36 The results of treatment

The severity and course of disease depend upon certain demographic factors, as discussed in Chapter 20. To some extent the type of operation is dictated by the severity of disease, but as shown in Chapter 32, most surgeons perform a certain type of operation by choice. The indications for the various surgical procedures are based upon personal concepts concerning the nature of the disease process and how it is best controlled. Hueston (1982) stated the reality of the situation: 'Fundamentally the patient produces the disease. The surgeon attempts to control it'.

METHODS OF EVALUATING RESULTS

In Chapter 20, the results of treatment were given according to various patient groups. In this chapter the results of treatment will be analysed according to the type of operation performed and, as before, early results will be evaluated according to the correction of contracture and late results according to the rate of recurrence and extension. Five factors have been evaluated:

1. Degree of correction of flexion contracture.
2. Outcome — *perfect* if full extension was obtained, *improved* if the flexion contracture was less and *worse* if the contracture was the same or greater.
3. Return of flexion after operation measured by the distance between-the fingertip and the distal crease of the palm

These three criteria were evaluated at 1 year after operation (±6 months) on the assumption that it could take this long to obtain a maximum result from operation. The worst results and the most difficult joint to correct was the proximal interphalangeal joint of the little finger. Often this joint alone was used to compare various aspects of treatment.

4. Recurrence — the appearance of disease within the area of operation.
5. Extension — the appearance of disease beyond the area of operation.

These last two criteria were evaluated from 2 years (± 6 months) onward at yearly intervals. Adequate data were available for statistical analysis up to 5 years, but thereafter the numbers of patients were few.

RESULTS ACCORDING TO THE TYPE OF OPERATION

The type of operation performed in the palm and finger is often different; the type of incision and method of wound closure are not necessarily dictated by what is done to the diseased fascia. Therefore, this analysis considered these factors separately. Four types of operation were analysed:

1. A local operation which included subcutaneous and open fasciotomy whether closed by suture, skin graft or left open; also the Gonzalez operation.
2. A regional fasciectomy which removed the diseased fascia by a relatively localized excision.
3. An extensive fasciectomy in which the

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Dupuytren's Disease Biology and Treatment
Churchill Livingstone Edinburg 1990.

surgeon attempted a more widespread removal of fascia, including fascia that appeared to be normal.

4. A dermofasciectomy which removed the overlying skin as well as the diseased fascia and where a full thickness skin graft was applied to the defect. This was usually an extensive operation, performed because of widespread disease. For many surgeons this is the treatment of choice for recurrent disease, but Hueston (Chapter 22) advocates this operation as a primary procedure when a strong diathesis is expressed by the patient.

Three types of wound closure were analysed:

1. By suture to obtain primary closure.
2. Left open after the method of McCash.
3. By skin graft, usually a full thickness skin graft.

The patient and operation profiles for the different types of operations and closures are provided in Profiles a–p at the end of the this chapter and are included for those surgeons who are interested in using these data to compare with their own series. The results are summarized in Tables 36.1–36.3.

In patients having a local operation, the preoperative contracture at the fifth metacarpophalangeal joint and the postoperative correction were greatest. Also, a perfect outcome at the fifth proximal interphalangeal joint was more frequent after a local operation both in the palm and in the finger. Regional fasciectomy was the most common procedure in the palm (to correct metacarpophalangeal joint contraction) whereas extensive fasciectomy was slightly more common in the finger (to correct proximal interphalangeal joint contracture). These figures suggest that factors other than preoperative angles dictated the type of operation performed and the most likely factor was the surgeon's preference.

In Table 36.2, a similar analysis considered the type of wound closure in the palm and in the finger. The statistically significant differences are of clinical value and application. At the metacarpophalangeal joint results were the same whether the wound was sutured, left open or skin-grafted. However, when the palm was left open, the proximal interphalangeal joint correction was much less and the outcome was less satisfactory than if the palmar wound was closed either by suture or skin graft. In the finger, the results were significantly better at the proximal interphalangeal joint when a skin graft was applied rather than the wound sutured. There were too few 'open fingers' for analysis.

In Table 36.3, the effect that the various operations and closures had on the ability of the patient to regain flexion to the distal crease of the palm is shown. These results should be considered with the data on the distal crease of the palm of Chapter 20 (p. 206). The distal crease of the palm is a good index of morbidity following an operation for DD. None of the results in Table 36.3 were significantly different from others, but there are trends that are of clinical value. One might expect a local operation to have little effect upon return of flexion and yet in the palm, the distal crease was similar to that following a regional fasciectomy although better than either extensive or dermofasciectomy. In the finger, a local operation was no better than a regional or extensive fascectomy and in the little finger, all three resulted in loss of flexion. Overall, the worst results were seen in the little finger.

