

REFERENCES VALUES OF THREE-DIMENSIONAL PROXIMAL FEMUR PARAMETERS FROM BONE DENSITOMETRY IMAGES IN HEALTHY SUBJECTS FROM ARGENTINA

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INTRODUCTION

New methodologies for the assessment of bone mass from by dual-energy X-ray absorptiometry (DXA) have been development in the last years.

The three-dimensional analysis of the proximal femur by 3D-DXA allows the evaluation of cortical and trabecular bone separately and has shown a good correlation with computed tomography (Clotet 2018; Humbert L 2019).

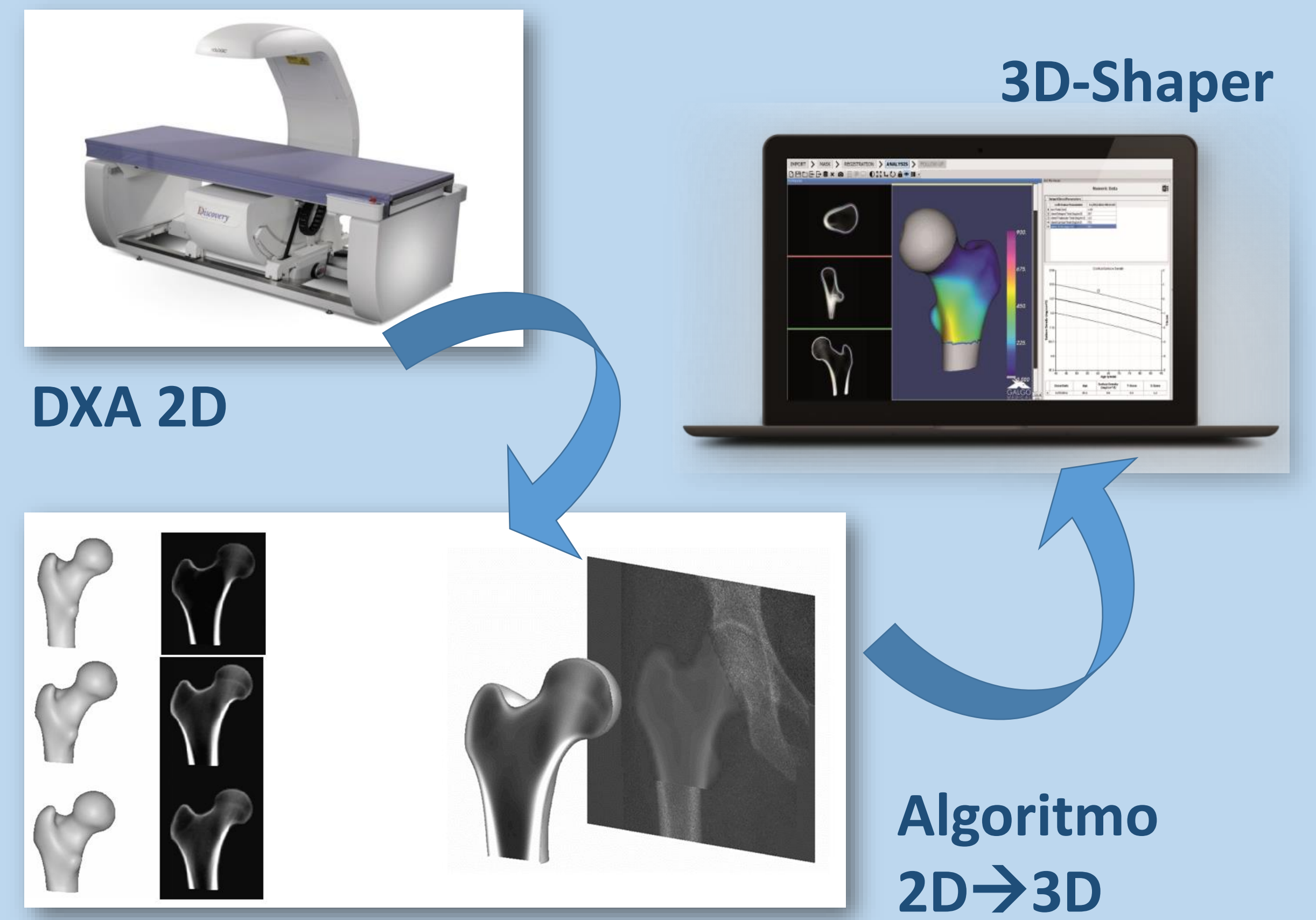
AIM: to obtain 3D-DXA reference values in healthy population of both sexes in Argentina.

SUBJECTS AND METHOD

Adults female and male subjects (n=992) from four cities (Buenos Aires, Rosario, Mendoza and Córdoba) from Argentina (South America) were included.

