



F16 Correlation Between Biological and Chronological Age of Bodies in Colombia — Exhumed and Identified

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After attending this presentation, attendees will understand the reasons why there is a need for studies of skeletal remains in samples of Colombian population.

This presentation will impact the forensic science community by showing how some of the methods that are currently applied in Colombia for the estimation of biological age in skeletal remains are not adequate for such a purpose considering that most of the methods were supported from samples of foreign populations.

In Colombia, there had not been a study to establish the correlation between biological age estimated by skeletal remains using both dental and anthropological analysis methods with the chronological age of the same provided by the National Registry of Civil Status in bodies exhumed and identified from 2005. Age is a key variable for the process of identifying bodies and searching for missing persons; it is important to note that most of the methods used for estimation of biological age in bony debris were performed on samples of foreign populations and only some of these methods have been validated for Colombian populations. In Colombia, there exists a high number of human rights violations. Through the years, dozens of people have disappeared or died due to armed conflict and has resulted in buried and unidentified corpses in unmarked graves, morgues, and cemeteries, which has led to state agencies actively promoting the process of identification. In the course of daily practice, forensic experts often analyze different cases of skeletal remains exhumed somewhere in the country. This is why it is important that estimated biological age in skeletal remains is as close to chronological age of the victim so that the identification process is properly oriented and thus reducing the number of unidentified bodies.

Objective: To determine the correlation between biological age, estimated in skeletal remains, by two analysis methods (dental and anthropological) with chronological age.

Materials and Methods: The study was based on the traditional positive scientific method of investigation and was framed in descriptive research with a non-experimental design. The sample consisted of 123 cases of bodies exhumed, identified, and returned to their families, who were selected at random from a total of 1,070 cases. The determination of the sample and the analysis of the study were conducted with the implementation of Estata 10. Descriptive analysis was made of the information unifying age variables, obtaining averages, and standard deviations. To evaluate, the correlation coefficient used Lin's concordance and correlation with their respective ranges of 95% confidence. The study was approved by the research and ethics committee of the Faculty of Dentistry, Pontificia Universidad Javeriana Bogota-Colombia. Throughout the implementation and application of the results, there was no effect, positive or negative, in the short, medium, and long term, on the environment and natural human health.

Results: A coefficient value was obtained for anthropological analysis Lin (0.782) and dental analysis (0.765).

Conclusions: This research demonstrated, according to Lin, a degree of good concordance; however, there are cases that conclude that some methods are not reliable for the Colombian population. In such cases, to use the biological age as a parameter, identification would exclude a group of bodies in the process of tracing missing persons. Forensic experts apply established methods for estimating biological age. When cases come forward with a wide age difference with the concordance perfect line, this indicates that the proficiency of the forensic experts is good; however, some methods that are currently applied in Colombia for estimating biological age are not suitable for this purpose, considering that most methods were supported in samples of foreign populations.

Studies are recommended in bony debris of Colombian population samples in order to endorse all the methods currently applied for the estimation of biological age.

Biological Age, Chronological Age, Skeletal Remains