SUMMARY
Epidermal ridge patterns configure permanently form in the third month of gestation in uterus and it remains unchanged throughout the life. At the same time, gender of foetus is also developed at this stage. It is well known that both of these are also related to the genetic configuration of human. Similarly according to Ayurveda the physical, physiological and psychological traits also known as Prakriti of an individual emerge at the time of conception in intra uterine life and stays unaffected. Considering this in mind it was assumed that there may be some relation among these three characters viz. fingerprints, gender and prakriti of humans.

The present work “The Role of Dactylography in the Determination of Gender of Person in Co-relation with Prakriti” was conducted with an intention to evaluate the relation between the epidermal ridge prints, Prakriti (Predominance of Doha) and gender of an individual. The entire work is written in the form of following chapters.

Introduction: Presentation of the work begins with this chapter introducing the civil and medico-legal importance of study of fingerprints. The chapter also highlights on the unique concept of Ayurveda i.e. Prakriti, explaining the variation in the traits inherited by humans during the formation of Garbha. The importance of Prakriti especially in relation to the diseases and its treatment is also highlighted. Need of Gender determination and Medico-legal issues related to it are also discussed in short. The chapter states the research problem under consideration along with Null and Alternate hypothesis.

Embryology and Anatomy of Epidermal Ridges: In this section the progressive differentiation of epidermal ridge patterns in the intra uterine life has explained. The role of genes and environmental factors in the development of ridge pattern is highlighted. Few hypotheses regarding configuration of dactylography along with the Anatomy of the skin with its layers and microscopic structures is also discussed herewith.

Historical Review of Dactylography: Study of ridge patterns of fingers and its minutiae is known as Dactylography. It is the most cost effective method for the
identification of a person. Contributions by renowned scientists in the field of dactylography and its role in personal identification have been discussed in this section. This chapter also deals with the details of emergence and eminence of fingerprints with the history behind it and several research works performed by various scholars. Milestones in the field achieved from the 221 BC to the 21st century are cited.

**Patterns of Fingerprints:** Fingerprint patterns are nothing but the typical arrangement of the epidermal ridges based on the genetic configuration and certain environmental factors affecting during the intra-uterine life. This section deals with the elucidation of those established patterns of the fingerprints with its fundamental principles and prevalence rate. Loops, whorls, Arche and composite are the major patterns which can be observed with descending order. Ridge minutiae are also explored herewith which are further more important structures utilized for the personal identification of an individual. Apart from this, the section also explains various methods employed by forensic experts for recording the fingerprint impressions.

**Concept of Prakriti:** Prakriti is nothing but the individual constitution of human formed during the conception and representing his/her physical, physiological and psychological traits. This chapter deals with the details of concept of Prakriti explored from various classical encyclopedias of Ayurveda beginning from pre-vedic period to Samhita kala. Information regarding the Prakriti is also gathered from Puranas, Upanishadas etc. The importance of prakriti is well accepted by other systems of alternative medicine like Unani, Siddha, Tibba and also by the conventional systems of medicine.

The chapter also includes the etymological derivation of the word Prakriti with its definition, process of formation, factors responsible for the formation of Prakriti, factors influencing the constitution and classification of Prakriti based on several factors like Deha, Manasa, Dosha, Mahabhuta etc. The necessity of evaluation of Prakriti in healthy and diseased is also highlighted.

**Literature Review & Previous works on Praktiti:** This chapter focuses on the research works completed so far in the form of literature review or clinical researches
Summary & Conclusion

based on the Prakriti. Various works are listed in this chapter with the name of institute and scholars.

**Material & Methods:** Study was conducted on 3504 subjects (1752 males and 1752 females) between the age group of 18 to 60 years. This part deals with the aim & objectives, details of materials utilized like ten fingerprints Cards (TFC), forensic fingerprint pads, ridge counter etc. Methodology of process for collecting the fingerprints is discussed herewith. The prakriti was analyzed by filling the proforma of each individual by evaluating his/her physical, physiological and psychological characters. Individual showing the maximum percentage of particular Dosha characters was included in the group of predominance of respective Dosha. Inclusion and exclusion criteria and ethical considerations were also highlighted in this section. The Study was registered under Clinical Trials Registry- India (CTRI) by National Institute of Medical Statistics (CTRI/2013/10/004054).

**Observations & Results:** Present study was conducted on 3504 subjects (1752 males and 1752 females) with an intention to find out relation if any among the dactylography, Prakriti and gender of individuals. Participants were divided by two methods; first based on the gender (Male & Female) and the second based on the predominance of Dosha in Prakriti (Vata, Pitta & Kapha). After recording the fingerprints and analyzing the Prakriti of each individual, the data collected was subjected to statistical analysis to test its level of significance.

Most of the participants were from the age group of 18 to 30 years (61.9%) and belonging to students group (64.6%). The study revealed that mean ridge density was less in Male as compared to female. The observed mean values were 12.71 & 13.79 respectively. The difference was statistically significant (P< 0.0001) when subjected to unpaired t test. It is also noted that the configuration of ridge structures was more delicate in females. Minutiae structures within the ridge did represent the variation in its appearance with respect to the gender.

When the data was subjected to the ANOVA test for evaluating the level of significance based on the predominance of Dosha in prakriti where the subjects were
divided in three groups viz. Vata Pradhana, Pitta Pradhana and Kapha Pradhana; results showed that the mean ridge density was 13.79, 13.38 and 12.58 in Vata, Pitta and Kapha pradhan prakriti respectively. The difference was also found statistically significant (P< 0.0001). When observed for the minutiae structures of ridges in major three dosha predominant groups, it also showed variation in its appearance with respect to prakriti. Vata prakriti individuals were having more obscure features as compared to other two prakriri individuals.

**Discussion:** The study of dactylography (fingerprints) in connection with gender (sex) and one of the Ayurvedic concepts of Prakriti was conducted to investigate the association among them as all these features emerge in intra uterine life. This section dealt with the detail discussion of Prakriti, its importance and contemporary utility of the concept in clinical and daily life. The role of panchamahabhuta and thereby the influence of tridosha in the formation of Prakriti is highlighted. Even though there are only three doshas responsible for the formation of prakriti of human, but still there are variations in each individual with respect to its physique, immunity, susceptibility, knowledge, intelligence etc.

The discussion over dactylography is also incorporated with its present day importance in terms of automated fingerprint-based identification system with high precision. The demographic details of the subjects included in the study were also presented with meticulous fashion to reveal the details about their age, occupation, Agni etc.

Fingerprint patterns of the 3504 subjects recorded in the study are also discussed to conclude the most frequently observed pattern as Loop and the least was composite or accidental patterns. The established theory regarding the percentage of appearance of the pattern of ridge is endorsed in present study also. The details about the minutiae structures of ridge in male and female and also in Vata, Pitta and Kapha pradhan Prakriti were discussed in respect to its finding in the $25\text{mm}^2$ area of the impression. The probable reasons behind the significant results obtained behind the role of dactylography in determining gender as well as Prakriti are discussed in this chapter.
Limitations & Recommendation: In the present study certain limitations were observed during and after its completion. The sample size selected for the study was very small in comparison to the entire population of human race. Other limitations were about the power of fingerprint magnifier, analysis by one person (scholar) non exploitation of fingerprint characters other than ridge density etc.

Scholar has recommended incorporating certain things in future studies for better scope and precision in results. It’s mainly focusing on the increase of sample size, redesigning the proforma for analysis of Prakriti, use of high magnifying lens to examine ridge impression, and inclusion of other minutiae like poroscopy.

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