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Histomorphometric Assessment of Bilaterality from the Cadaveric Femurs: Implications for Guidance of Field Practice for Anthropological Age Estimation

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ABSTRACT The aim of the present study was to assess bilateral differences in the histomorphometry with osteonal remodeling rate of the femur, which has potential implications for methods of age estimation. Thirty-three femoral samples (18 males and 15 females) were obtained from Korean cadavers and used to analyze the histomorphometric parameters. The thin sections (< 100 mm thick) were prepared by manual grinding. Most of the parameters showed no significant differences between the sides using paired-samples t-tests ($p > 0.05$), except for the average osteon area (OA) and diameter (OD) of males ($p = 0.029$ and 0.033 , respectively). However, the histomorphometric parameters derived from them eventually did not show significant differences between the sides in both sexes. From the Bland-Altman plot, > 95% of the data points were located within ± 1.96 SD of the mean difference, so all of the histomorphometric parameters showed a high degree of agreement between the sides.