In Tables 36.1 and 36.2, the rate of recurrence and extension is between 50 and 60% for all types of operation. This is further evidence that the biological activity rather than the type of operation dictates the ongoing process of the disease. The factors that exert a significant effect upon recurrence and extension are listed in Table 36.4. These are the diathesis factors of other areas involved, early onset of disease, extensive and radial side disease. The outcome of the operation had no bearing upon recurrence and extension.

Concerning outcome, Profiles q,r and s (see end of this chapter) were prepared to see if there were any features of the patients or their hands that would determine outcome. The significant features are listed in Table 36.5. The diathesis factors were not prominent, other than alcoholism and extensive disease. The type of operation did not affect the result but the type of closure had a significant effect. In the palm, the open palm procedure was more often associated with a worse result and a grafted palm with a perfect result. In the finger,

Table 36.1 A comparison of the results of treatment by type of operation

		Angles at MPJ V				Angles at PIPJ V			Perfect outcome (%)		Recurrence and extension (%)
	n	Pre	Post	Change	*n*	Pre	Post	Change	MPJ V	PIPJ V	
Palm operation											
Local	20	59.3±26.5[1]	9.3±18.9	50.0[4]	21	47.5±21.5	22.9±22.9	26.0	70	29[6]	50
Regional	146	43.9±25.3[2]	2.9±11.4	41.0	141	54.1±27.3	28.8±23.9	25.3	84	18	54
Extensive	19	48.3±20.8	1.8± 6.1	46.5	20	53.6±19.5	22.2±19.7	31.4	89	25	60
Dermofasciectomy	58	39.8±22.5[3]	2.4± 8.6	37.4[5]	49	50.2±24.0	24.5±19.4	25.7	89	16[7]	
Finger operation											
Local	18	48.2±36.4	4.7±14.4	43.5	28	50.0±22.1	23.2±22.7	26.9	83	28	61
Regional	90	47.6±25.0	3.2±13.8	44.4	94	54.8±28.3	25.0±25.7	29.8	84	23	59
Extensive	101	43.5±22.9	1.4± 4.5	42.1	134	51.6±23.1	30.1±20.6	28.5	89	13	54
Dermofasciectomy	1	50.0			2	50.0±28.3	35.0± 7.1	15.0			

Blanks indicate insufficient data (less than 10 observations).
Significant differences between groups: 1–2 $p<0.02$; 1–3 $p<0.005$; 4–5 $p<0.05$; 6–7 $p<0.05$.

Table 36.2 A comparison of the results of treatment by type of wound closure

		Angles at MPJ V				Angles at PIPJ V			Perfect outcome (%)		Recurrence and extension (%)
	n	Pre	Post	Change	*n*	Pre	Post	Change	MPJ V	PIPJ V	
Palm closure											
Suture	156	45.6±26.0	3.5±11.5	42.1	146	54.9±26.3	25.2±23.2[2]	29.7[2]	81	20[4]	56
	55	40.1±20.9	1.9± 6.5	38.2	49	46.5±25.9	34.8±20.5[1]	11.7[1]	91	8[3]	52
Graft	30	47.7±23.3	4.2±16.9	43.5	35	54.3±19.6	23.5±23.3[2]	30.8[2]	90	34[4]	47
Finger closure											
Suture	170	46.2±24.7	2.6±11.3	43.6	203	52.6±25.1	28.6±22.8	24.0[5]	86	17[7]	50
Open	6	49.5±31.2	2.5± 6.1	47.0	4	32.5±18.9	0.5± 1.0	32.0			
Graft	31	43.3±26.7	1.8± 5.4	41.5	47	56.2±23.3	23.8±24.5	32.4[6]	87	30[8]	

Blank spaces indicate insufficient data (less than 10 observations).
Significant differences between groups: 1–2 $p<0.01$; 3–4 $p<0.05$; 5–6 $p<0.05$; 7–8 $p<0.02$.

Table 36.3 A comparison of full flexion (at the distal crease of the palm) by type of operation and closure

	Full flexion preop (%)				Full flexion postop (%)			
	V	IV	III	II	V	IV	III	II
Palm operation								
Local	89	98	96	100	84	86	89	91
Regional	89	89	96	99	86	88	93	96
Extensive	96	97	98	98	79	90	90	91
Dermofasciectomy	97	98	98	99	80	89	90	93
Palm closure								
Suture	92	93	93	98	87	90	91	92
Open	95	92	95	94	78	87	89	91
Graft	92	94	95	95	81	83	89	91
Finger operation								
Local	91	96	100	—	72	80	80	—
Regional	91	88	91	79	79	85	91	79
Extensive	92	89	96	85	78	83	82	77
Dermofasciectomy	—	—	—	—	—	—	—	—
Fingerclosure								
Suture	87	79	87	72	77	76	85	60
Open	—	—	—	—	—	—	—	—
Graft	86	—	80	—	77	—	100	—

There are no significant differences.
Blank spaces indicate insufficient data (less then 10 observations).

