

A Model Designed to Ascertain Metrically The Axial Triradius of Human Palm

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Something, which separates us from the external environment is our skin. It is cutaneous membrane that covers the entire surface of our body and happens to be the largest organ of our body. However, the skin is not the same all over the body as its upper layer called epidermis of the palmar and plantar surfaces of the hands and feet are corrugated with the ridges and configurations. Cummins (1926) called it dermatoglyphics (derma, skin + glyphe, carve). It helps in grasping without which the objects would easily slip away out of our hands. These features of Dermatoglyphics make their appearance during the 13th/14th week of the embryo, as it is that time during which the hands and feet are formed. These features once formed remain permanent throughout the life of an individual and are variable and heritable. Many research workers have devoted their time and energy to bring this field of dermatoglyphics to its sound footings. Cummins and Midlo were the pioneers and have taken the lead by making a very comprehensive study of various aspects and presented a historic book 'Fingers, Palms and Soles - An introduction to Dermatoglyphics' by Cummins and Midlo in 1943. The palmar formula of the human palm consists of ten elements, of which there are four main lines D, C, B and A followed by Axial Triradius and the configurational areas of Hypothenar Thenar / I, II, III and IV Interdigital areas in a sequential order.

The prime object of the present paper is to propose a model for ascertaining the levels of the axial triradius by physical measurement, which has been eluding ever since the publication of the book mentioned above. Usually there is a single axial triradius in palm print mentioned above, although sometimes there may be two or even three of them. The axial triradius is usually located in the proximal part of the palm in between the hypothenar and thenar eminences and is in alignment of the fourth metacarpal. Its occurrence at the proximal part of the palm is called 't', while their positions at the intermediate and distal level are termed as 't'' and 't''',

respectively. In extremely rare instance it may be absent altogether and is then noted as '0'. These terms of expressions are basically qualitative, ambiguous, obscure and lack the precision and are not worthy of scientific representation. The authors of the said book were very well aware of this lacuna and have admitted it. The true verbatim stands as "The distinction between 't' and 't'' as well as between 't'' and 't''' is not always clear. Lacking precise means of discrimination, this formulation has proved the least satisfactory of all the elements of the palmar formula. It is possible that more refined methods might be developed to evaluate the levels". This foresight and optimism of these authors has been the source of inspiration which motivated the present author to ponder over, devise and put forth the model for ascertaining the levels of axial triradius based on the physical measurements. Any innovation bringing precision to any scientific investigation requires latest and sound knowledge for the subject and this is an exceedingly slow process, nonetheless, very much rewarding.

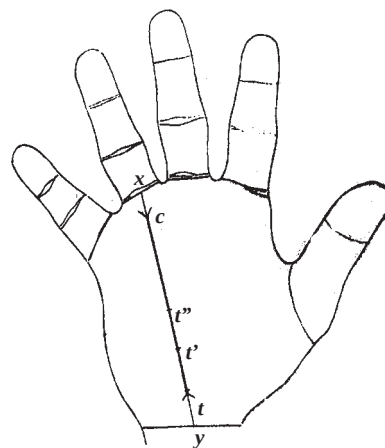


Fig. 1. Various levels of axial triradius

Essentially four landmarks are needed to ascertain various levels of the axial triradius, viz., the triradial point of the axial triradius itself, the

triradius 'c' located just below the fourth digit, metacarpo-phalangeal crease of the fourth digit and the bracelet creases. These bracelet creases are the indispensable part of the palm print and are intrinsically involved in measuring the levels of axial triradius as well as in the patterns of the hypothenar configurational area. No chronicle of dermatoglyphics has ever indicated the importance and utility of these creases even though they play a very significant role in the formulation of the axial triradius. This lapse may be due to the lack of understanding of their importance and may be of ignorance. Some authors have given a passing reference to other creases of the palm, hardly any one ever noticed their intrinsic association with palmar formula, specially with the axial triradius. The palm prints depicted in the book of Cummins and Midlo lack the bracelet creases and the ambiguous terms proximal, intermediate and distal of that times were very much justified.

There is always a first time for everything in innovation and now the present author proposes an extremely useful model – a model which has been exclusively designed to evaluate the levels of the axial triradius on the basis of physical measurements. The sophisticated approach of this model is unique, appealing, pragmatic, practicable and convincing based on simple logic. It is revolutionary in the history of dermatoglyphics as it is proposed for the first time and it helps to cover a long awaited gap existing for decades. The proposal is to join the proximal axial triradius with the triradius 'c' of the IVth digit by the straight line, extending it distally to the metacarpo-phalangeal creases of the IVth digit and at the same time extending it proximally to the bracelet creases of the palm forming an axis called xy. As the axial triradius occurs in the lower part of the palm print, the lower half of the axis xy is made into three equal parts. Starting from the bracelet creases the proximal axial triradius is called as 't', while the intermediate and the distal ones are known as 't'' and 't"', respectively. As mentioned earlier there may

be more than one axial triradii and they stand juxtapose having symbols with no punctuations and are notified from the proximal to the distal levels, viz, t t', t t'', t' t'' depending upon their respective levels in the print. In some prints the absence of the triradius 'c' poses a problem for making the xy axis. In such cases the axis is joined distally with mid-point of the meta-carpo phalangeal creases of the IVth digit and the measurement is made accordingly.

It is well known that the scientific solution to the problem of ascertaining various levels of the axial triradius has eluded for decades due to the lack of awareness in understanding the importance of the bracelet creases. It is the first time that the model has been designed leading to distinguish clearly various positions of the axial triradius convincingly and conclusively.

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KEYWORDS Axial Triradius. Qualitative Terms. Model. Physical Measurements.

ABSTRACT The palmar formula of the human palm consists of ten elements. Axial triradius is one of the important elements. Various levels of it have been termed as proximal, intermediate and distal. These terms are qualitative ambiguous and unfit for the scientific representation. The present author has designed and forwarded a model by making the axis xy drawn from the bracelet creases to the metacarpo phalangeal crease passing through the proximal axial triradius and the triradius c of the IVth digit. As the axial triradius usually occurs in the lower half of the palm, the lower half of this axis is made into three equal parts. The occurrence of this axial triradius in the proximal part of the axis xy is termed as t while the intermediate and distal are technically called as t' and t''. This model has been designed and forwarded for the first time to evaluate the levels of the axial triradius by physical measurements and resolving it conclusively and convincingly.

REFERENCE

Cummins, H. and Midlo, C.: *Finger print, Palm and Sole: An introduction to Dermatoglyphics*. Dover Publication, New York (1943).

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