Gyenis Gyula:

Dermatoglyphia

7.: A bőrlécrendszer veleszületett, genetikai és szerzett rendellenességei

A/ Veleszületett rendellenességek

A magzati élet során keletkeznek, többnyire a perifériás erek és idegek rendellenes fejlődése következtében /Abel 1956, Hirsch-Schweichel 1973/.

1. Bőrléc hypoplasia

Vékony és gyengén kiemelkedő, "elkopott" bőrlécek. Sűrű szekunder redőzet. Az idős kori bőrléc atrophiától -amely a bőr elvékonyodása miatt lép fel - nehéz megkülönböztetni.

2. Bőrléc aplasia

Eddig 2 családot és néhány egyedi esetet írtak le. Pl. Baird /1954, 1968/ egy család 4 generációjának 28 tagja között 16-nál találta meg.

3. Bőrléc dissotiatio

A bőrlécek "szétttöredeznek".

FIGURE 4.4 A thumb print of an individual with ridge dissociation. No coherent pattern is recognizable.

From Goddard, C. H.: Hands of mystery. *Finger Print and Identification Magazine, 31*:4, 1950. Courtesy of the Institute of Applied Science.

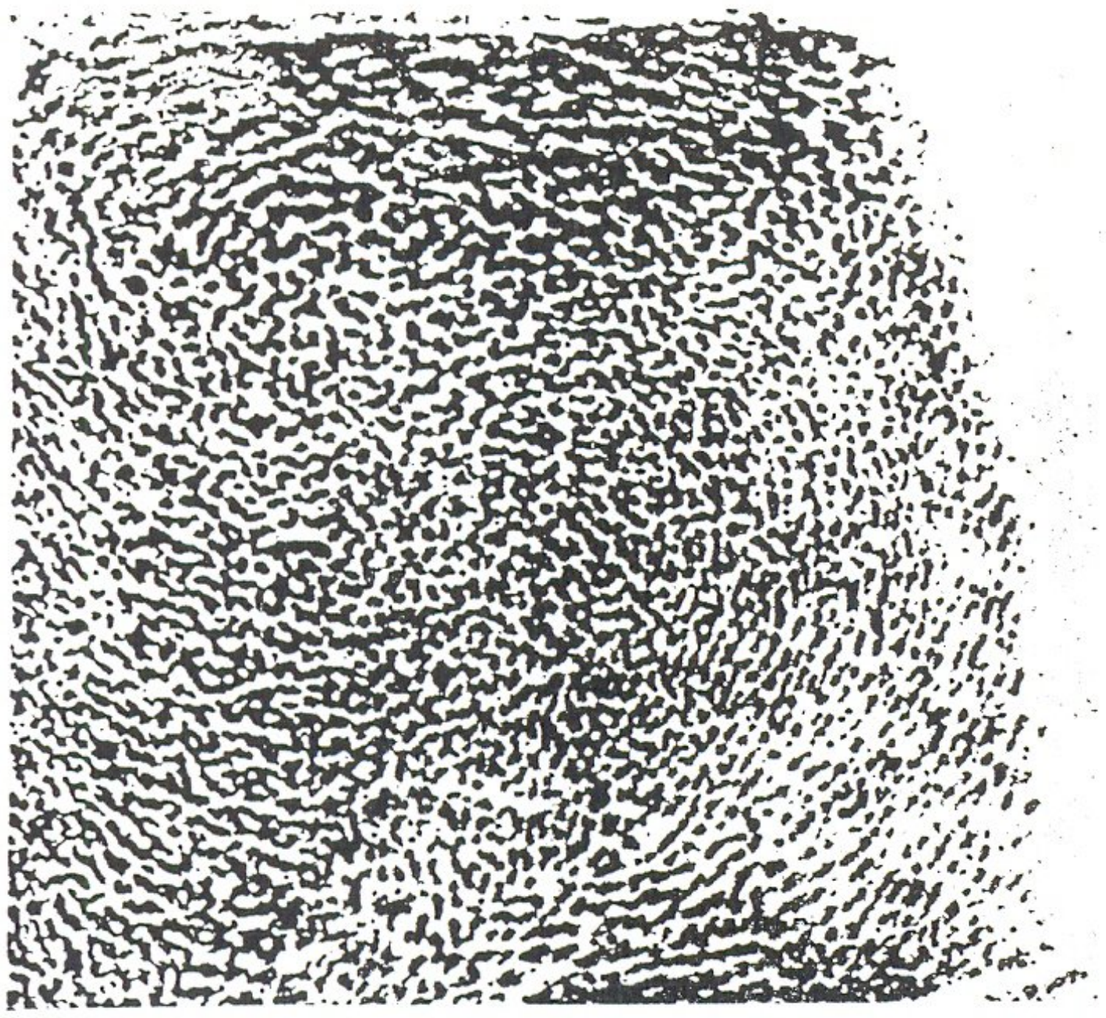


FIGURE 4.5 Distal part of a palm print of a patient with Down syndrome showing ridge dissociation of the "dotted ridge" type.

From Rott, H. D.: Hautleistenstörungen bei verschiedenen Krankheiten. In Hirsch, W. (Ed.): *Hautleisten und Krankheiten*, Berlin, 1971. Courtesy of Freie Universität Berlin.

4. Distalisan végződő ujjbegyi bőrlécek

Rajzolatot nem alkotó, vertikalis irányu, distalisan végződő bőrlécek. Öröklődés: autosomalis dominans.

B/ <u>A végtagok veleszületett rendellenességeivel kapcsolatos bőrlécrendszeri sajátosságok</u>

1. Thalidomid embryopathia okozta phocomelia:
   - axialis triradius hiányzik
   - tenyéri bőrlécek haránt irányuak

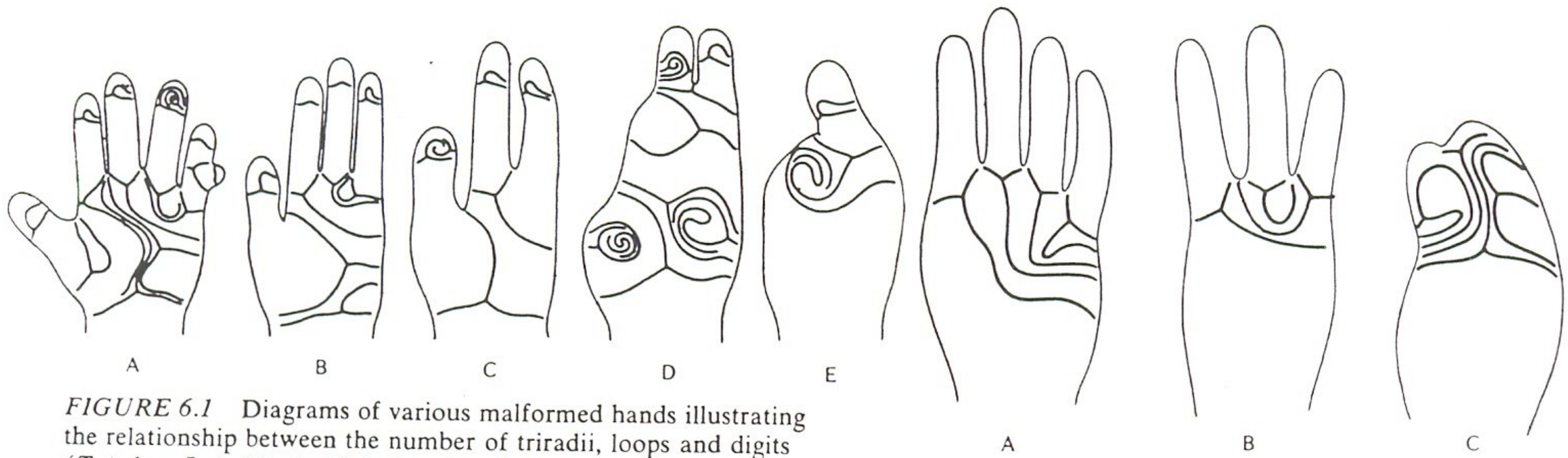


FIGURE 6.1 Diagrams of various malformed hands illustrating the relationship between the number of triradii, loops and digits ($T + 1 = L + D$). A, $13 + 1 = 8 + 6$; B, $7 + 1 = 4 + 4$; C, $6 + 1 = 4 + 3$; D, $9 + 1 = 8 + 2$; E, $3 + 1 = 3 + 1$.
From Penrose, L. S.: Dermatoglyphic topology. *Nature, 205*:544, 1965. Courtesy of *Nature*.

FIGURE 6.2 Schematic drawings representing different degrees of severity of hand malformations in thalidomide embryopathy.
A and B according to Pfeiffer, R. and Schulte zu Berge, U.: *Z. Mens Vererb. Konstitutionsl., 37*:677, 1964; C according to Holt, S. B.: *J. M Genet., 9*:448, 1972.

2. Hüvelyujj aplasiája, vagy hypoplasiája
Általában más anomáliákhoz /18. kromoszóma triszomiája, gyűrűalaku D kromoszóma, stb./.
- Többnyire hiányzik az axialis triradius és a bőrlécek haránt irányuak.