Table 36.4 Variables contributing to recurrence and extension (R & E)

Variable	R & E	No R & E	*p* Value
Other areas involved	36%	21%	<0.001
Early onset of disease	40%	29%	<0.05
Three or more rays	33%	27%	<0.05
Index finger	14%	8%	<0.05
Middle finger	37%	28%	<0.05
Outcome			
Perfect	50%	50%	NS
Improved	44%	56%	NS
Worse	54%	46%	NS

NS = not significant.

Table 36.5 Variables contributing to a perfect or worse outcome at PIPJ V

Variable	Perfect	Worse	*p* Value
Alcoholism	8%	23%	<0.05
More than three rays	24%	42%	<0.05
Palm closure			
Open	9%	55%	<0.001
Graft	27%	9%	<0.05
Finger closure			
Primary	71%	87%	<0.05
Graft	29%	8%	<0.01
Complications	8%	36%	<0.01

skin grafts were more likely to provide a perfect result. Complications are bound to be associated with a worse result.

TIMING OF OPERATION

Metacarpophalangeal joint contracture can almost always be corrected, but because proximal joint contracture is so difficult to correct, it has been my view that the patient should be advised to have an operation as soon as the proximal joint begins to contract. The figures in Table 36.6 suggest that we should modify this view. When the preoperative joint angles are compared to the outcome of operation, the average degrees of preoperative flexion are less in those patients who had a worse outcome. Also, at the proximal interphalangeal joint of the little and ring fingers, the average preoperative joint angle associated with a perfect result was above 40°. Even at the metacarpophalangeal joint, lesser degrees of contracture are associated with a worse result.

The reasons for these figures are primarily surgical. With minimal joint contraction, the extent of disease is not obvious because cords are not well developed and it is easy to leave some of the disease behind. This is especially so at the proximal joint. Also, if an extensive fasciectomy is performed in the presence of minimal disease and slight contracture, the insult of the operation followed by scar contracture can combine to create a postoperative contracture greater than that which was present preoperatively.

On the basis of these results, one is cautioned

Table 36.6 The effect of preoperative joint angle on outcome

	Little finger	Ring finger	Middle finger	Index finger	Thumb
Metacarpophalangeal joint					
Perfect	43	34	28	21	22
Improved	55	53	31	45	35
Worse	31	22	25	17	10
Proximal interphalangeal joint					
Perfect	47	42	30		
Improved	63	64	50		
Worse	35	28	34		
Distal interphalangeal joint					
Perfect	21	30			
Improved	39	67			
Worse	23	10			

against operating upon early disease. It would seem best to wait until 30–40° of contracture is present either at the metacarpophalangeal or proximal interphalanged joint. For the same reasons, minimal disease elsewhere in a hand that requires an operation is best left alone. If, for instance, a little or ring finger is operated upon, minimal disease in the middle or index finger or thumb web should be left. The disease may not progress in those areas or, as shown in Table 36.6, the contracture can be made worse by removing it.

THE VALUE OF A PROXIMAL INTERPHALANGEAL JOINT PROCEDURE

In about 10% of operations, some type of procedure beyond excision of diseased fascia was performed at the proximal interphalangeal joint to overcome the flexion contacture. The patient, hand and operation profiles were analysed to determine what factors were associated with the surgeon's decision to perform this additional procedure. The significant factors are listed in Table 36.7. The only patient variable of significance was other areas involved. As one might expect, there was severe and aggressive disease in the hand. Complications were twice as frequent and these patients were more likely to have postoperative therapy and splinting.

Table 36.8 shows the results by correction of joint contracture and by outcome in joints with and without a proximal joint procedure. The former joints had a significantly greater preoperative flexion contracture whereas the postoperative contractures and the degrees of change were similar. The percentage of perfect, improved and worse outcomes were the same although the trend was for the proximal joint procedure to provide more improved and fewer worse outcomes.

Table 36.7 Variables associated with a proximal interphalangeal joint procedure

Variable	*P* value
Other areas involved	<0.001
Three or more rays	<0.005
Radial side disease	<0.005
Previous operation	<0.001
Skin grafts	<0.005
Complications	<0.001
Therapy and splinting	<0.001

Table 36.8 The result at PIPJ V with and without a PIPJ procedure

Joint contracture	*n*	Preop	Postop	Change
PIPJ procedure	35	63.2±[1]25.1	32.4±26.9	30.8
No PIPJ procedure	126	49.5±[2]25.0	24.0±21.6	25.5

Significant difference 1–2: $p<0.003$.

Outcome	*n*	Perfect	*n*	Improved	*n*	Worse
PIPJ procedure	6	17%	23	66%	6	17%
No PIPJ procedure	24	19%	69	55%	33	26%

No significant differences.