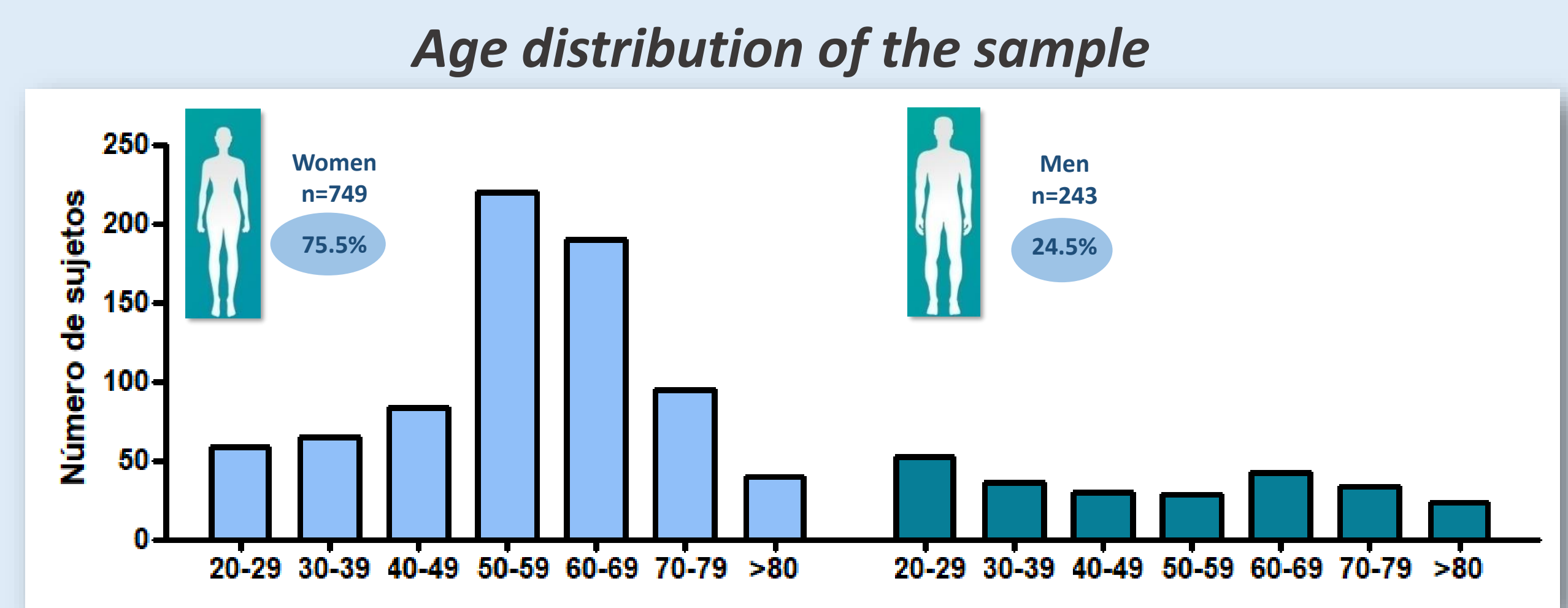
BMD (g/cm²) was measured by DXA on femoral neck and total hip. The 3D analysis was performed with 3D-Shaper software (v2.9, Galgo Medical, Spain). The cortical BMD (sDens - mg/cm²) and trabecular volumetric BMD (trab vBMD - mg/cm³) were consider.

The distribution of the data was evaluated with the Shapiro-Wilk test and parametric or non-parametric tests were used as appropriate. Data were expressed as mean±SD and p<0.05 was considered significant.



