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## Study of flexibility and body composition of aged women participating morning walk regularly

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### Abstract

**Introduction:** Walking is now considered a good exercise to maintain health and fitness for old age person and a numbers of them are participating this exercise regularly.

**Purpose:** Present study was conducted to find out the flexibility, fat mass percentage (PFM) and fat free mass (FFM) of aged women (Mean age=55.23 yrs;  $\pm 8.95$ ) who are participating walk at morning regularly for at least six months.

**Materials and Methods:** For this purpose a total of 17 old aged women were selected randomly in this study. These women were performing walking exercise at morning regularly for at least six months. Flexibility, fat mass percentage (PFM) and fat free mass (FFM) were considered as variables in this study. Weigh machine, skin fold caliper and modified sit and reach test were used as tools. Single group design was adopted in this study. Mean and standard deviation were used as descriptive statistics. All calculations were done using standard statistical software.

**Results and findings:** Result revealed that mean value of flexibility (17.85 cm;  $\pm 4.06$ ) was in poor zone as per YMCA norm. The mean value of PFM (27.73%;  $\pm 3.34$ ) and FFM (44.36 Kg;  $\pm 5.14$ ) of the subjects were also found in healthy zone.

**Conclusion:** From above findings it was concluded that participating in morning walk on regular basis for at least six months is beneficial in respect of selected health parameters among aged women.

**Keywords:** Morning Walk, Health status, Regular exercise, PFM, FFM, Aged women

### 1. Introduction

Flexibility is defined as the range of motion of joints or the ability of joints to move freely. It also refers to the mobility of muscles, which allows for more movement around the joints. Range of motion is the distance and direction joints can move, while mobility is the ability to move without restriction. Flexibility is needed to perform everyday activities with relative ease. To get out of bed, lift children, or sweep the floor, we need flexibility. Flexibility tends to deteriorate with age, often due to a sedentary lifestyle. Without adequate flexibility, daily activities become more difficult to perform. Quality of life is enhanced by improving and maintaining a good range of motion in the joints. Increasing the range of motion creates good posture and develops proficient performance in everyday activities increasing the length of life and overall health of the individual.<sup>[1]</sup> Loss of flexibility can be a predisposing factor for physical issues such as pain syndromes or balance disorders.

Body composition includes fat mass and lean body mass of a person. The body fat percentage (PBF) of a human is the total mass of fat divided by total body mass. Body fat percentage is used to measure of fitness level, since it is the only body measurement which directly calculates a person's relative body composition without regard to height or weight. Fat mass is very much related with health condition of human body. Excess accumulation of fat in body increased weight, hinder physical performance and allows different diseases related with cardio-vascular system<sup>[2, 3]</sup>. Thus accumulation of excess fat in body is an unhealthy condition and in contrast, presence of more amount of fat free mass (FFM) indicates better health status.

Exercise has many health benefits for young as well as for old age. Several studies have shown aerobic (endurance) exercise programs can have multiple beneficial effects on several health outcome in healthy elderly, including a reduction in the decline in cardiovascular performance associated with physiologic aging, an improvement in physical function (Giallauria *et al.*, 2005; Hollmann *et al.* 2007)<sup>[4, 5]</sup>. Walking at morning is considered as a good healthy

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aerobic activity Which promote inner health and harmony by providing proper exercise and rhythm to every part of the body, specially for older age. Most of the older age people prefer to participate in walking as their morning exercise. It not only enables to maintain good health but regular participation in walking helps to tone up the blood circulation, digestion excretion and respiration. Numbers of study worldwide reported significant correlation between physical activity and better physiological health and reduced rate of occurrence of cardio vascular diseases (CVD) in older age [6, 7].

The study was conducted to know the status of the trunk flexibility and body fat amount among old age women who participate walking at least for six month continuously. Findings will be helpful to understand the beneficial effects of morning walk on health conditions among older age women.

**2. Materials and Methods**

**2.1 Subject**

A total of seventeen (N=17) middle aged women were agreed to take part in the study. Their age was in between 47 to 68 years (Mn=55.23 yrs; SD=8.95). Every of them were practicing morning walk for last six months regularly.

**2.2 Criterion Measure**

Flexibility, percentage of fat mass (PFM) and free fat mass (FFM) were considered as criterion measure in this study.

**2.3 Tools and Test used**

Standard tools and instruments were used to measure the variables of this study. YMCA adult trunk flexion test was used to measure flexibility and skin folds were used to measure fat mass percentage and fat free mass. Body fat percentage was assessed by anthropometric equation developed by YMCA, America [8].

