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Assessment of physical activity and inactivity risk in geriatric population

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Abstract
Geriatric population are leading to sedentary lifestyle and it has been confirmed that they are less PA as compared to adult population. Physical Inactivity is connected with different types of chronic diseases and which has become an important risk factor in geriatric individuals. PA is any active movement of the body i.e produced by muscular contractions. The purpose of this study was to assess the PA and inactivity risk in geriatric population, aged above 60 years. It examined the Sedentary time and low level of PA by using validated Rapid Assessment Disuse Index (RADI) and identify the level of activity using International physical activity Questionnaire Short-Form (IPAQ-SF). The study was conducted among 100 Geriatric Population were RADI and IPAQ-SF shows that females were more prone to sedentary lifestyle and are more under inactivity risk as compare to males. Therefore, present study shows that Males are more Physically Active than Females.

Keywords: Physical activity, older adults, rapid assessment disuse index (RADI), international physical activity

Introduction
Physical activity and fitness are terms often used interchangeably [1]. Physical activity occurs over four dimensions: frequency (sessions/unit time), intensity (rate of energy expenditure, adjusted for body size), time, and type (a qualitative descriptor) [2]. where as physical fitness is a characteristic of individuals that relates to their ability to perform physical activity. Fitness has a strong inherited components, but is modifiable within an individual's range through training [3]. As a person ages, a sedentary life compounded with a lack of physical activity causes significant decline in muscle integrity. However, Older adults are generally less physically active than young adult [4]. Physical inactivity is considered to be one of the most important public health problems of modern society [5]. It is known that physical inactivity is connected with different kinds of chronic diseases, such as: coronary artery disease, stroke, hypertension, colon cancer, breast cancer, Type 2 diabetes, and osteoporosis [6]. Infact, a lifetime of physical inactivity accelerates normal age related changes such as loss of skeletal muscle, loss strength and power, further reinforcing sedentary behaviour [7].
One way of expressing the sedentary behaviour and level of risk of physical inactivity in Geriatric Population is the Rapid Assessment Disuse Index (RADI).This tool is comprised of three questions aimed at measuring sitting time as well as general moving about and stair climbing behaviours (i.e, lifestyle physical activity parameters) [8]. It is self-administered and it is based on the general domains of daily activity (eg, moving about and climbing stairs) and sitting behaviour with reference to the past week, month and year. The two RADI questions related to lifestyle activity (moving about and stair climbing) are reverse scored, that is, higher scores are indicative of less moving about and fewer stairs climbed; whereas the sitting score is directly scored, that is, a higher score is indicative of more sitting. By summing the numbers for each column and then across the three times periods. The total for column 'A' corresponds to the current 'disuse' index score, which ranges from 3 to 15; the total across columns 'A', 'B' and 'C' is the cumulative 'disuse' index (i.e, the cumulative RADI score), which ranges from 9 to 45. Higher scores indicate higher levels of 'disuse' (i.e, a combination of more sitting and less activity) [8]. Other way to assess the level of the physical activity in Geriatric Population is the International Physical Activity Questionnaire (IPAQ).

It is used as a standardised measure to estimate habitual practice of physical activities of populations from different countries and socio-cultural context. Two-forms of the International Physical Activity Questionnaire (IPAQ) test have been developed: a short and a long version, both of which involve 7-day recall of physical activity. The short-form (SF) was designed for use in surveillance studies, in which time is limited, and consists of 8 items to estimate the time spent performing physical activities (moderate to vigorous) and inactivity (time spent sitting) [9].

Materials and methods

It was a cross-sectional study and the data was collected by direct method from old age homes. 100 Geriatric Individuals samples were included i.e. above 60 years of age. The Rapid Assessment Disuse Index (RADI) is a validated tool and it include Walk + Stairs + Sit for each one day of the Past Week, Past month, Past Year which gives Cumulative Inactivity Risk Index score. International Physical Activity Short-form (IPQ-SF); the MET values of respective subjects were calculated on that basis they were quantified into Inactive, Minimally Active, HEPA active.

Results and Discussion

In the study conducted, out of 100 Geriatric Population, 47 subjects were male while 53 were female.

Tables and Figures

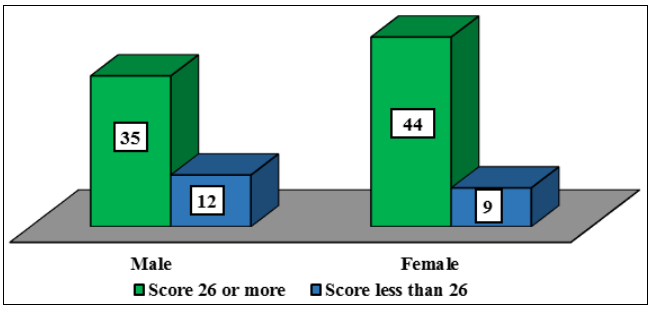

Fig 1: RADI Scoring in Male and Female Geriatric Population

Table 1: RADI Scoring in Male and Female Geriatric Population

Radi score	Scoe 26 or more	Scoe less than 26	total
Units / Genger	No. of subjects	No. of subjects	No. of subjects
Male	35	12	47
female	44	9	53