RESULTS

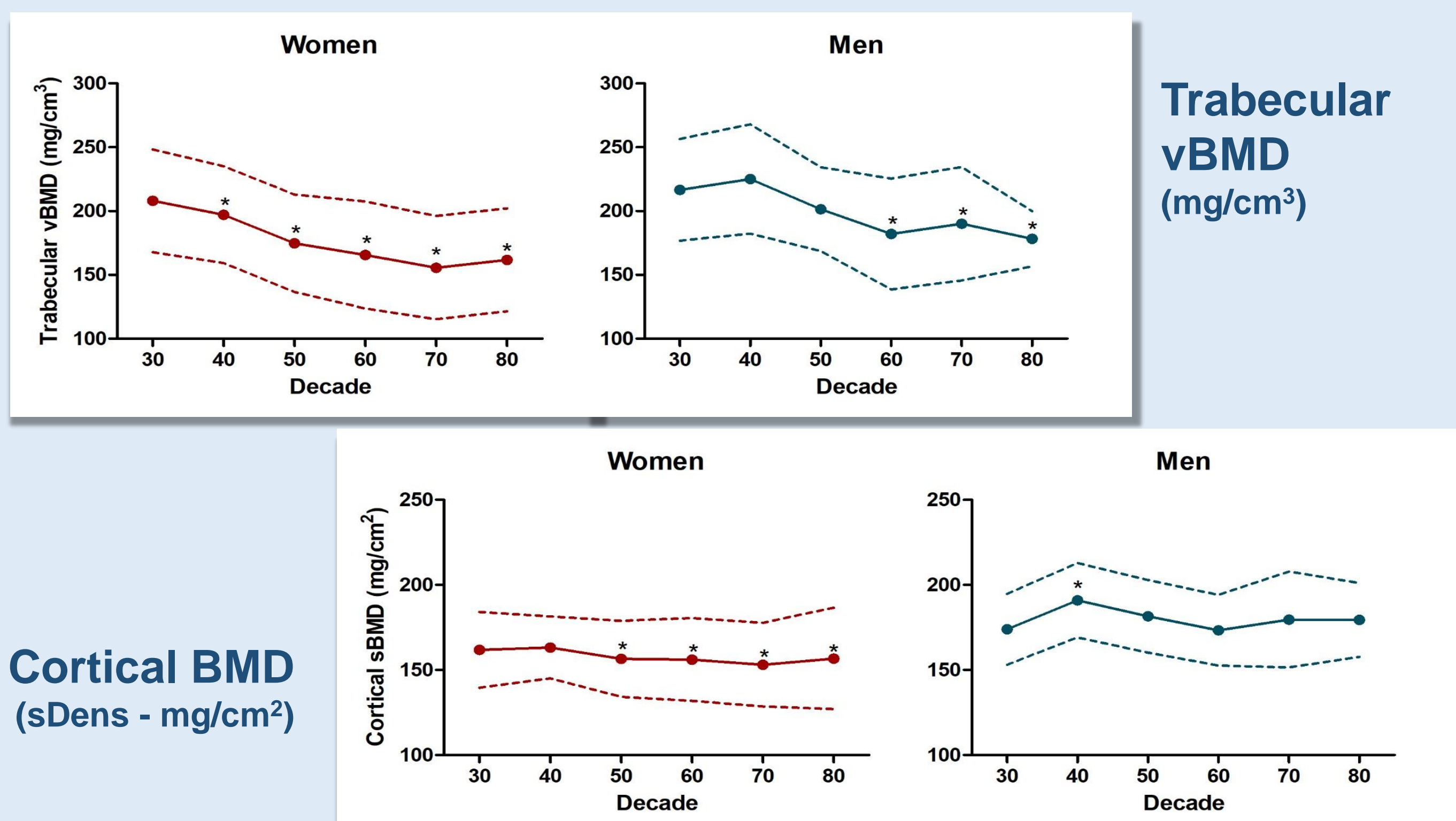
This preliminary sample consisted of 75.5% women (n=749) and 24.5% men (n=243) from four cities from Argentina: Buenos Aires (n=316), Rosario (n=325), Mendoza (n=288) and Córdoba (n=63). The mean age was 54.8±16.8 and BMI was 27.3±5.4 kg/m².



The data according to decade and a comparison with a references group (decade 20-30) are shown in the following table:

| | D20-30 | D40 | D50 | D60 | D70 | D80 |
|------------------|------------|-------------|-------------|-------------|-------------|-------------|
| Women | n=137 | n=79 | n=212 | n=186 | n=95 | n=40 |
| Trab vBMD | 208.8±40.2 | 197.1±37.9* | 174.7±38.2* | 165.5±41.9* | 155.6±40.4* | 161.7±40.3* |
| sDens | 161.8±22.2 | 163.2±18.2 | 156.5±22.3* | 156.1±24.3* | 153.1±24.6* | 156.7±29.8* |
| Men | n=89 | n=29 | n=28 | n=41 | n=33 | n=23 |
| Trab vBMD | 216.5±39.8 | 225.1±42.8 | 201.4±32.9 | 182.0±43.4* | 190.0±44.4* | 178.2±21.7* |
| sDens | 173.9±20.8 | 190.9±21.9* | 181.5±21.3 | 173.7±20.8 | 179.6±28.2 | 179.4±21.7 |

* indicates significant differences compared to decade 20-30:



CONCLUSION

In this preliminary data:

1. A significant decrease in trabecular vBMD from D40 was observed in women, while in men this decrease was observed later (D60).
2. The cortical parameter sDens was observed decrease from D50 in women and in men an increase in D40 and cortical bone maintenance according to age was found.

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