**2.4 Statistical Procedure**

Single group design was used in this study. Mean and standard deviation were used as descriptive statistics. All statistical calculations were done by standard statistical software.

**3. Results and Findings**

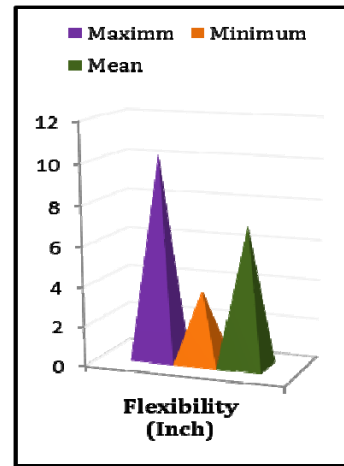
The maximum value, minimum value, mean value and standard deviation (SD) of each selected variables have presented in Table-1. The findings of the present study for flexibility, percentage of fat mass (PFM) and free fat mass (FFM) have also presented in graphical form for easy understanding in Figure-1, Figure-2 and Figure-3 respectively.

**Table 1:** Descriptive statistics of selected variables

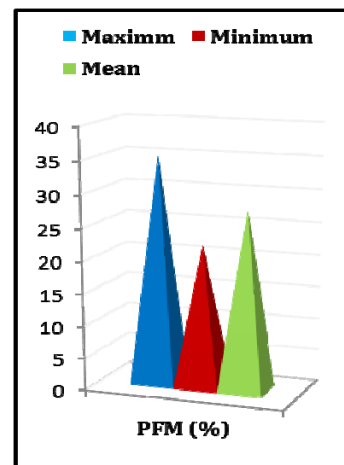
Variables	Flexibility (Inch)	PFM (%)	FFM (Kg)
Maximum	10.24	35.19	50.27
Minimum	3.64	21.99	34.32
Mean	7.03	27.73	44.36
SD	1.60	3.33	5.14
Remarks on Mean	Poor*	Healthy zone^	Healthy zone^

\*As per norm of YMCA [8].

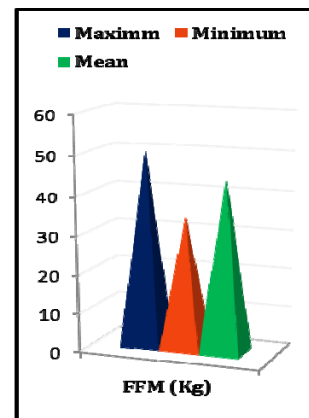
^ As per norm of American College of Sports Medicine, 2010 [8].



**Fig 1:** Graphical presentation of Flexibility of the subjects;



**Fig 2:** Graphical presentation of PFM of the subjects; and



**Fig 3:** Graphical presentation of FFM of the subjects.

**3.1 Discussion on Findings**

Walking is good aerobic exercise and when it perform with long duration for example one hour or more continuously it contribute significant reduction of fat. Paul, Williams and Thompson reported that moderate walking used similar amount of energy and produces similar effect on health variables like hypertension, hypercholesterolemia, diabetes mellitus, and possibly CHD as vigorous exercise (running) do [9]. In present study the PBF of old aged women has found normal and as per ACSM standard it was in healthy zone for this age group. On other hand the FFM also found normal and healthy zone for old age women. This also might be due to the regular walking exercise because when exercise done for longer period regularly, it use body fat everyday as its fuel.

Thus body fat reduced and muscle mass increased as a result of exercise effect. Several studies reported beneficial effects of walking and exercise on older age women. Gaba *et al.* found positive relation between body composition and better bone health and also with physical activity<sup>[10]</sup>. Cuberek *et al.* reported walking should be considered as a life style exercise and beneficial to the health among elderly women<sup>[11]</sup>. Result of the study conducted by Galán *et al.* have shown that regular and moderate exercise improves cardio-respiratory function and reduces CVD risk in elderly people, while concurrent antioxidant supplementation modulates oxidative insult during exercise in the elderly and enhances the beneficial effects of exercise<sup>[12]</sup>. Butcher *et al.* reported low-intensity exercise like walking can exerts beneficial effect on plasma lipid and reduce risk of CVD<sup>[13]</sup>.

### 3.2 Conclusion

On the basis of above finding and discussion following conclusion were drawn:

1. The flexibility of old age women participate regularly in morning walk was not in healthy zone. Thus walking as an exercise was not enough to attain healthy flexibility.
2. Morning walk might be beneficial to maintain good and healthy body fat percentage and fat free mass among older age women if perform regularly.

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