DOES A YEAR OF A WEIGHT-BEARING AND STRENGTH EXERCISE PROGRAM IN A LOW DEPTH SWIMMING POOL IMPROVE BONE MINERAL DENSITY?

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Background
Osteoporosis is the most usual chronic disease in elderly women [1]. Researches have demonstrated that exercise improves bone mineral density (BMD), finding the best benefits using high impact exercise and strength training. It is not well known if exercise with low impact (swimming) has similar results. There are several studies showing that swimming exercises do not improve BMD [2]. However, the opposite has also been observed. [3]

Objectives
The purpose of this study was to analyze the influence of a weight-bearing and strength exercise program in a low depth swimming pool (LDSP) in BMD in postmenopausal and osteopenic elderly women.

Methods
Thirty six elderly and osteopenic women volunteered for this study divided in Control Group (CG, n = 20) and experimental group (EG, n = 16). The mean age was 56.4 +/- 7.1. BMD, body weight, high and waist-hip ratio (WHR) were measured before and after the exercise program consisting in 2 weekly training sessions during 1 year. Exercises were carried out in a LDSP with a depth of 80 cm. Test T Student was used to detect differences.

Results
Related to BMD, CG showed a drop of 0.22, while EG had a drop of 0.29. The improvements in WHR were 0.02 in both groups. CG had an increased in body weight of 0.94 kg while EG had a lost of 1.75 kg.

In EG, the low improvement in BMD was not significance (p=0.91). However, the lost of WHR and body weight were significance (p=0.02 and p=0.00). The changes in CG were not significance in any variable (BMD, p=0.86; WHR, p=0.13; Weight, p=0.12).

There are no significance differences between group in none of variables after treatment (BMD, p=0.97; WHR, p=0.64; Weight, p=0.54)

Conclusions
Considering these results it is concluded that 1 year exercise program using low impact exercise in a LDSP is not enough to improve BMD and WHR, or reduce body weight in postmenopausal and osteopenic elderly woman because there are no significance changes after treatment in both groups, despite that EG have significance changes in WHR and body weight after a year of training and CG have no significance changes in WHR and body weight.


Keywords: Strength Training, Swimming, Bone Mineral Density