3. Háromperces hüvelykujj
Általában más anomáliákhoz társul /Thalidomid embryopathia, Holt-Oram syndroma, stb./
- Többnyire hiányzik az axialis triradius, illetve distalis, vagy radialis helyzetü, a bőrlécek haránt irányuak.

4. Holt-Oram syndroma /csont- és cardiovascularis rendellenességek/

TABLE 6.1. Dermatoglyphics in Holt–Oram syndrome

TRAIT	NUMBER	PERCENT
Fingertip patterns		
Arch	5	2.0
Radial loop	18	7.2
Ulnar loop	98	39.2
Whorl	113	45.2
Missing or unknown	16	6.4
Palmar patterns[a]		
Thenar/I_1	0	0.0
I_2	3	12.5
I_3	4	18.2
I_4	9	37.5
Hypothenar	16	53.3
Axial triradius[a]		
Proximal (normal)	11	16.2
Distally displaced	32	47.0
Absent	25	36.8
Thenar crease[a]		
Normal	15	53.6
Rudimentary	5	17.8
Absent	8	28.6
Single transverse palmar crease[a]	24	60.0

[a] Number of palms with the trait.

5. Anonychia
Általában csak az 5. ujj körme normális, a többi hiányzik, vagy csökevényes. Hiányzó köröm esetén az ujjperc háti oldalán is megjelenik a bőrlécrendszer.
6. Distalis phalangealis hypoplasia
Más syndromákhoz társul /pl. brachydactylia/.
Magas ív és alacsony örvény gyakoriság.
7. Brachydactylia, syndactylia, polydactylia

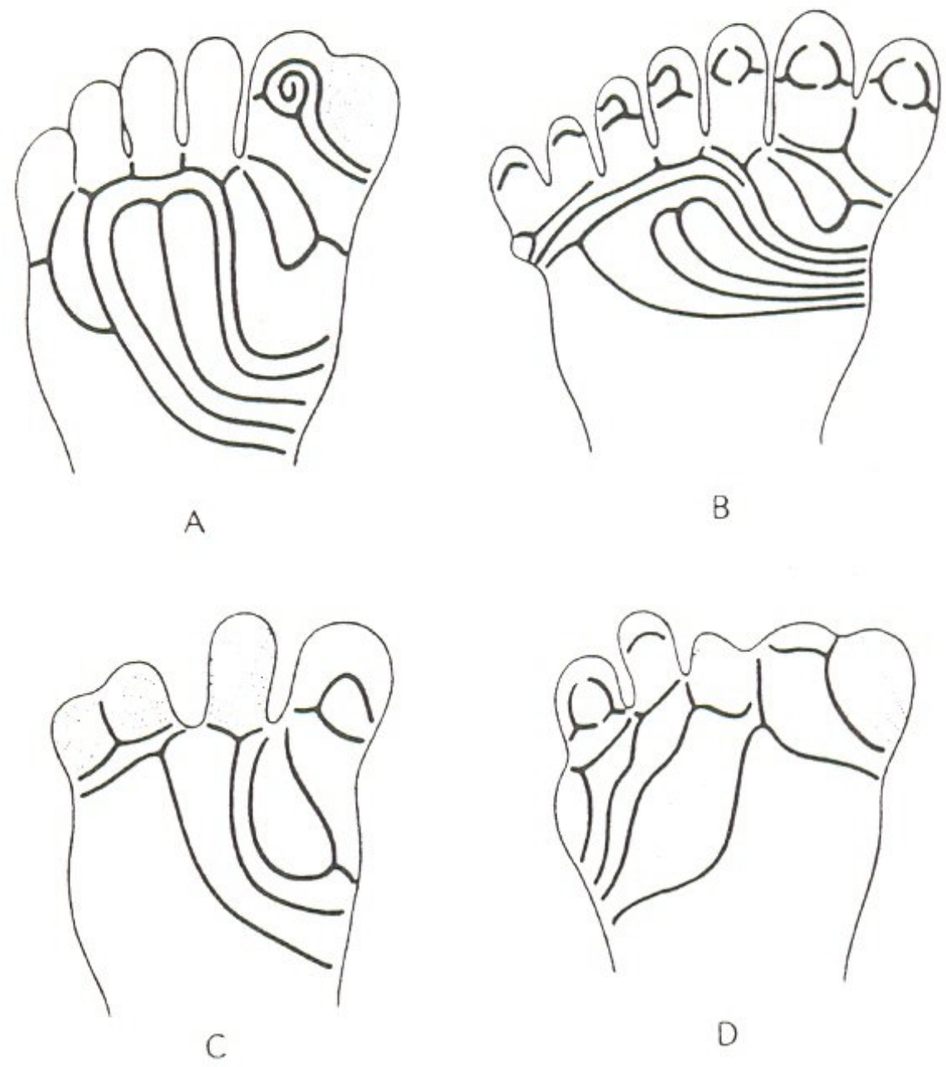


FIGURE 6.5 Dermatoglyphics in various foot malformations. A, Duplication of the thumb with syndactyly of the thumb complex; B, polydactyly with supernumerary digits I and V and a low mound at the base of the last digit indicating a possibly abortive eighth digit; C, oligodactyly with apparently missing digit III and syndactyly of digits IV and V; D, grossly malformed foot with multiple anomalies. According to Cummins, H.: *Am. J. Anat.*, *38*:89, 1926.

TABLE 6.3. Dermatoglyphic traits in a family with brachydactyly[a]

TRAIT	AFFECTED MEMBERS		UNAFFECTED MEMBERS	
	NUMBER	VALUE	NUMBER	VALUE
Fingertip patterns				
Arch	61	87.1%	11	22.0%
Radial loop	5	7.1%	1	2.0%
Ulnar loop	4	5.7%	36	72.0%
Whorl	0	0.0%	2	4.0%
Mean TFRC				
Males	4	19.5	3	87.7
Females	3	3.0	2	61.0
Total	7	12.4	5	77.0
Mean summed *a–b* ridge count	7	98.0	5	100.0
Mean summed *atd* angle	7	111.4°	5	94.6°

[a] According to Penrose and Holt (1966).

