

of female groups. Asian populations show the lowest frequencies. In the Caucasian groups that we studied ponticulus posticus is positively associated with cranial shift at cervico-thoracic border ( $\chi^2$ -test,  $p < 0.05$ ), and negatively – with lumbalization of S1 ( $p < 0.01$ ). In summary, if the frequency of ponticulus posticus is used in inter-group comparisons it should be analyzed separately for each sex. The feature shows mild racial differences. It is somehow associated with cranial shift in spine morphology described by Khüne (1932), the nature of this association is a matter of future studies.

**Key words:** *ponticulus posticus, human anatomy, non-metric feature, intra-species variability*

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### **INHERITANCE OF DERMATOGLYPHIC ASYMMETRY AND DIVERSITY TRAITS IN TWINS BASED ON FACTOR: VARIANCE DECOMPOSITION ANALYSIS**

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**Background:** It is well known that twin data have played a central role to sort out genetic from environmental variation. The increased dermatoglyphic asymmetry corresponds to a higher inter pair variability in a number of behavioral tests have prominent from earlier twin studies. Relatively few studies have attempted towards the extent and relative contributions of genetic and environmental effects on twin pedigrees through genetic model fitting statistical procedures. **Aim:** Dermatoglyphic asymmetry and diversity traits from a large number of twins were analyzed based on principal factors to evaluate genetic effects and common familial environmental influences by the use of maximum likelihood based Variance decomposition analysis. **Sample:** Data consists of monozygotic (MZ) twins of two sexes (102 male pairs and 138 female pairs) and 120 pairs of dizygotic (DZ) female twins. **Results:** All asymmetry (DA and FA) and diversity (Div) traits were clearly separated into factors and are perfectly corroborated with earlier studies (Micle and Kobylansky, 1986, 1991, Karmakar et al., 2001) in different ethnic populations, which indicate a common biological validity perhaps exists of the underlying component structures of dermatoglyphic characters. Heritability results of twins clearly showed that DA\_F2 is inherited mostly in dominant type (28.0%) and FA\_F1 is additive (60.7%), but no significant difference in sexes were observed for these factors. Inheritance is also very prominent in diversity Factor 10, which is exactly corroborated with our previous findings (Karmakar et al., 2006). The present results are similar with the earlier results of finger ridge count diversity in twins (Holt, 1960), which suggested, finger ridge count diversity is under genetic control. **Conclusion:** The relationship between MZ and DZ twins is due to common genes that affect dermatoglyphic asymmetry and diversity traits (factors), suggests is under genetic control of which DA is inherited mostly in dominant type and FA is additive.

**Key words:** *dermatoglyphic asymmetry and diversity, segregation analysis, variance decomposition analysis, twins*

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