

New equations for estimating stature more precisely based on tibia length

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Credit: CENIEH

Gonzalo Saco from the Bioenergy and Motion Analysis Laboratory at the Centro Nacional de Investigación sobre la Evolución Humana (CENIEH) has recently published a paper in the journal *Forensic Science International* on new equations for estimating stature based on tibial length and stature groups for adult males for application in the field of forensic anthropology.

The results of this work indicate that the specific equations for estimating stature using tibia length and stature groups have lower estimation errors than the equations created without distinguishing by groups. Moreover, the equations were analyzed with a cross-validation group, whose results showed greater accuracy for statures below 185.9 centimeters.

To attain these results, a cross-sectional study was conducted with a sample of 495 Spanish Caucasian male participants who were randomized into two groups: the main group of 249 subjects, and the cross-validation group of 246 participants. Specific equations were obtained according to stature groups using the 15th and 85th percentiles as cut off points: short, medium and tall statures.

"In conclusion, we can affirm that these specific equations are more accurate for estimating stature than other equations of simple and multiple linear regression which have been formulated previously with anthropometric measurements of the femur, humerus, radius, ulna, vertebrae and metatarsal bones in other studies," explains Saco.

Female population

The sample in this study is made up exclusively of men because when the first data analyses started, not enough adult females were available for stature-group equations to be formulated. "But we now do have enough and are currently working on a paper with the same anthropometric measurements for Spanish women," adds Saco.

More information: Gonzalo Saco-Ledo et al. Stature estimation based on tibial length in different stature groups of Spanish males, *Forensic Science International* (2019). [DOI: 10.1016/j.forsciint.2019.109973](https://doi.org/10.1016/j.forsciint.2019.109973)

Provided by CENIEH

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