



EVALUATION OF PHYSICAL PERFORMANCE AMONG PREMENOPAUSAL, PERIMENOPAUSAL AND POSTMENOPAUSAL WOMEN

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ABSTRACT

Background: Menopausal transition marks a major milestone in women life cycle. Physical performance is closely related to everyday activities. Due to influence of hormone accelerated pattern of decline in abilities might begin in midlife. Hence it is vital to evaluate physical performance as early as possible. **Method:** Women were categorized into three respective stages according to STRAW criteria and symptoms experienced by those women. After taking informed consent and all demographic details, physical performance in the form of grip strength, gait speed and chair stand test was assessed using handheld dynamometer, 3meter walk test and five times chair stand test. Values were noted for analysis. **Result:** There was significant difference in the values of grip strength, chair stand test and gait speed between the three groups. Premenopausal women performed well in the three physical performance measures compared to peri and postmenopausal women. **Conclusion:** Our study suggests transition through menopause is associated with decline in the physical performance in rural population.

KEYWORDS : physical performance, pre menopause, perimenopause, post menopause, physiotherapy.

INTRODUCTION

Last stage of ovarian physiology in females is menopause which is characterized by loss reproductive function as a result of reduction of ovarian follicular supply. Menopause transition, which denotes the change from reproductive to post reproductive life is an important turning point marking female life cycle.

This transition is broadly divided into two phases; early transition and late transition.¹ The STRAW staging method is the gold standard for describing reproductive ageing through menopause.² On an average there is two to three percent decrease in strength and power of muscle, implying the reduction of physical functioning began to speed up through midlife. Also, physical activity is strongly correlated with mental wellbeing and improved level of performance.³

Physical performance is a necessity in order to maintain functional independence. But age related impairments causes mobility limitations, walking difficulties, etc. But due to hormonal changes in the menopausal years, pattern of losses might start in early midlife.⁴

As integrated markers of ageing, the capacity to carry out an action or activity—such as getting up from a chair or walking tests—is influenced by a variety of physiological and clinical traits as well as the social environment.⁵ Hence the aim of study is to evaluate the differences in physical performance in different stages of menopause, so as to determine the stage of decline in physical functioning during this transition period.

Procedure

After an Approval from institutional ethical committee, study was undertaken for a period of 1 month. Women between the age group of forty to sixty-five years were included in the study while the women having physical issues relating to spinal cord injury, recent fracture or stroke were excluded. Eligible women were categorized into menopausal stage. Written and informed consent was obtained.

Physical performance was evaluated using grip strength, gait speed and chair stand test. For grip strength; the dominant hand was evaluated with a Jamar dynamometer. Participant was taken in sitting position, shoulder was fully adducted, in neutral rotation, elbow flexed to ninety-degree, forearm in a neutral position. Participant was instructed to squeeze the

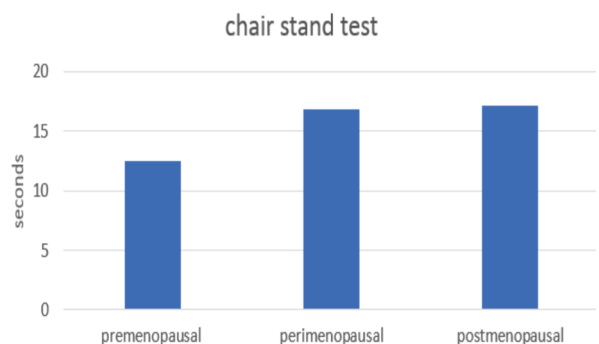
dynamometer with effort. Test was implemented 3-time, highest value was recorded. Gait speed was evaluated by 3-meter walking with subject's usual time pacing and faster of two walks was noted. For an ability to get up from chair, participants were told to stand and sit five times as soon they could while keeping the arms folded across chest and were timed in seconds.

RESULT

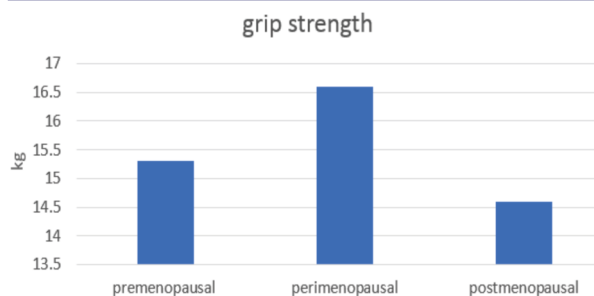
Out of nine samples enrolled in the study Mean age, BMI of premenopausal women was 40.6 years and 25.36kg/m², that of perimenopausal women was 46 years, 23.5kg/m² and postmenopausal women were 60.6 years with BMI 26.9kg/m². Only one participant of perimenopausal stage had addiction while hypertension was present in one woman in postmenopausal stage.

Obtained values for grip strength were 15.3±6.1, 16.6±5.0 and 14.6±3.4, gait speed 0.446±0.03, 0.389±0.02 and 0.330±0.02, chair stand test 12.46±1.14, 16.80±1.31 and 17.11±0.48 according to menopausal stages. A clear difference is seen in chair stand test, gait speed and grip strength among pre, peri and postmenopausal.

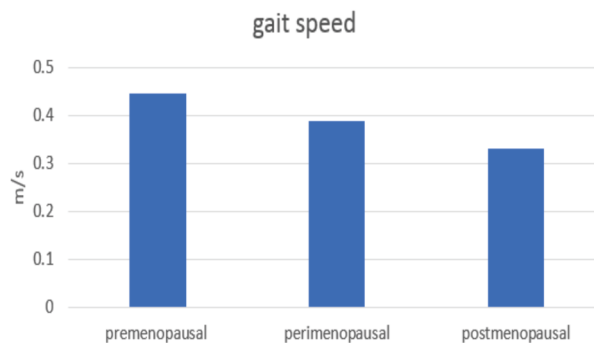
Premenopausal women have higher grip strength, fastest gait speed and performed chair stand test in less time compared to perimenopausal and postmenopausal women. On average, the premenopausal women were significantly stronger than perimenopausal women and also stronger than the postmenopausal group [Graph 1,2&3 respectively]



Graph 1 showing chair stand(sec) according to menopausal stage



Graph 2 showing grip strength(kg) according to menopausal stage



Graph 3 showing gait speed(m/sec) according to menopausal stage

DISCUSSION

According to our result physical performance lower down as the stage of menopause progresses from premenopausal to postmenopausal stage. Our study sample consists of women from rural area, engaged in farming activities. Grip strength of perimenopausal women was slightly greater which could be due small size biased. Saionara et al showed that menopause being linked to physical performance in Latin-American women. When compared to premenopausal women only grip strength was observed to be poorer in peri and postmenopausal women.⁶ Menopausal status was not a significant contributor to the explained variance of any muscle measurement by Bassey et al. in middle-aged English women.⁷ A study by Cooper et al found that postmenopausal women did have weaker grip strength than premenopausal women, but this difference was not statistically significant. Postmenopausal women have weaker grip strength and balance ability than premenopausal or older women, but the difference is not statistically significant.⁸ Majority of study have shown positive relation with grip strength, emphasizing decline in musculoskeletal system, however our study has shown that gait speed, chair stand test along with grip strength are equally affected in three stages. But that could be due to small sample size.

CONCLUSION

The present study showed that the transition through menopause is associated with decline in the physical performance in rural setup.

Conflict of interest – None

Funding resources - None

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