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What are the best skeletal indicators of handedness?

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What are the best skeletal indicators of handedness?

College of Sciences and Health Professions

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Abstract

Previous research indicates that there are asymmetries in limb bone structure and dimensions. It is hypothesized that these asymmetries are the result of hand preference, or repeated unilateral mechanical loading. The aim of this study was to first identify the best skeletal indicators of handedness by means of a comprehensive literature search. Based on the previous findings of other researchers, we examined non-pathological male individuals (N=19, aged 20-35) from the Hamann-Todd Skeletal Collection at the Cleveland Museum of Natural History for asymmetry of paired second metacarpals, by measuring the difference between right and left diameters at mid-shaft. We also tested relationships between metacarpal diameter and age and weight. Results indicate that there is asymmetry, with right metacarpals being significantly thicker in diameter than left metacarpals. We found no relationship between absolute thickness and either age or weight. But we unexpectedly found an inverse relationship between asymmetry and weight. Similar to previous researchers, our results indicate noteworthy asymmetries that may be interpreted as the functional adaptation of the upper-limb bones, hinting at side preference.