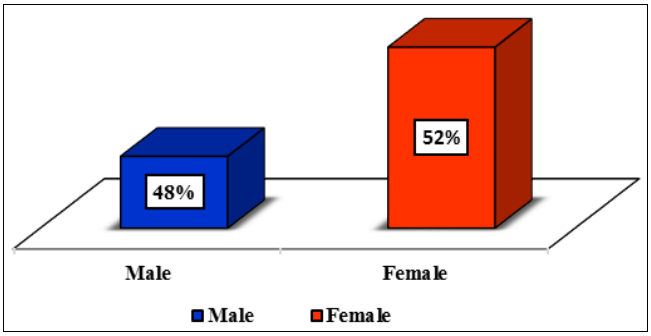

Fig 2: Cumulative Inactivity Risk Index

Table 2: Cumulative Inactivity Risk Index

Cumulative inactivity risk index	Male	Female
	48%	52%

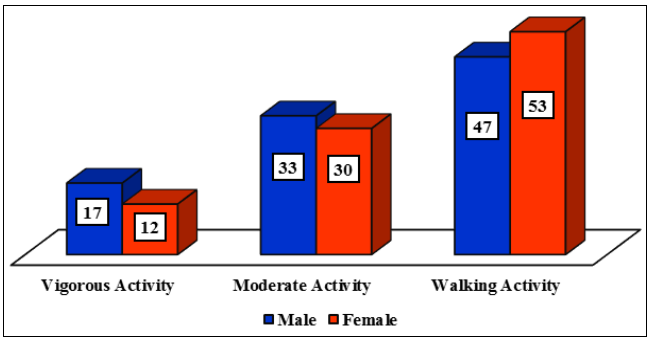

Fig 3: Activity Analysis of Male and Female in Geriatric Population

Table 3: Activity Analysis of Male and Female in Geriatric Population

Activity analysis	Vigorous activity		Moderate activity		Walking activity	
Units / Gender	No. of subjects	Percentage (%)	No. of subjects	Percentage (%)	No. of subjects	Percentage (%)
Male	17	18%	33	34%	47	48%
female	12	13%	30	31%	53	56%

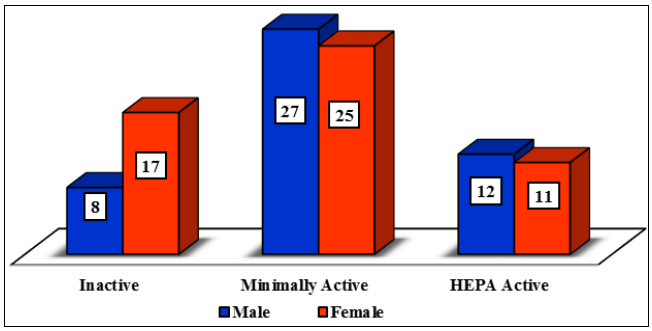

Fig 4: Level of Activity in Males and Females Geriatric Population

Table 4: Level of Activity in Males and Females Geriatric Population

Level of activity	inactive		Minimally active		Heap active	
Units / Gender	No. of subjects	Percentage (%)	No. of subjects	Percentage (%)	No. of subjects	Percentage (%)
Male	8	17%	27	57%	12	26%
Female	17	32%	25	47%	11	21%

Discussion

The aim of the study was to identify the physical activity and inactivity, also to compare male and female in geriatric population.

100 geriatric individuals voluntarily took part in the survey, out of which 47 were males and 53 were female above 60 years of age.

Rapid Assessment Disuse Index

According to RADI score and Gender: among 47 males 35 subjects score were more than 26 were as remaining 12 subjects score were less than 26 similarly among 53 females 44 subjects score were more than 26 were as remaining 9 subject score were less than 26. (Figure1)

As per the Cumulative Inactivity Risk Index and Gender: among 47 males and 53females**,** 48% of males are in inactivity risk as well as 52% females are also in inactivity risk. Therefore, females are more prone to sedentary lifestyle than males. (Figure2)

Therefore, Rapid Assessment Disuse Index shows that females were more prone to sedentary lifestyle and are more under inactivity risk as compare to males.

International Physical Activity Questionnaire–Short Form:

According to WHO, physical activity need to achieve at least 1200 MET-min/week. The average MET values of 100 geriatric population thus conducted is 1842.94 MET-min/week which is over and above the criteria set by WHO.

According to Activity Analysis and Gender: among 47 males and 53 females, males were more vigorously and moderately active than females where as all male and females were regularly doing walking activity in past 7 days. (Figure3)

According to Level of Activity and Gender: among 47 males and 53 females, males were more minimally active and HEPA active than female where as female were more inactive than males. (Figure4)

Therefore, International Physical Activity Questionnaire – Short Form (IPAQ-SF) shows that male are more physically active than females.

Our data showed marked differences between males and females on the prevalence of inactivity, in all of them men are more physically active than men. Thereby, health professionals must be aware of their potential to mediate healthy behaviour, not only among sick individuals, but also in the population as a whole.

Conclusion

According to present study Male are more active as compared to Female

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