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POSTER PRESENTATION – P27

PILOT STUDY ON LEVEL 3 FINGERPRINT FEATURES FOR THEIR USE IN FORENSIC IDENTIFICATION

Maria Eugenia Ibanez-Zamacona[1], Victor Fernandez[2], Alaitz Poveda[1], Leire Escajedo[3], Esther Rebato[1] and Aline Jelenkovic[1]

[1]University of the Basque Country (UPV/EHU), Faculty of Science and Technology, Department of Genetics, Physical Anthropology and Animal Physiology, Bilbao, Spain; [2]Basque Country Police, Forensic Science Unit (Ertzaintza), Bilbao, Spain; [3]University of the Basque Country, Faculty of Labour relations and social work, Department of Public Law and Historical-Legal Sciences, Bilbao, Spain

Background: Dermatoglyphs are formed early during prenatal development and, due to their individuality and permanence, are commonly used for identification. When fingertips touch a surface, sweat distributed along the ridges is transferred, producing a latent fingerprint. To use this latent fingerprint for identification purposes, each country establishes a well-defined minimum number of level 2 features (or minutiae). Latent fingerprints obtained from crime scenes usually has poor quality, resulting in an insufficient number of minutiae; therefore, the fingerprint must be discarded. To increase the likelihood that a partial latent fingerprint can be used, level 3 features – which include detailed ridge attributes – have been proposed to enhance identification. However, these features remain poorly studied and are less commonly employed in fingerprint identification.

Objective: To conduct a pilot study to identify level 3 features and assess their frequencies in the index finger and thumb.

Subjects and methods: The study sample consisted of 100 fingerprints from 50 adult men; only the fingerprints of the index finger and thumb of the right hand, with at least three quality records available over time, were analysed using conventional observational methods. The anonymous sample was obtained from the autonomous police of the Basque Country (Ertzaintza). Six level 3 features were considered, and the frequencies of these features were calculated for each finger.

Results: The most frequently observed level 3 feature on the analysed fingers was “ridge protrusion”, followed by “hook”. In general, more level 3 features were found in the thumb than in the index finger.

Conclusion: These preliminary results suggest that “ridge protrusion” may be a good candidate for use as a third-level feature in identification.

Keywords: Fingerprints; Level 3 features; Ridge; Dermatoglyphics; Personal identification.

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