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Digital Dermatoglyphics In Students Of Delta State University, Nigeria

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ABSTRACT

Dermatoglyphic studies have established that palmer and digital ridges form well defined patterns exhibiting traits that are genetically determined, appear to be conservative in their evolution and are therefore very reliable for establishing and confirming the historical relationship and within populations. Unilateral thumbprints of 248 students were recorded, studied and classified using standard methods. The results obtained showed that loops were the most predominant pattern type in both sexes followed by whorls and arches. However, no significant differences occurred between sexes in the pattern types ($p > 0.05$). This study documents for the first time fingerprint patterns in undergraduates of Delta state university and further confirms findings in other parts of Africa.

Dermatoglyphic studies have established that palmer and digital ridges form well-defined patterns Joannes (1940), appear to be conservative in their evolution and are therefore very reliable for establishing and confirming the historical relationship between and within populations Mejer (1980); Jantz et al, (1983); Arricta et al, (1987) & Gualdi et al, (1994). The pattern of fingerprints is determined early in intrauterine life Eugene ( ) genetically determined and may be modified by environmental influences Eugene ( ). The process of dermal ridge formation begins with formation of volar pads visible at about the sixth week of development Dermatoglyphics (1976). This is followed at about the tenth week by formation of primary ridge patterns of the characteristic of permanent prints William (1990).

It has been emphasized that the neuroepithelium plays an important part in the development of the dermatoglyphic patterns Hirsch et al (1973). Thus the speculation that the palmer patterns correlate with the development of the nervous system Eric et al (1995). More so, several congenital problems involving the nervous system have been expressed on the hand Sumiko et al (1990).

Dermal palmer and plantar ridges are thus useful in biological studies (Amrita 1989 & Hirsch 1978). Their notably variable characteristics are not duplicated in other people, even in monozygotic twins Norris et al (1990). Yet they are permanent and therefore significant as a means of identification Faulds (1880). This diversity, however, falls within pattern limits that permit systematic classification Harold (1943).

Studies in sub-Saharan Africa have shown finger ridge count variability among African groups Jantz et al (1979). Boroffice et al and Igbigbi et al studied the digital and palmar Dermatoglyphics distributions in the Yoruba and Igbo tribes of Nigeria, Igbigbi et al (1994). More recently, Igbigbi and Msamati have also reported palmer and digital dermatoglyphics patterns in Malawian subjects Igbigbi et al (1999). These studies have clearly demonstrated that Dermatoglyphic traits differ among the various African groups Antonok (1975).

MATERIALS AND METHODS

The sample consisted of 248 Undergraduates of Delta State University. Comprising 107 males and 141 females between the ages of 18 to 32 years were studied. The individuals were healthy and physically able-bodied volunteers.

Right Palmer digital thumbprints were obtained using the Antonoks inking procedure Antonok (1975). Only clear prints were classified into digital patterns loops arches and whorls using a hand lens. Inter-observer errors were significantly reduced as two persons studied each print. Variables including sex distribution of prints and relative percentages of thumbprints in both hands were then assessed. SPSS data analytical Soft Ware was used in analyzing Data obtained.

RESULTS

The overall distribution of finger digital pattern was not significantly different between sexes ($p > 0.05$).

Loops were the most common followed by whorls and then arches in both sexes.

Females, however had a greater proportion of arches when compared with their male counterparts however, these differences were not statistically significant ($p > 0.05$).

While the males on the other hand had a greater proportion of whorls and loops (Table 1)

Table 1; Percentage frequency of digital patterns among Students of Delta State University Abraka

Sex	Percentages Prints			
	Arches	Loops	Whorls	Total
Female	6.10	50.83	43.07	100.0
Male	4.34	48.92	46.75	100.0

Fig1: Finger digital patterns in students of Delta State University

DISCUSSION

This study has demonstrated like previous works, that female have more arches than their male counterparts indicated. The differences observed between sexes were, however, not significant ($p > 0.05$) hence confirming previous findings that sexual dimorphism may not be easily obtained with digital prints as previously suggested in Africans, Caucasians and Chinese Jantz et al 1979; (Jantz et al 1982).

In the present report, we find that loops were the most common print type in both sexes followed by whorls and arches (Table 1). Loops were more common in females while whorls were more common in males although these differences were not statistically significant.

It was also shown that, no two-finger prints were the same. This further indicates its uniqueness for identification and authentification (Galton 1888).

In conclusion, the study has shown that digital finger print patterns of students of Delta State University Abraka share a close similarity with those of other Nigerians and even Africans (Jantz et al 1979; Jantz et al 1982; Boroffice 1978). Thus establishing that finger print patterns serve as a reliable tool for establishing historical relationships (Meier 1980; Jantz 1983; Arricta 1987; Gualdi 1994). It has also

Confirmed print pattern reliability as a means of identification and authentification Galton (1888).

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