impairment, incontinence, and vision impairment conferred the greatest risk.(10,11) Falls are normal in geriatrics and become more frequent with propelling age,

with a fall frequency of 40% every year in network tenants matured 80 years or over. Injurious falls prompting serious therapeutic, mental, also, social sequel are related with high treatment costs. They lead to continuous posttraumatic wellbeing issues, motor and mental limitation, and an undermining loss of autonomy. Although numerous components, for example, aging, chronic disease, inactive way of life, and medicine, may add to the danger of falling, preventable or on the other hand reversible motor deficit appear to be a key to effective mediation by physical preparing. Absence of solidarity, coordination, what's more, utilitarian execution are outstanding indicators of falls and disability in geriatrics furthermore, the restoration result of patients with a history of falls.(12) A study was conducted on reaction and movement time as a function of age and physical activity level result concluded that most of the slowing process of responses in the aged is attributes to central nervous system processing rather than movement time decrements is repudiated.(7)Research conducted on geriatric conditions and disability result showed that geriatric conditions are similar in prevalence to chronic diseases in older adults and in some cases are as strongly associated with disability. The findings suggest that geriatric conditions, although not a target of current models of health care, are important to the health and function of older adults and should be addressed in their care. (10)

**2. METHODOLOGY:**

The study design was cross sectional. Simple random sampling was used.This study conducted in Ameen Medical and Dental clinic Rehabilitation centers in Karachi and home base. Sample size was 65 subjects. We included patients of both genders male and female with the age 60 years above. Patients with mental illness who may give irrelevant information were excluded from the study. A face to face interview conducted and with an informed consent form. Data collection instrument was the updated American Geriatrics Society (AGS) and the British Geriatric Society (BGS) guidelines for older person recommend that yearly evaluations of elderly patients include questions about any recent falls as well as inquiries about balance and steadiness of gait, and VAS (Visual Analogue Scale) were used.

**3. RESULTS**

After the completion of survey and filling of the questionnaire, about 65 subjects showed up. The structure of questionnaire was set under several major divisions which made it intimate for the study to focus on demographic data. A total of 65 subjects participated and out of which 50.8% (a frequency of 33) of them male and 49.2% (a frequency of 32) of them were female. A demographic data also based on frequency, duration. To make the study more specific and particular the subjects were included above the age of 60years. The overall mean age was 73.63 year; with range of 27 year. The distribution of age is presented in graph-2. The detailed descriptive statistics was presented in table 2. General health was observed in patients and it was found that 1 (1.5%) patient was excellent, 31 (47.7%) were good, 26(40%) were fair and, 7(10.8%)

were poor .The frequency distribution was presented in graph 3 and detailed descriptive in table3. The severity of bodily pain was observed that 14 patients had no pain, 26 had mild pain, 23 had moderate pain, and 2had severe pain. The frequency distribution was presented in table 4 and graph 4. Falling history was observed according to how many times falls.45 patients had no fall,14 patients had 1 time ,4 patients had 2 times and 2 patients had many times falling history. The frequencies are presented in graph 5 .The percentages were presented in frequency distribution table 5. Bony problems showed that 27.7% had no problem, 30.8% had osteoarthritis, and 1.5% had rheumatoid arthritis. The frequencies were presented in table 6. The type of exercise done by patients had also observed in table 7. The overall comorbid observed that was 36.9%had diabetic disease, 23% had HTN, and 7.7% had CHD 3.1 % had stroke 23.1% had both HTN and Diabetic, 3.1% had HTN and Stroke, and 3.1% had Stroke HTN Diabetic. The overall frequencies are given in table 8. The frequency of Memory problem was given in table 9 in which 43.1% having mild problem, 16.9% moderate, 9.2% have severe and 30.80% had

Gender	Frequency	Percent
female	32	49.2
male	33	50.8
Total	65	100.0

no memory problem.

**TABLE -1**  
**FREQUENCY DISTRIBUTION OF GENDER**

age	Frequency	Percent
62	2	3.1
64	1	1.5
65	5	7.7
66	4	6.2
67	1	1.5
68	4	6.2
69	3	4.6
70	6	9.2
71	3	4.6
72	5	7.7
73	3	4.6
75	5	7.7
76	4	6.2
78	3	4.6
79	1	1.5
80	4	6.2
82	2	3.1
83	1	1.5
84	1	1.5
85	3	4.6
88	3	4.6
89	1	1.5
Total	65	100.0

**TABLE - 2**  
**FREQUENCY DISTRIBUTION OF AGE**

**TABLE - 3**  
**FREQUENCY DISTRIBUTION OF GENERAL HEALTH**

General Health	Frequency	Percent
excellent	1	1.5
good	31	47.7
fair	26	40.0
poor	7	10.8
Total	65	100.0

Bodily pain	Frequency	Percent
none	14	21.5
mild	26	40.0
moderate	23	35.4
severe	2	3.1
Total	65	100.0

