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# A COMPREHENSIVE ANALYSIS OF FINGERPRINTS

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**Abstract:** Dermatoglyphics is the science of fingerprints. It has been a fascinating area of research for the geneticists, clinicians, researchers and plays an important role in the field of Forensic science too. The fingerprints usually develop during the third month of fetal life. The influence of environmental and biological factors are evident from the differential patterns in both hands of an individual and the dissimilarities between the identical twins. Hence, it is an interesting noninvasive method for studying the disease associations and also to determine the involvement of genetic factors through population studies. The present study aims to study the different fingerprints patterns like Arches, Whorls and Loops in a random sample obtained from our college students.

**Keywords:** Anthropology, Dermatoglyphics, Ridges, Relative Risk, Teratogen.

**Introduction:** The word "Dermatoglyphic" means a 'skin carving'. The study of epidermal ridges and the patterns formed by them is known as Dermatoglyphics. The ridges are a normal characteristic of the volar skin in man, apes and monkeys and are particularly prominent over the palmar surface of the hand and the plantar surface of the foot. Ridges act as an anti-slip device and are thought to improve the sense of touch[1]. The first systematic study of the whole subject, however, was carried out by Galton around the year 1890. His early interest was in the value of fingerprints for personal identification, for they persist throughout the life. He was the first to study dermal patterns in families and racial groups[2]. It was further elaborated and improved by Sir Edward Richard Henry of Scotland Yard for identifying criminals[3]. It was realized that uniqueness of fingerprints can serve as valuable indexes of human variation, and they are increasingly used in anthropology, medicine, and genetics. Dermatoglyphics, as Harold Cummins of Tulane University, named the study of epidermal ridges in 1926, cuts across all these disciplines[3].

The fingerprints develop by the 3rd month of fetal life and environmental fetal influences are evident from the differential patterns in both hands of an individual and the dissimilarities between the identical twins, environmental modifications can also be induced by teratogenic substances. Mulvihill and Smith hypothesized that dermal ridge patterns are largely determined by the growth and topography of the fetal hand when ridges are forming[4]. Epidermal ridges are formed between 11-24 weeks of gestation and after this period epidermal ridges do not change[5]. Since skin and brain develop