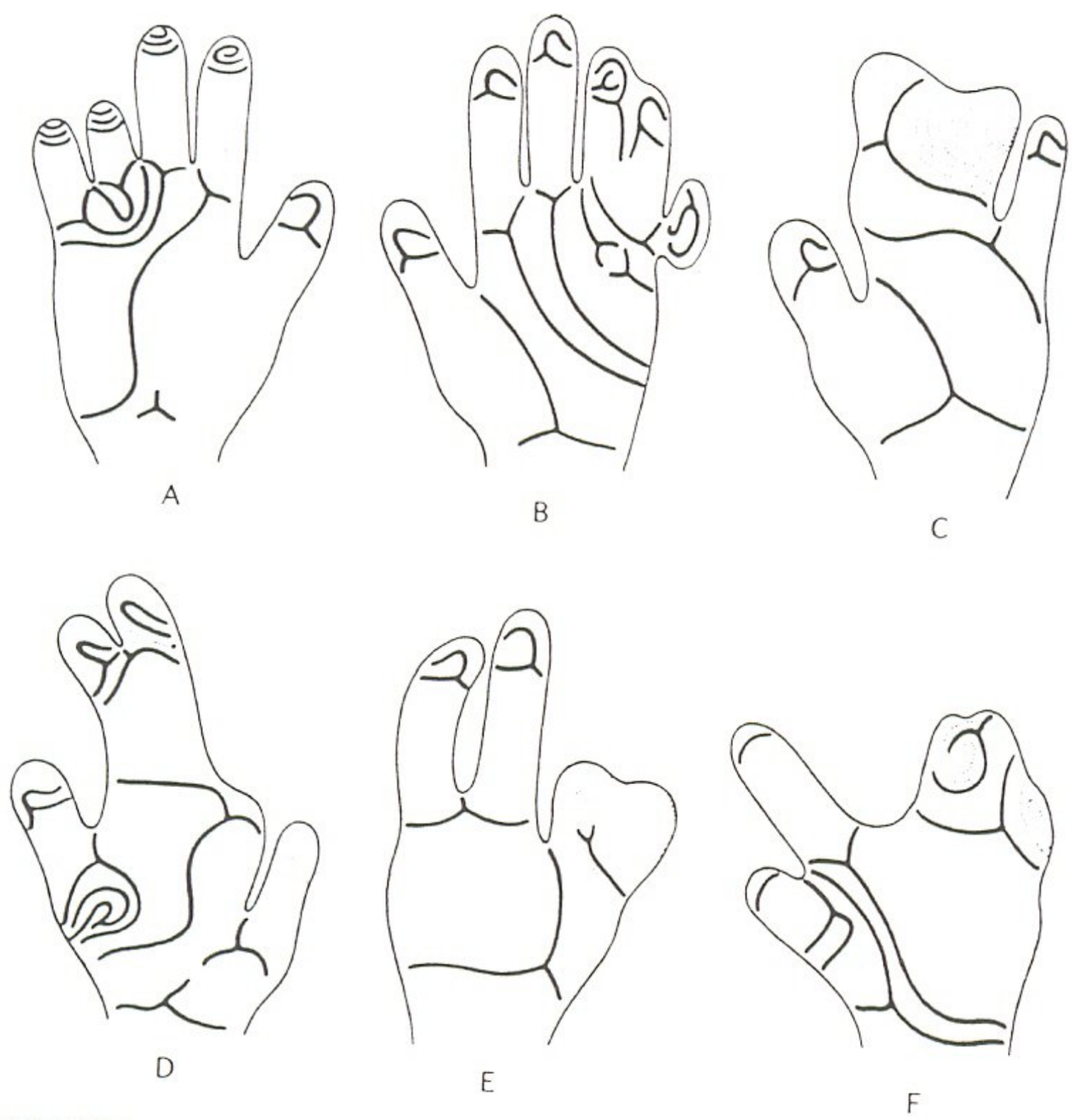


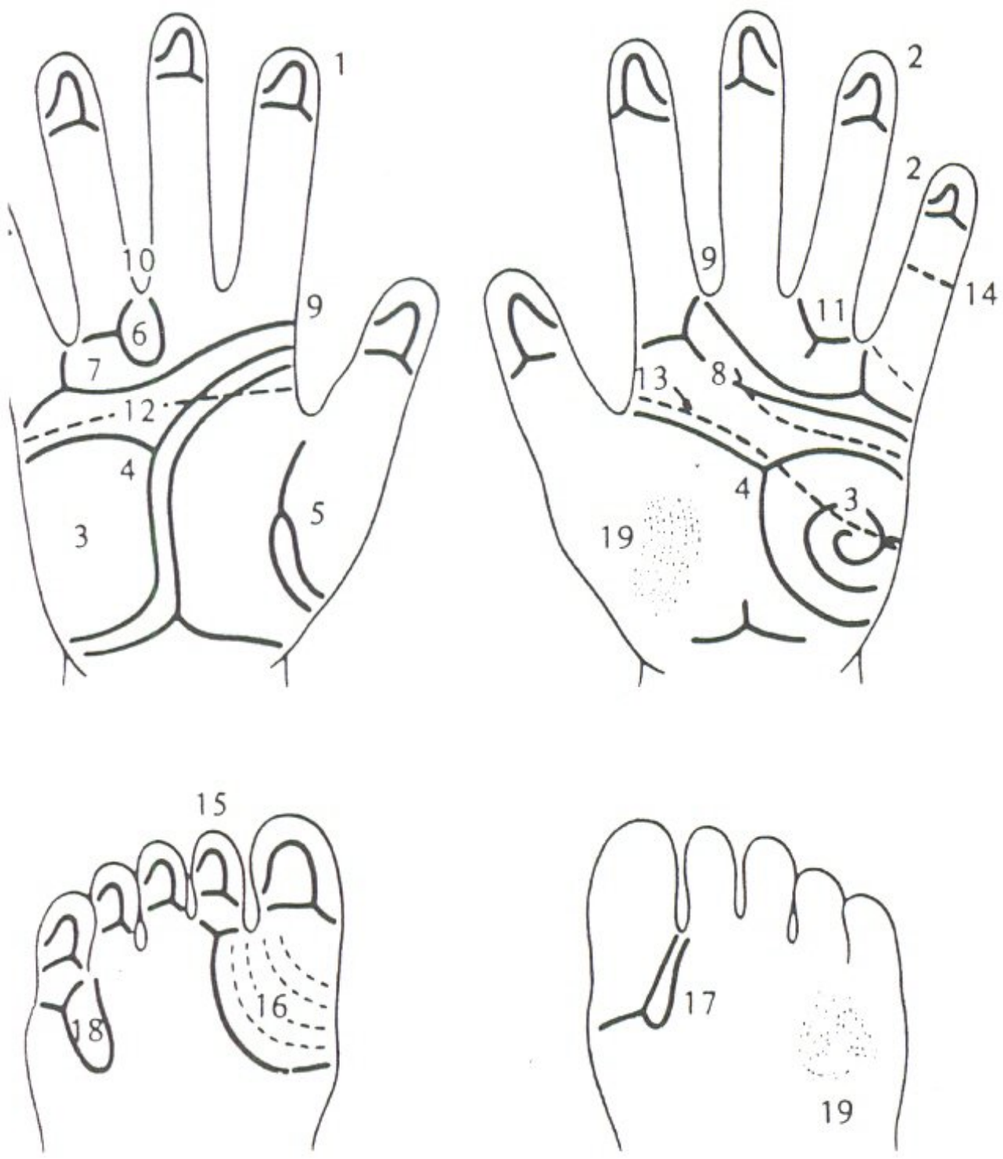
FIGURE 6.4 Dermatoglyphics in various hand malformations. A, Brachydactyly with shortened middle phalanges and rudimentary or absent distal phalanges; B, syndactyly of digits IV and V with a polydactylous digit V; C, syndactyly of digits II–IV; D, grossly malformed hand in the de Lange syndrome with partial syndactyly of digits II and III, missing digit IV and abnormally positioned digit V; E, duplication of the thumb and absence of two digits, apparently II and III; F, grossly malformed hand with coexisting syndactyly, polydactyly and brachydactyly.

A according to Battle, H. I., *et al.*: *Ann. Hum. Genet.*, *36*:415, 1973; B, C, E, and F according to Cummins, H.: *Am. J. Anat.*, *38*:89, 1926; D according to Berg, J. M., *et al.*: *J. Med. Genet.*, *4*:184, 1967.

C/ Genetikai rendellenességek

Autosomalis kromoszóma rendellenességek

1. Down-syndroma



IGURE 6.6 Dermatoglyphic features of Down syndrome. 1) Ulnar loops considerably increased in frequency, often ound on all ten fingertips, loops often high and L shaped. 2) Radial loops shifted to fourth and fifth digits. (3) Large ypothenar patterns, predominantly of the ulnar type, associated ith (4). (4) Distal axial triradius, high maximal *atd* angle. 5) Thenar patterns decreased in frequency, size and complexity. 6) I_3 patterns increased in frequency. (7) I_4 patterns decreased frequency. (8) Transverse alignment of main lines and ridges the distal palm (high main-line index). (9) D line terminating I_2 area or even on the radial border of the palm. (10) I_3 loop ormed by a recurve of the C line. (11) Absent and abortive lines increased in frequency. (12) Single transverse palmar reases increased in frequency. (13) Sydney lines increased in requency. (14) Single interphalangeal crease on the fifth digit. 15) Fibular loops increased in frequency. (16) Arch tibial configuration in the hallucal area markedly increased in frequency very rare in controls). (17) Distal loops in the hallucal area nostly small (in controls, predominantly large loops). (18) Distal loops in area IV increased in frequency. (19) Ridge dissociation.

TABLE 6.4. Percent of each fingertip pattern type in Down syndrome and controls

	PATTERN TYPE[a]							
	WHORL		ULNAR LOOP		RADIAL LOOP		ARCH	
POPULATION	D	C	D	C	D	C	D	C
Canadian	20.1	28.4	75.1	61.2	2.5	4.9	2.3	5.6
Swedish	12.1	21.4	84.5	66.3	1.5	5.6	1.9	6.7
British	12.7	26.1	82.8	63.5	1.8	5.4	2.7	5.0
Italian	12.6	33.1	81.0	57.2	5.2	3.5	1.1	6.2
Polish	13.6	35.5	85.2	56.4	0.8	4.2	0.4	3.6
Polish	17.0	29.4	80.2	61.8	2.0	4.5	0.6	4.4
Japanese	20.8	48.3	76.3	46.7	2.1	2.7	0.8	2.3
Japanese	26.1	42.7	70.6	52.2	1.9	2.8	1.4	2.3
Japanese	21.6	47.5	74.2	47.5	3.6	3.3	0.6	1.7
Chinese	18.3	46.6	77.0	49.1	3.6	2.3	1.1	2.1

[a] D, Down syndrome; C, controls.

