

## Dermatoglyphics and Its Relation to Intelligence Levels of Young Students

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**Abstract:** Dermatoglyphics is the study of dermal ridges on palms and soles. Dermatoglyphics starts its development in 3<sup>rd</sup> month and completes by 5<sup>th</sup> month. Human beings are possessing their unique blend of intelligence. Human intelligence and dermatoglyphics, both are influenced by genetic factors. The aim of this study is to relate dermatoglyphics and human intelligence in young individuals pursuing medical graduation and medical lab technician courses. Subjects are 94 medical students pursuing first year of medical graduation course in Medical College and 80 students pursuing Medical lab technician course in the same college. Both groups have passed through common secondary education. Finger prints of each subject were collected by ink printing method . The pattern of finger prints were identified and analyzed. Finger prints pattern of most of the subjects are whorls and ulnar loops. Ulnar loops shows slightly increased prevalence in left hand of the medical students. Medical Lab technology students are having more number of whorl patterns in both hands.

**Key words:** Dermatoglyphics, Young individuals, Whorl pattern, Ulnar loops, Study.

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### I. Introduction

Dermatoglyphics is the study of the finger prints and can be traced back to 1892 by Sir Francis Galton, a cousin of Charles Darwin, published his non classical work on finger prints. Dermatoglyphics or epidermal ridge configuration is the study of dermal ridges on palms, finger tips and soles. This epidermal ridge configuration starts appear in the third month of intrauterine life and completes its development by fifth month of intrauterine life<sup>1,2,3</sup> and remain unaltered throughout the life except for an increase in size in parallel with general growth of the individual.<sup>4</sup> Disturbances can be caused by diseases such as fetal rubella, thalidomide poisoning<sup>2</sup>, chromosomal aberrations<sup>5,6</sup>, maternal stress during prenatal period<sup>7,8,9</sup>.

Different types of finger print patterns were identified by the standard method set by Cummins and Midlo 1943<sup>10</sup>. Four main types of finger print patterns were classified as whorl, ulnar loop, radial loop and arch. Human beings are possessing their unique blend of intelligence<sup>11</sup>. Though Gardeners theory of multiple intelligence has not been readily accepted. The factors affecting human intelligence are biological endowment including genes and brain injuries during development, personal life history and cultural background<sup>12</sup>. The finger print pattern is also inherited from many genes<sup>13</sup> and prenatal environment<sup>7,8,9</sup>.

This study is to associate the intelligence level of young individuals with dermatoglyphics. In previous studies<sup>14</sup> each finger is connected with one brain lobe plus a specific type of intelligence and each type of fingerprint is connected with the following type of learning.

Whorl-Cognitive learning.

Ulnar Loop- Affective Learning.

Radial Loop- Critical Thinking.

Tented Arch- Enthusiastic Learning.

Arch –Reflective Learning.

Since 1823 scientists have discovered that finger prints and innate intelligence are related. Through many medical researches it is found that finger prints are formed during the 13<sup>th</sup> to 19<sup>th</sup> prenatal week. The neocortex is developed during the same period. Many studies integrate genetics, embryology, dermatoglyphics and neural sciences with multiple intelligence. In studies finger prints of intellectually disabled people is different from that of normal persons .

### II. Material And Methods

Subjects:- A total of 94 medical students who are pursuing first M.B.,B.S. in Medical College, Visakhapatnam, Andhra Pradesh, India, a total of 80 students pursuing Medical lab technician course in same college, were participated in the study. Both the groups have completed their common secondary education in biological sciences. One group have selected for medical graduation through common competitive examination .Another group who have not selected in common competitive examination, opted for Medical lab technician course. Since the common competitive examination is a tool for selecting better intelligent students, we thought

that both group may vary in intelligence levels. For obtain finger print patterns of both groups, ink print method had been adopted. The traditional means of fingerprinting was developed by Dr.Henry Faulds in the late 1800.The ink is applied to the finger and is rolled across a piece of paper. The ink and paper method of finger printing is effective.