**TABLE - 4 FREQUENCY DISTRIBUTION OF PAIN**

Falling history	Frequency	Percent
none	45	69.2
1 time	14	21.5
2 times	4	6.2
many times	2	3.1
Total	65	100.0

**TABLE - 5 FREQUENCY OF FALLING HISTORY**

**TABLE - 6 FREQUENCY OF BONY PROBLEM**

Bony problem	Frequency	Percent
none	18	27.7
osteoarthritis	20	30.8
rheumatoid arthritis	1	1.5
osteoporosis	15	23.1
osteoarthritis rheumatoid arthritis	4	6.2
rheumatoid arthritis osteoporosis	5	7.7
osteoarthritis osteoporosis	2	3.1
Total	65	100.0

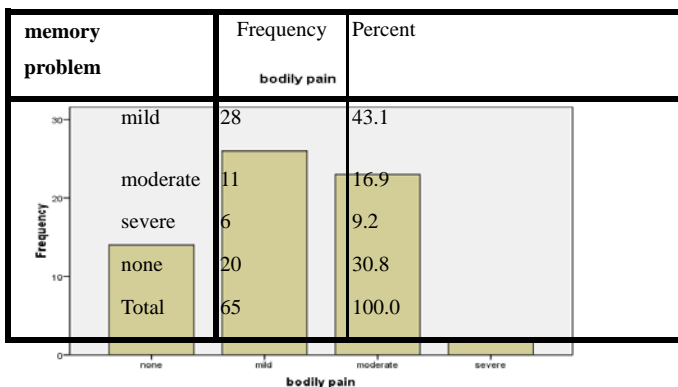
**TABLE-7 FREQUENCY OF TYPE OF EXERCISE**

Type of exercise	Frequency	Percent
walking	32	49.2
gym	6	9.2
strengthening exercise	3	4.6
none	24	36.9
Total	65	100.0

**TABLE-8 FREQUENCY OF COMORBIDS**

Comorbid	Frequency	Percent
HTN	15	23.1
Diabetes	24	36.9
CHD	5	7.7
Stroke	2	3.1
HTN Diabetes	15	23.1
HTC CHD	2	3.1
HTN CHD Stroke	2	3.1
Total	65	100.0

**TABLE -9 FREQUENCY OF MEMORY PROBLEM**



**5. DISSCUSSION:**

Falls are one of the most common health problems experienced by older adults and are a common cause of loss of functional independence. Studies show that unintended injuries are the fifth leading cause of death in the elderly, and falls cause about two-thirds of those injuries. Fortunately, research continues to evolve in fall prevention. The Journal of the American Geriatrics Society (AGS) and the British Geriatric Society (BGS) updated the 2001 guideline on preventing falls in older persons based on an accu-

mulation of new data and a literature review. (13)

The first step in preventing falls is to determine if patients are at increased risk. The updated AGS/BGS guidelines recommend that yearly evaluations of elderly patients include questions about any recent falls as well as inquiries about balance and steadiness of gait. Balance and steadiness represent a new addition to the guidelines. These problems can result from a number of causes, so it's important that physicians consider what may be contributing to the problem before recommending treatment. Patients should also be asked about side effects of any medications that may increase fall risk. Questions about a patient's comfort with activities of daily living may also reveal areas of concern. If a patient has already sustained a fall, physicians should assess and treat any resulting injuries, evaluate what contributed to the fall, and then recommend interventions to prevent future falls. Significant increases in strength noted in older adults with isometric & PRE regimes. High- intensity training programs (70-80% of one repetition max) produce quicker & more predictable results than moderate intensity programs; both have been successfully used with the elderly. Improvement in strength correlates to improved functional abilities. Single leg balance and sit to stand help you to decrease your chance of falling. Utilize slow, prolonged stretching; maintained for 20-30 sec. Tissues heated prior to stretching are more distensible, e.g. Warm Pool. Maintained newly gained range, incorporate into functional activities. Mobility gains are slower with older adults. Build confidence and take control of your things to know about fall. (12, 13)

The AGS/BGS guideline update has identified several interventions that may benefit elderly patients in fall prevention. Because many falls are the result of muscle weakness and unsteady gait, patients often benefit from strength training and other physical conditioning to improve strength, balance, and flexibility. A physical therapist should be consulted to develop appropriate exercise programs or to serve as an intermediate for patients electing to exercise independently. Review patients' medications at each visit and evaluate them for their possible contribution to poor balance or unsteadiness. Of specific concern are medications that can cause sedation, confusion, or orthostatic hypotension. Patients should have annual vision screenings to detect any problems so that appropriate interventions can be administered.

**6. CONCLUSION**

The study concluded that there is a significant improvement in physical function of geriatric population due to exercise. Mobility and balance can be improved with appropriate exercise programs in older people resulting in a reduced fall risk. Health promotion program considering exercise for older people need to consider fear of fall in their program design.

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