TABLE 6.5. Percent of individuals with ten ulnar loops on the fingertips in Down syndrome and controls

	ULNAR LOOPS ONLY ON FINGERTIPS		
POPULATION	DOWN	CONTROLS	SOURCE
British	34.5	5.5	Holt (1964)
Japanese	29.0	5.7	Shiono *et al.* (1969)

2. A 18. kromoszóma trisomiája

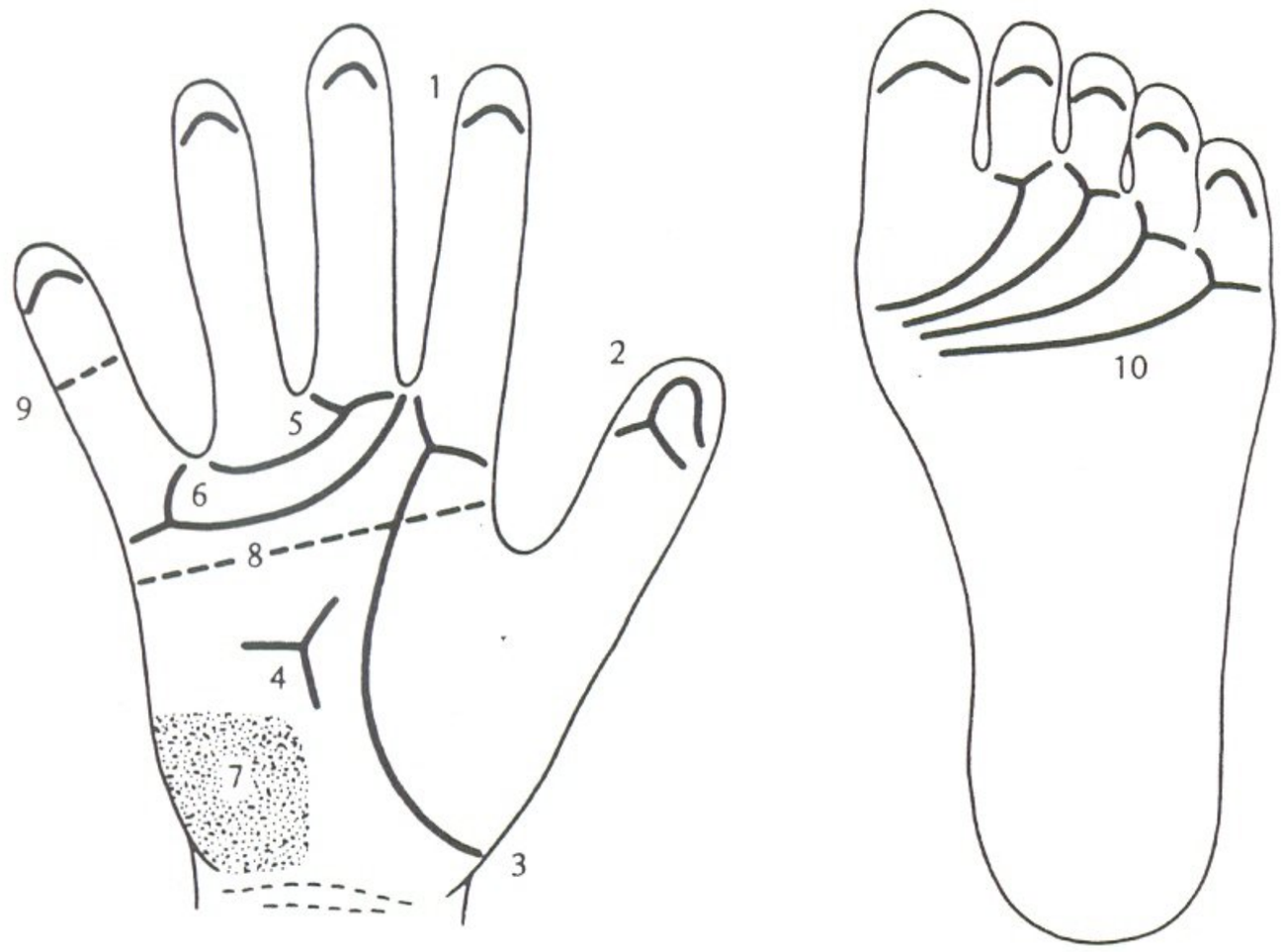


FIGURE 6.8 Dermatoglyphic features of trisomy 18. (1) Arches considerably increased in frequency. (2) Radial loops on digits other than second, particularly on the thumb. (3) Radial exit of main-line A. (4) Distal axial triradius. (5) I_3 patterns decreased in frequency. (6) I_4 patterns decreased in frequency. (7) Ridge dissociation. (8) Single transverse palmar crease increased in frequency. (9) Single flexion crease on the fifth digit. (10) Pattern intensity on soles extremely reduced.

TABLE 6.24. Dermatoglyphic features in trisomy 18

FEATURE	NUMBER	VALUE
Fingertip patterns		
Arch	643	88.1%
Radial loop	24	3.3%
Ulnar loop	40	5.5%
Whorl	4	0.5%
Unknown	19	2.6%
Radial loops on individual digits		
First	13	61.9%
Second	1	4.8%
Third	3	14.3%
Fourth	1	4.8%
Fifth	3	14.3%
Mean *atd* angle	36	74.8°
Distal axial t^a	48	53.3%
Interdigital patterns[a]		
I_3	17	28.3%
I_4	17	29.3%
Thenar exit of main-line A[a]	11	26.2%
Single transverse crease[b]	40	75.5%
Single crease on fifth digit[b]	34	79.1%

[a] Number of palms with the trait.

[b] Number of individuals with the trait.

FIGURE 6.9 Dermatoglyphic features of trisomy 13. (1) Arches increased in frequency. (2) Radial loops frequently on digits other than the second. (3) I_3 patterns increased in frequency. (4) I_4 patterns decreased in frequency. (5) Axial triradius extremely distal. (6) Thenar patterns increased in frequency. (7) Triradius *a* displaced radially. (8) *a–b* ridge count increased; associated with (7). (9) Radial exit of main-line A. (10) Single transverse flexion crease markedly increased in frequency. (11) Arch fibular and arch fibular S pattern (pictured here) frequent. (12) Ridge dissociation.

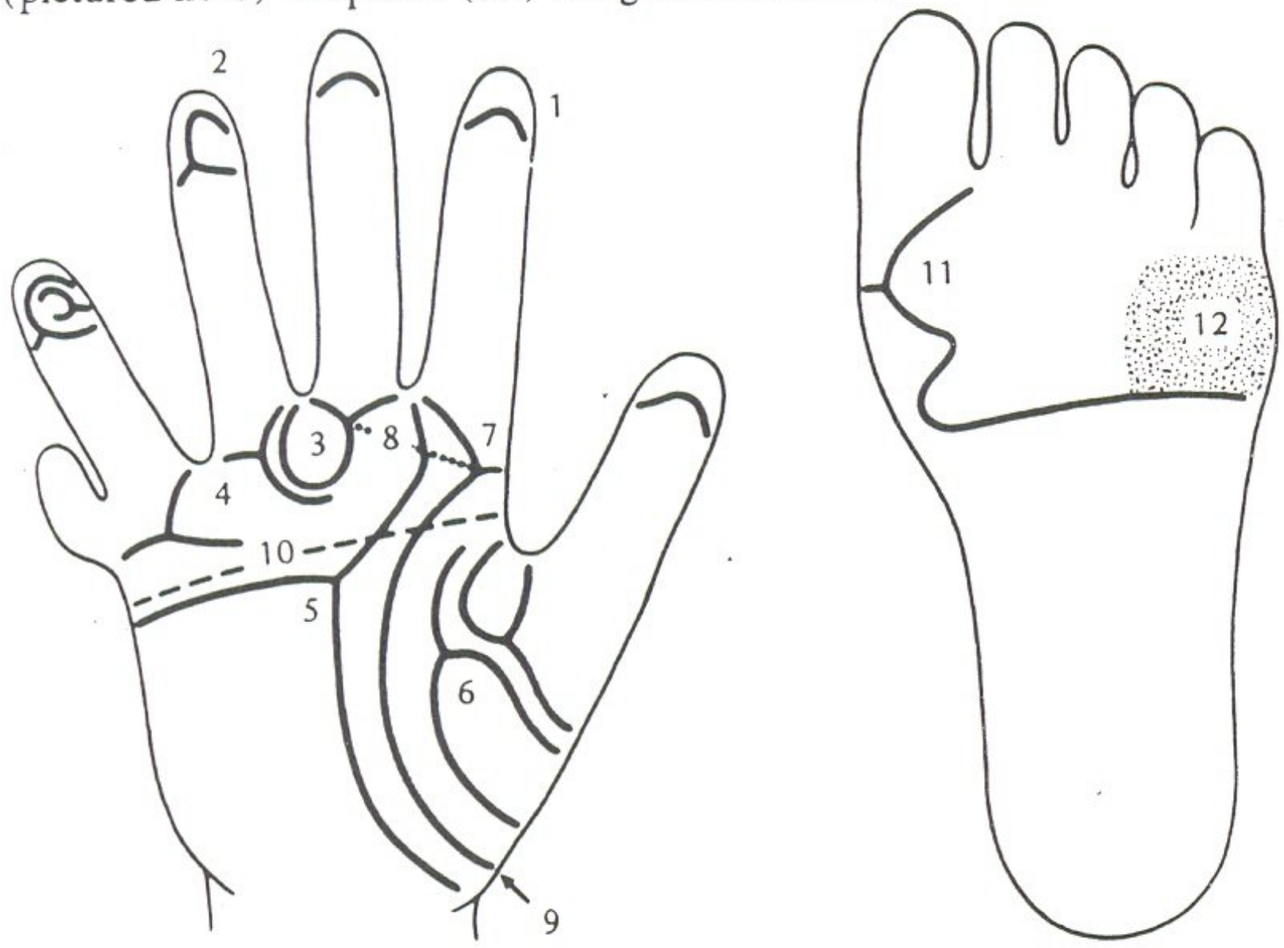


TABLE 6.25. Dermatoglyphic features in trisomy 13

FEATURE	NUMBER	VALUE
Fingertip patterns		
Arch	59	22.7%
Radial loop	37	14.2%
Ulnar loop	99	38.1%
Whorl	45	17.3%
Unknown	20	7.7%
Radial loops on individual digits		
First	4	16.0%
Second	7	28.0%
Third	4	16.0%
Fourth	7	28.0%
Fifth	3	12.0%
Mean *a–b* ridge count	25	47.4
Mean *atd* angle	38	94.4°
Distal axial *t*[a]	79	94.0%
Interdigital patterns[a]		
I_3	28	70.0%
I_4	12	30.0%
Thenar exit of main-line A[a]	25	71.4%
Single transverse crease[a]	47	59.5%
Hallucal patterns		
Arch fibular, arch fibular	29	40.3%
S pattern	2	2.8%
Arch tibial	2	2.8%
Arch proximal	17	23.6%
Loop tibial	15	20.8%
Loop distal	1	1.4%
Loop fibular	6	8.3%
Whorl		

[a] Number of palms with the trait.

