



7<sup>th</sup> EFSMA - European Sports Medicine Congress

3<sup>rd</sup> Central European Congress of Physical Medicine and Rehabilitation  
Annual Assembly of the German and the Austrian Society of Physical Medicine and Rehabilitation

Salzburg, 26th - 29th October 2011



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Austrian Society of Physical Medicine and Rehabilitation

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Book of Abstracts



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## Physical capacity, quality of life and body composition of postmenopausal osteoporotic women

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**Objective:** Osteoporosis is a systemic skeletal disease that has great influence on functional independence and quality of life, leading to reduced bone mass, microarchitectural deterioration, increased bone fragility, bone fractures with minimal trauma, decreased bone mineral density and decrease bone quality. This quality is defined by the bone health of it and is closely related to physical activity and body composition, genetic and hormonal factors and nutrition. Under normal conditions, bone mineral density evolves, increased up to 27 years, leveling up to 40. From here begins to decrease and there is a sharp decline in the menopausal stage and after it keeps a sharp downward trend. Thus we aim to evaluate the physical condition of postmenopausal osteoporotic women, assessing their functional status, different manifestations of strength and body composition.

**Material/Methods:** After approval by the Ethics Committee of the North Health Region, we identified women diagnosed with osteoporosis by dual-energy bone densitometry (DEXA), which showed inclusion criteria and who wanted to participate in the study of their own free will. After assessment of blood pressure and heart rate were subjected to:

- a) Demographic variables
- b) Quality of life evaluated with the osteoporosis assessment questionnaire (OPAQ) – 1 to 5 points represented by numeric scale from 1 to 5, in which 1 represents better quality of life and 5 represents poor quality of life
- c) Tinetti Falls Efficacy Scale [1]
- d) Physical activity: short version of IPAQ (International Physical Activity Questionnaire).
- e) Functional capacity: timed up and go test; 30 sec sit to stand; unipodal balance eyes shut
- f) Height: stadiometer Seca®
- g) Handgrip strength of both hands: Jamar® hand dynamometer
- h) Key pinch strength with digital dynamometer Baseline®
- i) Body composition: bioelectric impedance on Tanita Ironman Body Composition Monitor®

**Results:** The 18 women studied have an average age of  $66,8 \pm 6,4$  years,  $148,2 \pm 5,3$  cm of height and  $57,4 \pm 6,2$  Kg of weight which represents a BMI of  $26,2 \pm 3,3$ . In the OPAQ the evaluated women achieved  $3,1 \pm 0,7$  points and in the FES achieved  $79,3 \pm 21,1$  points. In the IPAQ 14 women were with low level of physical activity and 4 with moderated physical activity (average physical activity of  $387,5 \pm 294,9$  METs). The average result of the timed up and go test was  $9,4 \pm 2,7$  seconds, in the 30 sec sit to stand was  $10,1 \pm 2,9$  repetitions and in the unipodal balance test was  $4,1 \pm 6,9$  seconds. When evaluating strength, we found  $16,8 \pm 6,4$  Kg/f for right handgrip strength and  $16,2 \pm 5,8$  Kg/f for left handgrip strength. When evaluating key pinch strength we found  $6,6 \pm 5,0$  Kg/f and  $6,3 \pm 5,2$  Kg/f for the right and left hand, respectively. Analyzing the body composition average values, we have  $33,6 \pm 6,0\%$  for total body fat,  $47,5 \pm 4,3\%$  to body water,  $2,0 \pm 0,2$  Kg to bone mass and  $36,2 \pm 3,2$  Kg to muscular mass. Once established correlations between different variables, we can highlight some of the most important:

- Weight correlates with total body fat ( $0,561^*$ ) and with body water ( $-0,470^*$ );
- BMI correlates with average OPAQ ( $0,529^*$ ), total body fat ( $0,732^{**}$ ) and body water ( $-0,709^{**}$ );
- timed up and go test correlates with average age ( $0,633^{**}$ ), sit to stand ( $-0,583^*$ ), handgrip right and left ( $-0,581^*$ ;  $-0,504^*$ )

**Conclusion:** The participants in this study show similar values when compared with the population with similar characteristics. The BMI value means that the participants are averagely overweight. Most of the women of the study have reduced physical activity levels and none of them have high physical activity levels. We also can conclude that weight as an important role on body composition and the timed up and go test is an easy and cheap test that gives us much information about the physical functioning of these osteoporotic postmenopausal women.

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