

DERMATOGLYPHIC INVESTIGATIONS IN TWINS AND SIBLINGS

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The objective of this study is to evaluate the dermatoglyphic differences in twin and sib pairs and to estimate the effect of genetic and intrauterine environmental factors upon dermatoglyphic development. Three sets of data were collected.

1. *Monozygotic twins*, diagnosed as such by a battery of blood-group, anthropometric, and perinatal tests. These twins have identical genetic structure and share intrauterine and gestational environmental experiences. This sample is composed of 125 male pairs and 148 female pairs.

2. *Dizygotic twins*, diagnosed by the use of the same criteria as above. These twins have a 50% genetic relationship and are for the most part under similar intrauterine and external environmental pressures. This sample involves 50 male pairs, 47 female pairs and 68 pairs of unlike sex.

3. *Siblings*. The sibs like the dizygotic twins have a 50% genetic relationship but unlike twins, sibs do not share similar intrauterine and external gestational environmental pressures. This sample involves 75 male pairs, 75 female pairs, and 75 pairs of unlike sex.

Recently, we proposed classifications of the C-line terminations (modal types of the C line) and subclassifications of the interdigital patterns. It has been shown that these features have considerable polymorphism, both between populations as well as among disease entities. The present twin and sib samples add further support to the usefulness of the newly proposed classifications. In addition, other digital and palmar dermatoglyphic features were studied.

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NORMAL AND ABERRANT PALMAR CREASES IN TWINS AND SIBLINGS

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Normal palms usually have three primary flexion creases: distal, proximal, and thenar. These creases represent important developmental landmarks. The relationship between the simian crease and Down's syndrome as well as other anomalies has been known for some time. Recently, a form of proximal crease (Sydney crease) was shown to be associated with leukemia as well as Down's syndrome. Both simian and Sydney creases tend to aggregate in families.

The present study involving MZ and DZ twin pairs, as well as paired normal sibs, was undertaken to investigate further the genetic involvement in the formation of normal palmar crease patterns, as well as simian and Sydney patterns.

In addition to the simian and Sydney creases we studied the distal and thenar creases. Two variations of normal creases were investigated: (a) the thenar type R (thenar crease originating at the radial border of the palm independently of the proximal crease), and (b) the distal type I (distal crease terminating in the interdigital area).

The R and I types cluster in families. The R is found to be more frequent in the females. Both male and female MZ twins are more concordant for the R as well as the I type than their DZ counterparts or sibs. Sib studies according to parental mating type, as well as the twin data, suggest strong genetic involvement in the development of both the R and I crease types. Parents with simian and/or Sydney creases have more children with these traits than offspring of parents without these traits; however, concordance rate comparisons of MZ or DZ twins and sibs do not suggest strong genetic involvement for simian a