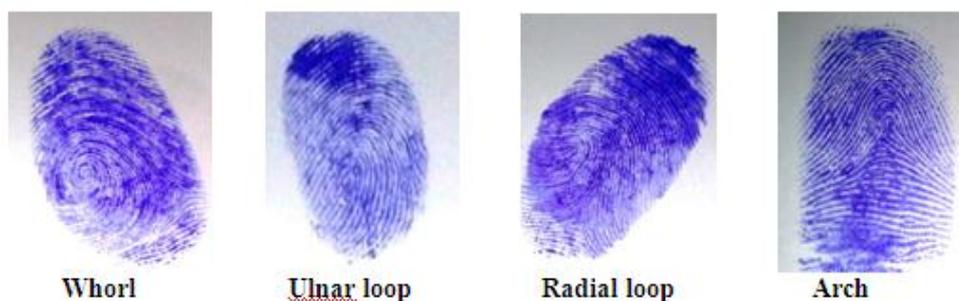
Step 1:- Both hands of the student were cleaned with alcohol

Step 2:- 2:1 Mixture of glycerin and ink was applied to the tips of both hands

Step 3:- Excess of ink was removed

Step 4:- The impressions were collected by rolling the fingers in 45<sup>0</sup> from one side to other side on writing paper.

Data analysis:- Types of finger print pattern were identified by the standard method set by Cummins and Midlo(1943).Four main types of finger print pattern were classified as whorl, ulnar loop, radial loop and arch.



### III. Results

In our study most frequent dermatoglyphic patterns seen on all fingers of both groups are ulnar loops and whorls. Despite the fact that the frequencies of digital patterns in the normal populations has established by various studies differ around the world, it has also been reported that ulnar loops and whorls are the most common finger print patterns<sup>15</sup> (Reed T, Dermatoglyphics 1979).

	LT	LIF	LMF	LRF	LLF	RT	RIF	RMF	RRF	RLF
Pattern	L1	L2	L3	L4	L5	R1	R2	R3	R4	R5
Whorls	57.5	57.1	31.6	61.1	25	63.9	49.2	38.9	69.2	35.7
Ulnar Loop	40	32	58.3	38.9	67.8	36.1	34.7	59.7	29.2	61.1
Radial Loop	0	5.2	0	0	0	0	5.6	0	0	0
Arches	2.5	5.7	10.1	0	7.2	0	10.5	1.4	1.6	3.2
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Ulnar loop pattern on left hand was found most prevalent in both groups, slightly prevalent in medical students.

Table.1 Percentage of fingerprint types in Medical Students.

LT- Left Thumb  
 LIF- Left Index Finger  
 LMF- Left Middle Finger  
 LRF- Left Ring Finger  
 LLF- Left Little Finger

RT – Right Thumb  
 RIF- Right Index Finger  
 RMF- Right Middle Finger  
 RRF- Right Ring Finger  
 RLF –Right Little Finger

	LT	LIF	LMF	LRF	LLF	RT	RIF	RMF	RRF	RLF
Pattern	L1	L2	L3	L4	L5	R1	R2	R3	R4	R5
Whorls	57.5	57.1	51	69.8	57.3	64.8	56.9	56.3	61.2	61.1
Ulnar Loop	40.0	32	42.4	21.9	42.2	25	38.4	43.7	33.2	31.9
Radial Loop	0	5.2	0	1.8	0	0	0	0	0	0
Arches	2.5	5.7	6.6	6.5	0.5	10.2	4.7	0	5.6	7.0
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table.2 Percentage of fingerprint types in Medical lab technician students.

LT- Left Thumb

LIF- Left Index Finger

LMF- Left Middle Finger

LRF- Left Ring Finger

LLF- Left Little Finger

RT – Right Thumb

RIF- Right Index Finger

RMF- Right Middle Finger

RRF- Right Ring Finger

RLF –Right Little Finger

More number of whorls are seen in both hands in most of the students pursuing Medical lab technician course in the same Medical college. Arch pattern was found in 2<sup>nd</sup> and 3<sup>rd</sup> digits of left hand in 10% of medical students. Radial loop pattern is seen on Index finger of both hands in few medical students and 2<sup>nd</sup>,4<sup>th</sup> digits of left hands of medical lab technician students.

Diversity of types finger print pattern of ten fingers was found mostly in two types i.e whorls and Ulnar loops.

#### IV. Conclusion

174 young male and female students from a Medical College were selected from different courses. Their finger prints were obtained by ink printing method. By analyzing finger prints whorl pattern is the commonest pattern in both groups. Ulnar loops are prevalent in left hand fingers. We found no major difference between two groups. Further studies of appropriate sample size need to be undertaken to develop this research. Point of special consideration is both are cognitive learners. Medical students are more affective learners than Medical lab technician students.

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