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Analysis of paediatric bone growth in children from isolated populations**Jessica Covino, Wally Wood, Athanasios Raikos, Allan Stirling and Christian Moro**
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This study aims to identify variations in growth parameters in the metacarpal (MTC) bones of young females living in Papua New Guinea (PNG) and Australia. X-Rays of the left hands were taken annually over five years from juveniles living in three regional areas of PNG, and Australia. There was a significant difference in growth between females living in coastal regions compared to the highlands in PNG, with coastal females being taller and heavier. The length, cortical thickness, width and diaphysis lengths were larger in coastal residents for the second and third MTCs. There were fewer differences between coastal females and Brisbane females. All comparative measurements were different between highlands and Brisbane populations. In regards to longitudinal growth, annual increases in female stature between 8-17 years old and anthropometrical measurements were apparent in height (4.19 ± 1.72) and weight (3.95 ± 2.21). The second MTC also increased in length (0.24 ± 0.16), width (0.04 ± 0.03) and diaphysis length (0.25 ± 0.15), while the third MTC increased in length (0.23 ± 0.14), width (0.04 ± 0.04) and diaphysis length (0.21 ± 0.14). There were associations between anthropometric measurements and development of MTCs. Correlations were observed ($n=53$) between stature, and the second ($r=0.96$, $P<0.01$) and third ($r=0.829$, $P<0.01$) MTC length. In addition, there was significant elongation associated with height in both the second MTC ($r=0.829$, $P<0.01$) and third MTC ($r=0.784$, $P<0.01$). A female juvenile's height can be determined through metacarpal length, width and diaphyseal length, with an appropriate degree of accuracy. The metacarpals demonstrated consistent growth throughout development and can be used as a measure to determine stature, although regional differences in growth need to be taken into consideration.

Biography

Jessica Covino has recently completed her graduation and currently, she is a research student at Bond University. She has interest in the analysis of female growth parameters, and in particular, bones development and formation.

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