### H21   Age-Related Changes in the Adult Male Vertebral Column

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This paper introduces a method for improving age-at-death estimates in the adult human male skeleton using progressive morphological changes in the vertebral column. Results of a preliminary descriptive analysis of 100 adult male skeletons of known ages for changes in three vertebral traits will be presented.

Although there are currently many methods of age assessment available to forensic anthropologists, limited research has been conducted on the systematic changes in the vertebral column (e.g., Albert and Maples 1995). To the extent that such studies have been conducted, the focus has typically been on stages of vertebral ring epiphyseal union, and is therefore restricted to younger individuals.

During the course of postmortem examinations of victims of recent conflicts in Bosnia and Herzegovina, it was noted that (1) pubic symphysis metamorphosis was less reliable for age assessment of individuals over about age 40, and (2) other age-related changes in the vertebral column aside from ring fusion seemed to be sufficiently widespread and progressive to warrant further documentation.

Already well known to forensic anthropologists is that three aspects of vertebral morphology undergo noticeable change with age. First, the vertebral secondary centers, including the epiphyseal ring, appear during puberty and fuse to the centrum between about ages 17-25 (Bass 1972); second, the inferior and superior aspects progress from a well-organized, ridged configuration in younger individuals to an amorphous, often porotic appearance in older individuals; and third, the inferior and superior rims transition from "straight" to "wavy" (undulating) to sharply lipped with age.

Also well known to forensic anthropologists is that morphological changes in the vertebral column are highly influenced by biomechanical stress and pathological conditions, and therefore can be highly individualized due to different individual life histories. These factors have limited the usefulness of the vertebral column in age assessments of adults in genetically and culturally diverse populations.

However, in Bosnia and Herzegovina lower genetic diversity and greater similarity in lifestyles than in, say, the U.S., may contribute to more predictable rates of change in the vertebrae that allow for greater confidence in its relevance for age assessment. Although even in this population the contribution of vertebral morphological analysis to age estimation is relatively modest, it appears to be sufficient to warrant further research.

**Aging Technique, Human Identification, Forensic Anthropology**