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Age and Sex Identification among Egyptian Population Using Fingerprint Ridge Density

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Abstract : Background and Aims: The study of fingerprints is widely used in providing a clue regarding identity. Age and gender identification from fingerprints is an important step in forensic anthropology in order to minimize the list of suspects search. The aim of this study was to determine finger ridge density and patterns among Egyptians, and to estimate age and gender using ridge densities. Materials and Methods: This study was conducted on 177 randomly-selected healthy Egyptian subjects (90 males and 87 females). They were divided into three age groups; Group (a): from 6-< 12 years, group (b) from 12-< 18 years and group (c) ≥ 18 years. Bilateral digital prints, from every subject, were obtained by the inking procedure. Ridge count per 25 mm^2 was determined together with assessment of ridge pattern type. Statistical analysis was done with references to different age and sex groups. Results: There was a statistical significant difference in ridge density between the different age groups; where younger ages had significantly higher ridge density than older ages. Females proved to have significantly higher ridge density than males. Also, there was a statistically significant negative correlation between age and ridge density. Ulnar loops were the most frequent pattern among Egyptians then whorls then arches then radial loops. Finally, different regression models were constructed to estimate age and gender from fingerprints ridge density. Conclusion: fingerprint ridge density can be used to identify both age and sex of subjects. Further studies are recommended on different populations, larger samples or using different methods of fingerprint recording and finger ridge counting.

Keywords : age, sex identification, Egyptian population, fingerprints, ridge density
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