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My colleagues and I read with interest the article by Fistarol *et al.* entitled 'Time since menopause, but not age, is associated with increased risk of osteoporosis', published in the October issue of *Climacteric*¹. We welcome these results underlining the role of menopause in the pathogenesis of osteoporosis in women. In fact, the data reported in the article confirm our previous studies. Therefore, the authors' assertion that their study is the first to identify the time since menopause as an independent risk factor for osteoporosis is not right. More than 25 years ago, we evaluated the lumbar spine bone mineral density (BMD) by dual-energy X-ray absorptiometry in 2190 Caucasian, normal postmenopausal women². None had a history of peripheral or vertebral fractures, and spine radiograms were classified as normal in those reporting back pain. Their mean age was 56.8 ± 5.3 years (range 50–75 years), body mass index (BMI) was 24.8 ± 3.5 (range 15.6–41.5), time since menopause was 6.0 ± 5.5 years (range 0–25 years), and age at menopause was 50.7 ± 2.4 years (range 42–58 years). In that cross-sectional study published in the *Journal of Clinical Endocrinology and Metabolism*, we demonstrated that BMD is correlated with BMI ($r=0.25$) and body weight ($r=0.31$). BMD decreased with age ($r=0.25$), but the relation with years since menopause was the most potent ($r=0.36$). BMD shows a rapid and highly significant ($p < 0.0001$) decrease in the first 5 years since menopause, when no relation between BMD and age is present. As the menopausal bone loss is not linear, the BMD values were regressed on the logarithmic transformation of years since menopause, and the relation was highly significant ($r=0.44$; $p < 0.0001$). When lumbar BMD was simultaneously regressed on different variables, the correlation with BMI and log years since menopause remained highly significant, whereas the correlation with age was no longer significant.

Similar results were obtained for the height of the intervertebral discs by measuring the intervertebral disk space using dual-energy X-ray absorptiometry³, suggesting that the estrogen decrease may rapidly change not only the BMD but also the connective tissue metabolism almost entirely in the first 5–10 years since menopause.

We really express our gratitude to Fistarol *et al.* for confirming our findings underlining the role of estrogen deficiency as the major and independent risk factor for involutional osteoporosis in normal women.

Potential conflict of interest No potential conflict of interest was reported by the author.

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References

1. Fistarol M, Rezende CR, Figueredo Campos AL, Kakehasi AM, Geber S. Time since menopause, but not age, is associated with increased risk of osteoporosis. *Climacteric* 2019;22:523–6
2. Gambacciani M, Spinetti A, de Simone L, *et al.* The relative contributions of menopause and aging to postmenopausal vertebral osteopenia. *J Clin Endocrinol Metab* 1993;77:1148–51
3. Gambacciani M, Pepe A, Cappagli B, *et al.* The relative contributions of menopause and aging to postmenopausal reduction in intervertebral disk height. *Climacteric* 2007;10:298–305

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