

**Anthropological Age Estimation with Bone Histomorphometry
from the Human Clavicle**

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Republic of Korea 158 -710*³*Division of Forensic Medicine, National Forensic Service, Seoul, Republic of Korea 158-707***KEYWORDS** Bone Histology. Compact Bone. Osteon. Grinding Method. Forensic Anthropology

ABSTRACT The purpose of present study was to apply histomorphometry to estimate the age at death using the clavicular osteonal remodeling rate and to develop an age-predicting equation. 46 clavicular samples consisting 28 males and 18 females were obtained from Korean cadavers. Two sequential 1-mm-thick sections, were prepared using a diamond wheel, and a 100 μ m-thick section was then made by manual grinding with polarizing filter optical microscopy. Three histomorphometric variables, including relative cortical area (RCA), osteon population density (OPD), and mean osteon area (OA), were measured. The mean values are indicated because no significant difference in any variable was noted by a paired t test between the two sequential sections. Analysis of covariance demonstrated that stratification of the statistical results of OPD and OA based on sex was unnecessary, except for RCA. Regression analysis indicated that the highest coefficient value was OPD ($R^2 = 0.583$), which was selected as a significant value with RCA for an age-predicting equation ($R^2 = 0.628$) by the multiple regression analysis stepwise method. In conclusion, a histomorphometric method using the clavicle is reliable for age estimation in physical and forensic anthropological fields.