4. A C-csoport trisomiái

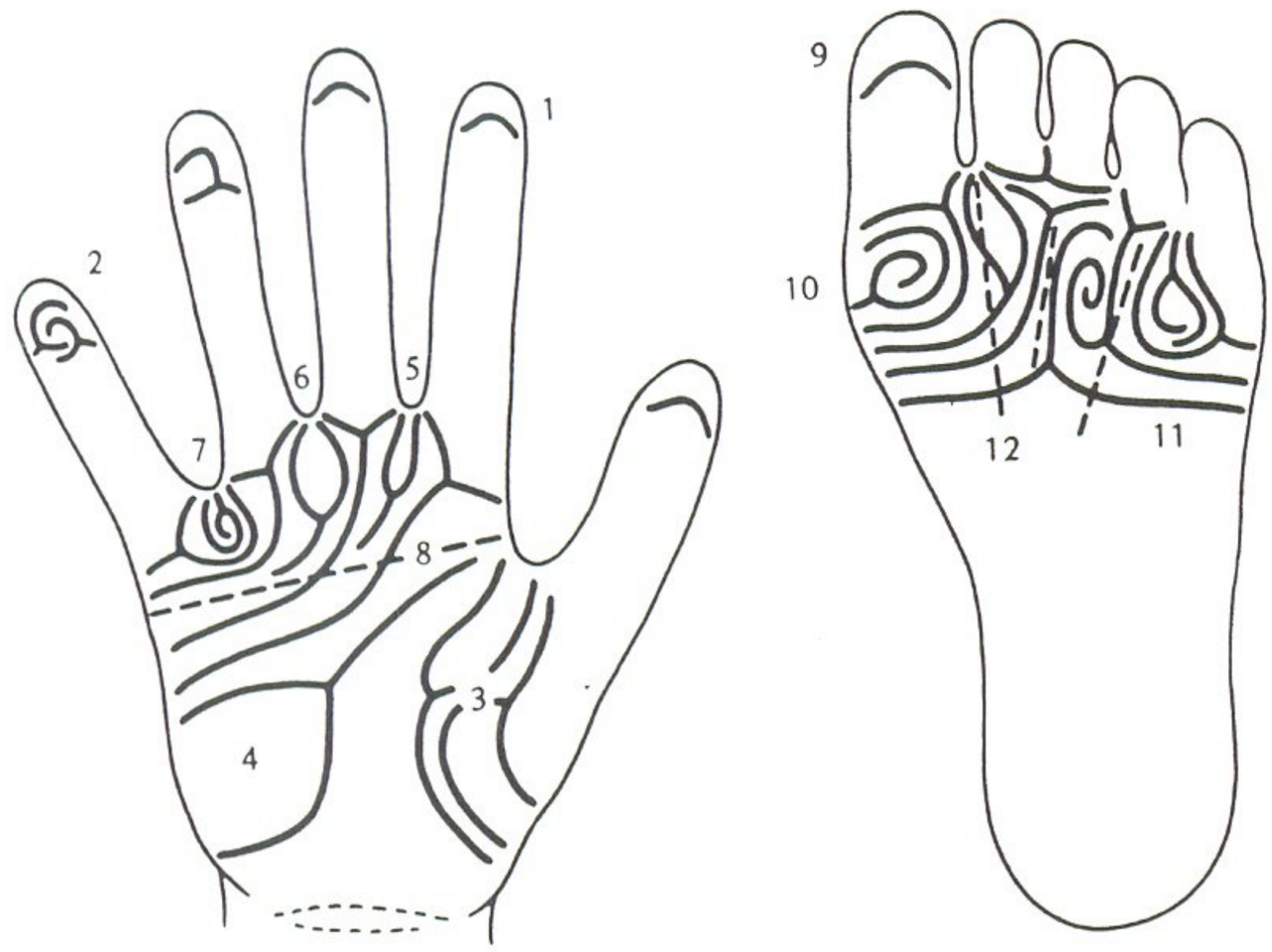


FIGURE 6.10 Dermatoglyphic features of trisomy 8 mosaicism. (1) Arches increased in frequency. (2) Whorls decreased in frequency but often present on the same hand together with arches. (3) Thenar patterns increased in frequency. (4) Hypothenar patterns increased in frequency. (5) I_2 patterns increased in frequency. (6) I_3 patterns increased in frequency. (7) I_4 patterns increased in frequency. (8) Single transverse palmar crease increased in frequency. (9) Arches on great toes increased in frequency. (10) Whorls in the hallucal area increased in frequency. (11) Plantar pattern intensity considerably increased. (12) Deep furrows on palms and soles.

TABLE 6.26. Dermatoglyphics in trisomy 8 and other unidentified C trisomies

FEATURE	TRISOMY 8 NUMBER	TRISOMY 8 VALUE	UNIDENTIFIED C TRISOMIES NUMBER	UNIDENTIFIED C TRISOMIES VALUE
Fingertip patterns				
Arch	41	45.6%	22	18.3%
Radial loop	3	3.3%	7	5.8%
Ulnar loop	31	34.5%	56	46.7%
Whorl	13	14.4%	33	27.5%
Unknown	2	2.2%	2	1.7%
Distal axial triradius[a]	11	64.7%	12	50.0%
Palmar patterns[a]				
Thenar/I_1	2	25.0%	10	62.5%
I_2	2	33.3%	1	25.0%
I_3	4	66.7%	12	85.7%
I_4	8	100.0%	9	75.0%
Hypothenar	9	75.0%	11	50.0%
Simian crease[a]	6	37.5%	7	38.9%
Sole patterns:				
Great toe arch	6	100.0%	5	62.5%
Hallucal whorl	6	100.0%	7	70.0%
Mean TFRC	5	82.6	3	78.0
Mean *atd* angle	10	67.3°	0	—

[a] Number of palms with the trait.

D/ A nemi kromoszómák rendellenességei

1. Turner-syndroma

TABLE 6.27. Dermatoglyphics in Turner syndrome and in polysomies of the X chromosome

FEATURE	45,XO		47,XXX		48,XXXX		49,XXXXX	
	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE
Fingertip patterns								
Arch	40	2.9%	15	25.0%	8	7.3%	13	43.3%
Radial loop	48	3.5%	3	5.0%	2	1.8%	1	3.3%
Ulnar loop	895	65.8%	25	41.7%	63	57.3%	5	16.7%
Whorl	366	26.9%	17	28.3%	36	32.7%	11	36.7%
Unknown	11	0.8%	0	0.0%	1	0.9%	0	0.0%
Palmar patterns[a]								
Thenar/I_1	26	13.1%	0	0.0%	1	6.2%	—	—
I_2	5	3.4%	0	0.0%	3	18.8%	—	—
I_3	84	57.5%	1	12.5%	6	33.3%	—	—
I_4	86	58.9%	6	75.0%	11	55.0%	—	—
Hypothenar	158	51.1%	3	30.0%	10	45.4%	—	—
Distal axial triradius[a]	66	55.9%	4	33.3%	8	50.0%	0	0.0%
Single transverse palmar crease[a]	51	27.7%	0	0.0%	2	20.0%	2	50.0%
Mean TFRC	114	154.4	27	105.7	14	88.5	3	47.7
Mean summed *a–b* ridge count	108	89.5	—	—	3	79.7	—	—
Mean summed *atd* angle	121	100.5°	6	90.5°	8	95.8°	—	—

[a] Number of palms with the trait.

2. Klinefelter-syndroma

TABLE 6.28. Dermatoglyphics in Klinefelter phenotypes with various polysomies of X and Y chromosomes

FEATURE	46,XX MALES		47,XXY		48,XXYY		48,XXXY		49,XXXYY		49,XXXXY	
	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE
Fingertip patterns												
Arch	12	12.0%	116	9.5%	38	11.2%	31	38.8%	3	15.0%	38	23.8%
Radial loop	6	6.0%	56	4.6%	15	4.4%	2	2.5%	1	5.0%	6	3.8%
Ulnar loop	54	54.0%	595	48.8%	175	51.5%	27	33.8%	9	45.0%	73	45.6%
Whorl	28	28.0%	444	36.4%	112	32.9%	19	23.7%	7	35.0%	41	25.6%
Unknown	0	0.0%	9	0.7%	0	0.0%	1	1.2%	0		2	1.2%
Palmar patterns[a]												
Thenar/I_1	2	50.0%	7	5.5%	0	0.0%	0	0.0%			0	0.0%
I_2	1	25.0%	3	16.7%	1	3.6%	0	0.0%			0	0.0%
I_3	8	50.0%	48	46.2%	21	45.6%	2	33.3%			7	70.0%
I_4	4	40.0%	50	48.1%	18	37.5%	4	66.7%			4	40.0%
Hypothenar	5	41.7%	85	40.7%	31	45.6%					8	50.0%
Distal axial triradius[a]	13	86.7%	47	47.0%	27	67.5%	5	62.5%	0	0.0%	11	61.1%
Single transverse palmar crease[a]	2	12.5%	12	11.8%	11	22.0%	0	0.0%				
Mean TFRC	9	132.6	193	118.5	39	101.2	14	91.7	1	73.0	19	64.6
Mean summed *a–b* ridge count			102	79.9			2	64.0				
Mean summed *atd* angle	4	86.2°	120	86.3°	27	89.7°	3	83.3°			5	91.1°

[a] Number of palms with the trait.

3. Az Y-kromoszóma polysoniája

TABLE 6.29. Dermatoglyphics in polysomies of the Y chromosome

FEATURE	47,XYY NUMBER	47,XYY VALUE	48,XYYY NUMBER	48,XYYY VALUE
Fingertip patterns				
Arch	139	10.1%	1	3.3%
Radial loop	64	4.7%	1	3.3%
Ulnar loop	704	51.4%	24	80.0%
Whorl	450	32.9%	4	13.4%
Unknown	13	0.9%	0	0.0%
Palmar patterns[a]				
Thenar/I_1	1	1.7%	—	—
I_2	5	7.8%	—	—
I_3	38	33.9%	—	—
I_4	39	34.8%	—	—
Hypothenar	36	28.6%	—	—
Distal axial triradius[a]	61	46.9%	2	33.3%
Single transverse palmar crease[a]	8	7.7%	2	100.0%
Mean TFRC	152	129.8	3	93.7
Mean summed *a–b* ridge count	82	78.0	1	75.0
Mean summed *atd* angle	94	90.7°	2	88.0°

[a] Number of palms with the trait.

4. Az X -kromoszóma polysoniája

A TRC csökken az X kromoszómák számával arányosan.

E/ A kromoszómák szerkezeti változásával kapcsolatos dermatoglyphiai variációk

1. 5 p-

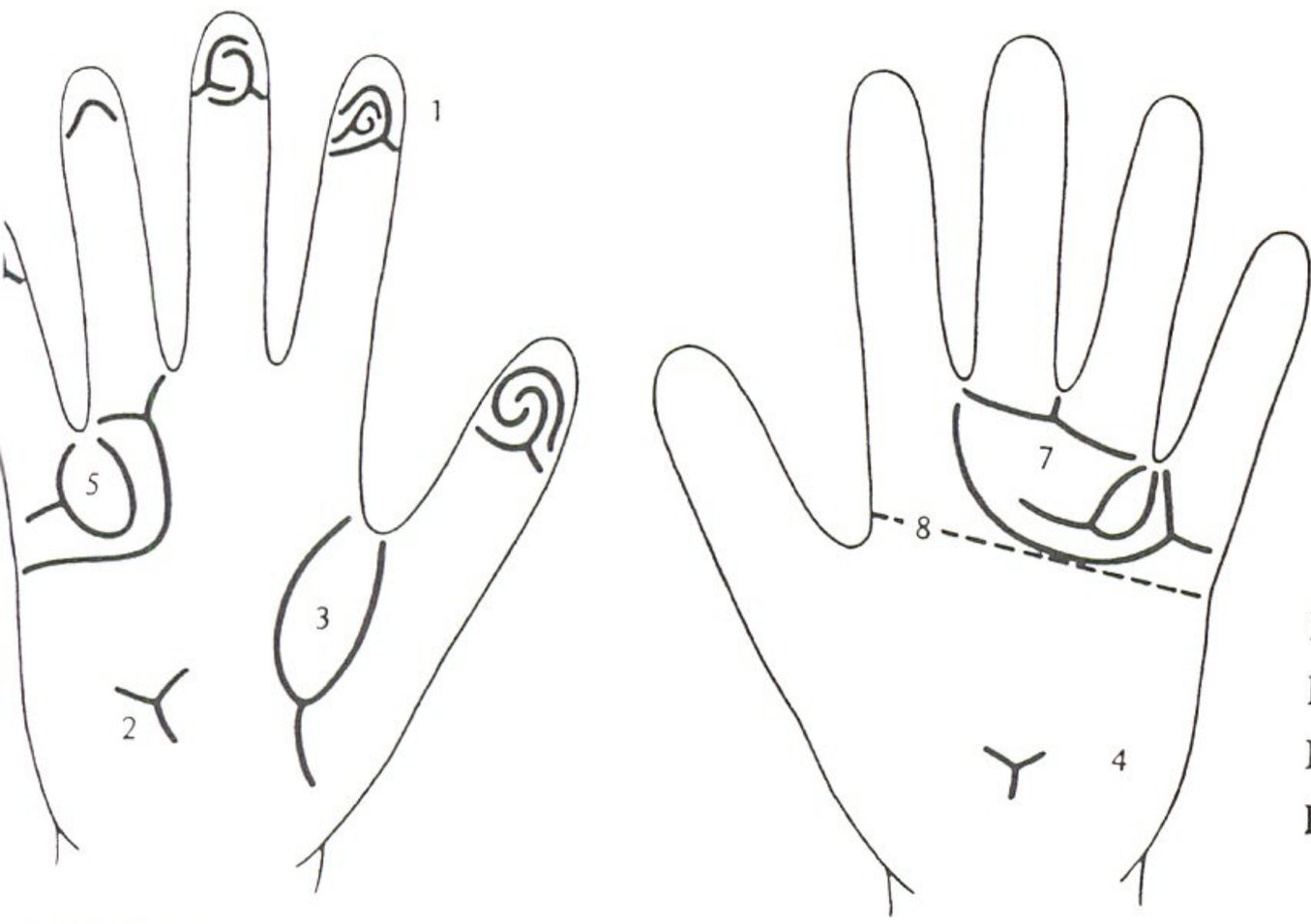


FIGURE 6.13 Dermatoglyphic features of deletion of the 5p– syndrome. (1) Whorls somewhat increased in frequency. (2) Distal axial triradius (*t'*). (3) Thenar patterns somewhat increased in frequency. (4) Hypothenar patterns decreased in frequency. (5) I_4 patterns increased in frequency; patterns result mostly from the D line. (6) Main-line C usually exits on the ulnar border of the palm. (7) Interdigital triradius *bc* (with an accessory triradius as part of the pattern in I_4 area). (8) Single transverse flexion crease increased in frequency.

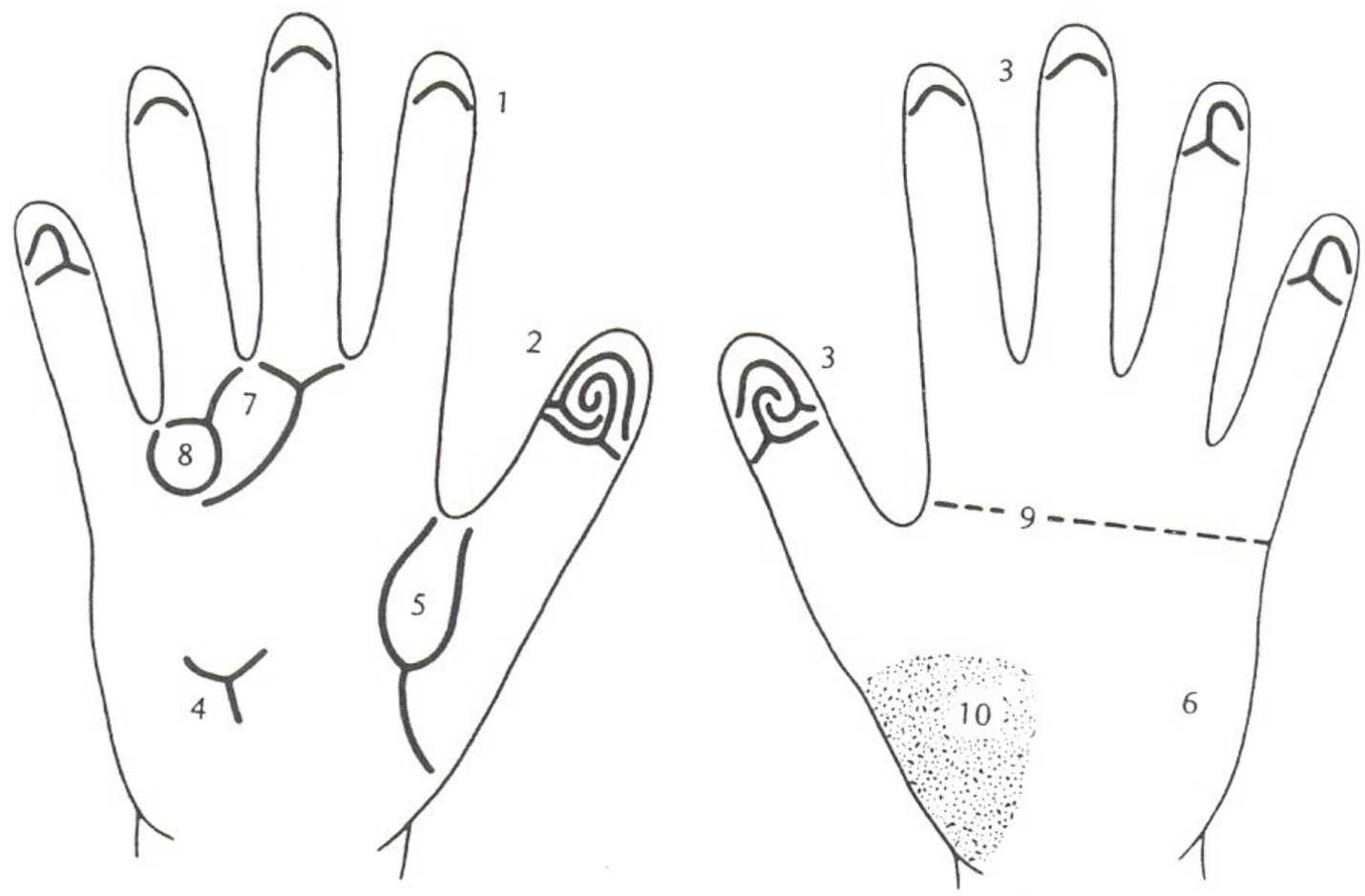
TABLE 6.30. Comparison of dermatoglyphic features in 4p– and 5p– syndromes

FEATURE	4p–	5p–
Fingertip patterns		
Arch	32.7%	10.0%
Radial loop	2.0%	4.0%
Ulnar loop	43.3%	50.3%
Whorl	10.0%	34.1%
Unknown	12.0%	1.6%
Mean TFRC	48.4	102.8
Mean *atd* angle	53.5°	50.8°
Distal axial *t*[a]	38.2%	82.3%
Palmar patterns[a]		
Thenar/I_1	18.2%	24.5%
I_2	0.0%	1.1%
I_3	20.0%	36.0%
I_4	70.0%	71.9%
Hypothenar	25.0%	26.8%
Single transverse crease[a]	52.3%	82.2%
Ridge dissociation	81.0%	0.0%

[a] Percent of palms with the trait.

2. 4 p–

FIGURE 6.14 Dermatoglyphic features of the 4p– syndrome. (1) Arches significantly increased in frequency; low TFRC. (2) Whorls significantly decreased in frequency. (3) Association of W^{d1} on thumb and A on the second and third digits. (4) Axial triradius somewhat distal (*t′*). (5) Thenar patterns somewhat increased in frequency. (6) Hypothenar patterns decreased in frequency. (7) I_3 patterns decreased in frequency. (8) I_4 patterns increased in frequency. (9) Single transverse flexion crease increased in frequency. (10) Ridge dissociation.



3. 18 p–, 18 q–, 18 r

ABLE 6.31. Comparison of dermatoglyphic features in deletions of chromosome 18

FEATURE	18p–	18q–	18r
Fingertip patterns			
Arch	2.8%	0.8%	3.0%
Radial loop	2.2%	2.5%	4.6%
Ulnar loop	61.1%	43.6%	46.2%
Whorl	33.3%	52.6%	46.2%
Unknown	0.6%	0.5%	0.0%
Number of fingertip whorls per individual			
0	16.7%	10.3%	19.2%
1–3	38.9%	20.5%	23.1%
4–5	22.2%	23.1%	15.4%
6–10	22.2%	46.1%	42.3%
Mean TFRC			
Males	179.7	150.0	100.0
Females	142.0	137.3	130.3
Total	158.1	142.0	126.5
Mean *a–b* ridge count	—	34.3	39.5
Mean *atd* angle	—	51.0°	44.5°
Distal axial triradius[a]	—	53.1%	56.0%
Single transverse crease[a]	14.3%	44.8%	13.0%
Palmar patterns[a]			
Thenar/I_1	0.0%	29.2%	14.7%
I_3	53.3%	75.0%	63.9%
I_4	38.5%	36.4%	52.9%
Hypothenar	15.8%	46.2%	33.3%

[a] Percent of palms with the trait.

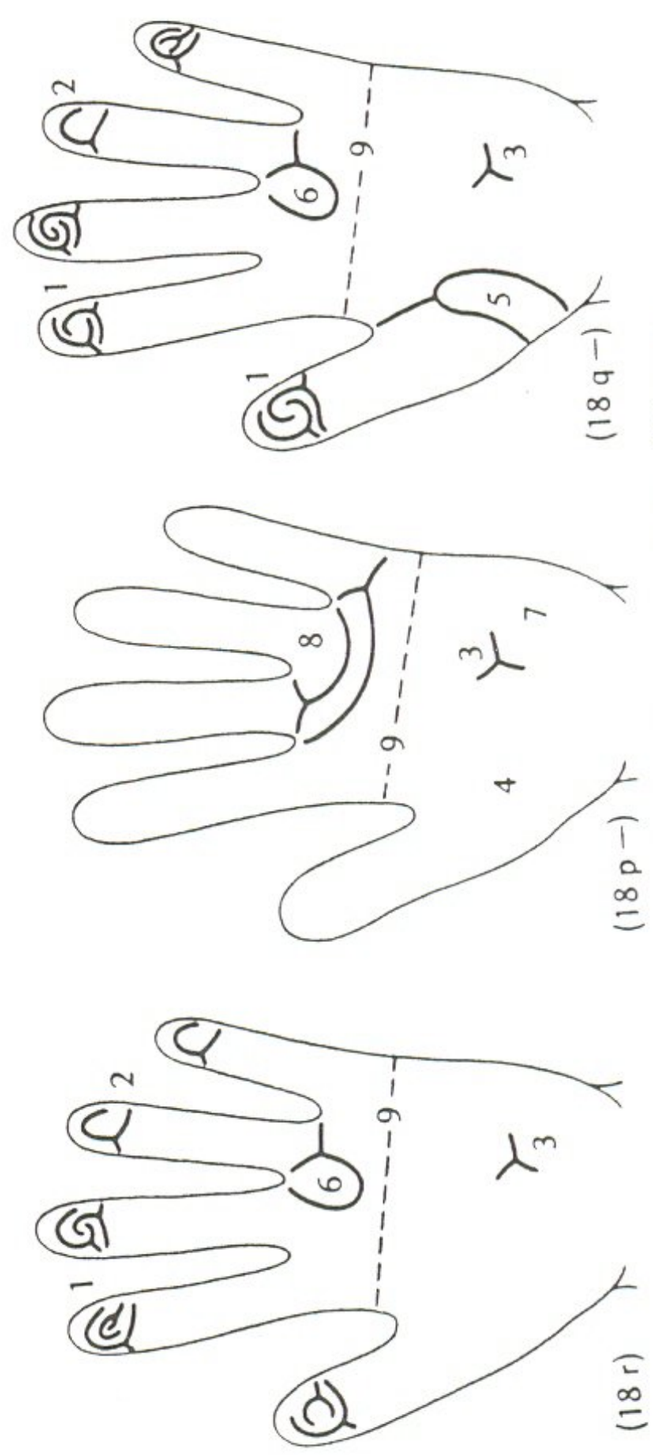
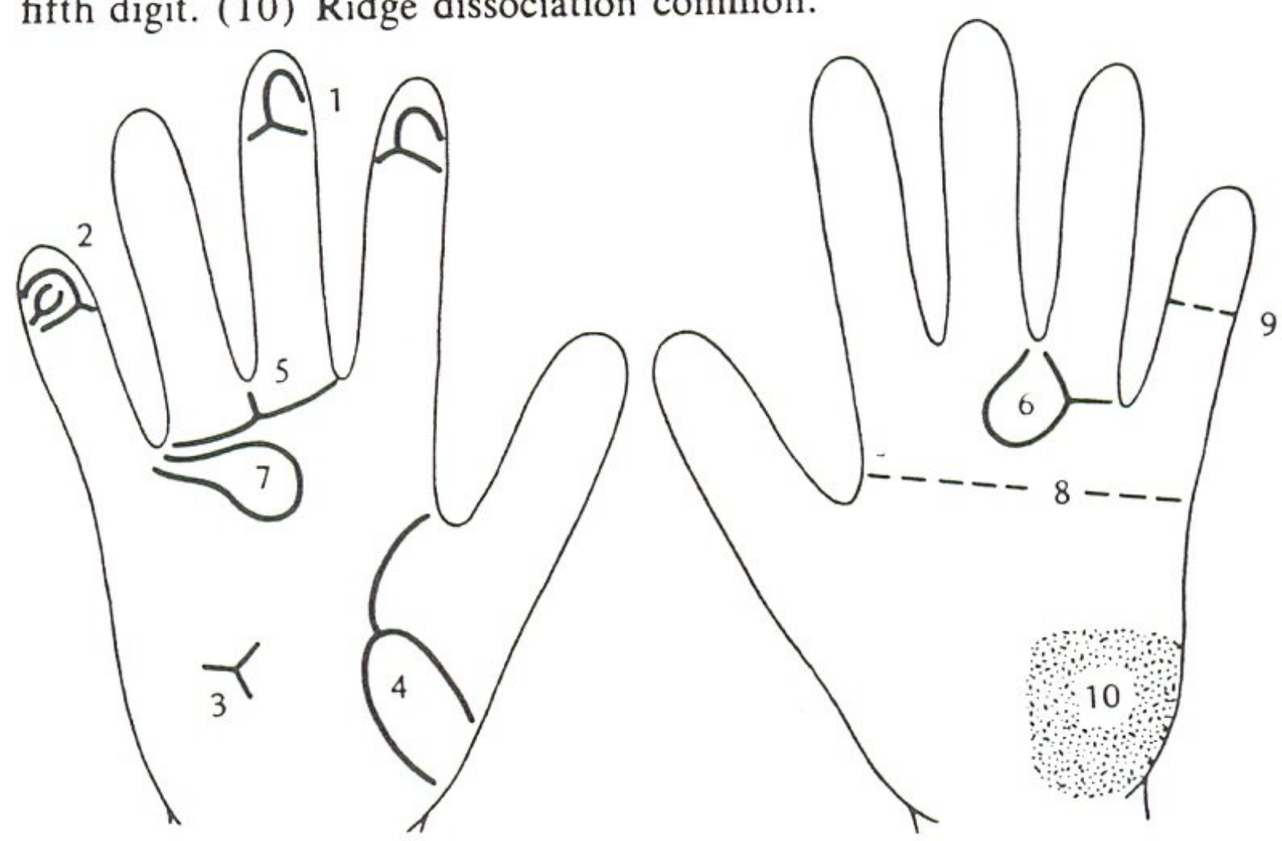


FIGURE 6.15 Dermatoglyphic features of the different deletions of chromosome 18. (1) Whorls increased in frequency. (2) Ulnar loops decreased in frequency. (3) Distal axial triradius. (4) Thenar patterns increased in frequency. (5) Thenar patterns decreased in frequency. (6) I_4 patterns increased in frequency. (7) Hypothenar patterns decreased in frequency. (8) Missing *c* triradius. (9) Single transverse palmar crease increased in frequency

E/ Egyéb öröklődő rendellenességek

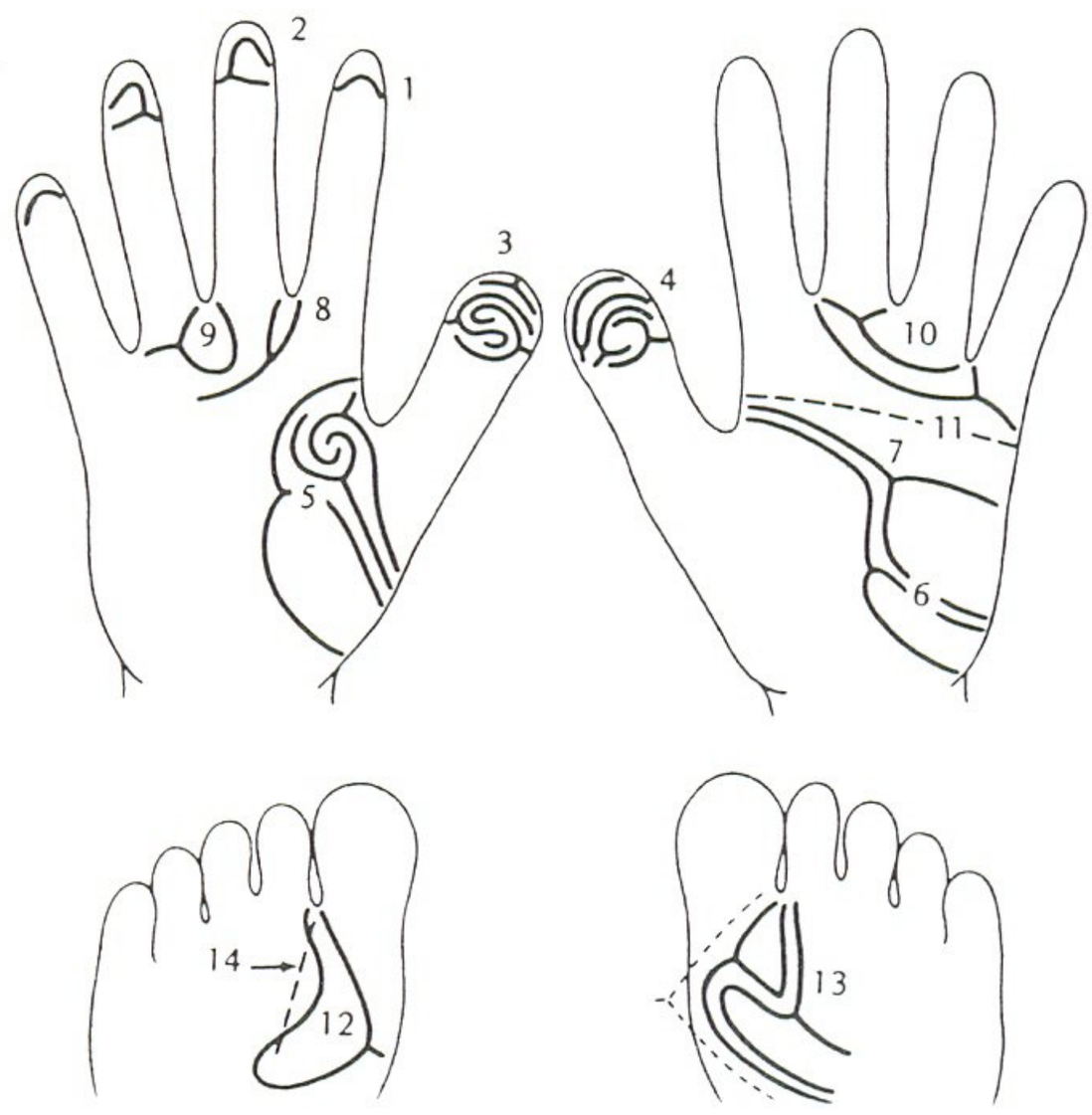
1. De Lange syndroma

FIGURE 6.16 Dermatoglyphic features of the de Lange syndrome. (1) Radial loops increased in frequency, often found on digits other than the second (particularly on the third). (2) Whorls markedly decreased in frequency. (3) Distal axial triradius. (4) Thenar patterns increased in frequency. (5) Interdigital triradius *bc*. (6) I_3 loops increased in frequency. (7) Transverse or oblique loop in the I_4 area. (8) True or transitional single transverse palmar crease increased considerably in frequency. (9) Single flexion crease occasionally present on the fifth digit. (10) Ridge dissociation common.



2. Rubinstein-Taybi syndroma

FIGURE 6.17 Dermatoglyphic features of the Rubinstein–Taybi syndrome. (1) Arches increased in frequency. (2) Radial loops shifted to fingers other than the second. (3) Additional apical triradius on the thumb or great toe. (4) Double patterns on the thumbs. (5) Thenar/I_1 patterns increased in frequency, size, and complexity. (6) Ulnar loop is a predominant pattern in the hypothenar area, associated with (7). (7) Distal axial triradius (and therefore an increased maximal *atd* angle). (8) I_2 patterns increased in frequency. (9) I_3 patterns increased in frequency. (10) Missing *c* triradius. (11) Single transverse palmar crease increased in frequency. (12) Distorted, unusually long distal loop in hallucal area; distal loops increased in frequency. (13) Combination of two loops (L^d/L^f) in the hallucal area. (14) Deep plantar crease in the first interdigital plantar area.



3. Smith-Lemli-Opitz syndroma

TABLE 6.34. Dermatoglyphics in the Smith–Lemli–Opitz syndrome

TRAIT	NUMBER	VALUE
Fingertip patterns		
Arch	46	14.2%
Radial loop	20	6.2%
Ulnar loop	102	31.5%
Whorl	156	48.1%
Number of whorls per individual		
0	6	17.1%
1–3	12	34.3%
4–6	4	11.4%
7–10	13	37.1%
Mean TFRC	6	96.3
Distal axial triradius[a]	32	50.8%
Palmar patterns[a]		
Thenar/I_1	5	22.7%
I_3	8	36.4%
I_4	4	25.0%
Hypothenar	4	18.2%
Single transverse palmar crease[a]	58	78.4%

[a] Number of palms with the trait.

4. Cerebrális gigantizmus

TABLE 6.35. Dermatoglyphic features of cerebral gigantism

	MALES		FEMALES	
	NUMBER	VALUE	NUMBER	VALUE
Fingertip patterns				
Arch	1	1.4%	2	3.3%
Radial loop	4	5.7%	3	5.0%
Ulnar loop	37	52.9%	44	73.4%
Whorl	28	40.0%	11	18.3%
Mean TFRC	6	190.8	5	171.0
Mean *a–b* ridge count	12	43.9	14	42.7
Mean *atd* angle	10	39.9°	4	63.3°
Mean main line index	7	16.6	10	14.4

F/ Szerzett rendellenességek

1. Rubeola
- magas helyzetü t triradius
- magasabb R gyakoriság /nemcsak a 2. ujjon!/
- nagyobb W gyakoriság

2. Leukémia, cytomegelia, celiakia
Ellentmondásos adatok