The analysis suggests that a proximal interphalangeal joint procedure was only (and perhaps should only) be performed with severe disease and severe joint contracture. The procedure will not provide a better result but can gain a result that is similar to a less severe joint contracture treated without a proximal interphalangeal joint procedure.

POSTOPERATIVE THERAPY AND SPLINTING

The surgeons contributing to this study differed greatly in their use of both therapy and splinting but overall only 33% of patients received postoperative therapy and 42% were splinted. These are surprising figures in an era when hand therapy has emerged as an essential component of postoperative care. This study could not reveal the type of splint used (static or dynamic), the method (most of the time, at night only) or the duration of the splinting. The study did, however, distinguish between therapy provided by the surgeon, by a therapist and by a hand therapist and for this analysis, the results with no therapy were compared to those obtained when therapy was provided by a hand therapist.

Table 36.9 shows that splinting was used more often as the extent and severity of disease increased. When the disease was confined to the

Table 36.9 Postoperative splinting (Overall 42% were splinted)

Extent of disease		Severity of disease	
Palm only	12%	Previous operation	45%
One ray	41%	Complication	55%
Two rays	43%	Proximal interphalangeal joint procedure	59%
Three rays	47%	Sympathetic dystrophy	74%
Radial side	48%	None of above*	20%

*$p<0.001$.

palm, splinting was infrequent. Note, however, that when the operation attempted to correct a fifth proximal interphalangeal joint contracture (Tables 36.10 and 36.11), the majority of patients received therapy and were splinted.

Table 36.10 reveals that there was no difference in the pre- and postoperative angles in the splinted and not splinted groups, although there was a better change in angle in the latter group; 70% of the worse outcome group were splinted. Those results, coupled with those in Table 36.9, suggest that the most difficult cases to treat have biased the results against splinting. It would be incorrect to conclude that better results are obtained if splints are not used.

The analysis of postoperative therapy yielded similar results, as shown in Table 36.11. Although therapy and splinting fare poorly in the perfect and worse outcome groups, both modalities provided more improved results.

It appears from this analysis that most surgeons were selective in sending patients for splinting and therapy. Those patients had severe contractures and postoperative complications. If this course is followed, the results of splinting and therapy are bound to be unsatisfactory. I prefer to have all patients seen by a hand therapist. Most of these patients will be given a splint but how long the splint is worn during the day and night and the duration of splinting are different for every patient. I believe that therapy is more valuable then splinting. The quality of recovery is better when a skilled therapist is involved.

Table 36.10 The result at PIPJ V with and without splinting

Joint contracture	*n*	Preop	Postop	Change
Splinted	152	52.1±24.8	30.9±22.1	21.2[1]
Not splinted	117	55.4±26.1	22.3±23.1	33.1[2]

Significant difference 1–2: $p<0.001$.

Outcome	*n*	Perfect	*n*	Improved	*n*	Worse
Splinted	21	42%	83	57%	46	70%[1]
Not splinted	30	38%	63	43%	20	30%[2]

Significant difference 1–2: $p<0.025$.

Table 36.11 The result at PIPJ V with and without therapy

Joint contracture	*n*	Preop	Postop	Change
Hand therapy	84	46.2±25.1	32.1±24.0	14.1[1]
No hand therapy	51	52.2±20.7	22.7±18.5	29.5[2]

Significant difference 1–2: $p<0.003$.

Outcome	*n*	Perfect	*n*	Improved	*n*	Worse
Hand therapy		33%[1]		66%		74%[3]
No hand therapy		67%[2]		34%[2]		26%[4]

Significant difference 1–2: $p<0.005$; 3–4: $p<0.001$.

CONCLUSIONS

This statistical analysis has considered early results in terms of correction of joint contracture, outcome, and the return of finger flexion, and late results according to the prevalence of recurrence and extension of the disease. Early results were influenced by the severity of disease and the type of wound closure. Recurrence and extension were affected by diathesis factors, but not by the type of operation or the early result.

At the metacarpophalangeal joint, early and late results were uniformly good so this joint cannot be used to evaluate methods of treatment. In contrast, the results at the proximal interphalangeal joint varied with types of treatment.

There was no difference in the postoperative angles or outcome with the four types of operation, but there were significant differences with the types of wound closure. The open palm gave a less satisfactory result at the proximal joint than either suture or skin grafting, and skin grafting was better than suture in the finger. These results suggest

that the palm should not be left open if a (severe) proximal interphalangeal joint contracture has been corrected and that skin grafts should be used often in the palm and fingers.

The overall results of treatment were good, but there is need for improvement at the proximal interphalangeal joint, especially of the little finger. These results were collected from the records of experienced surgeons and although not perfect, they can be considered to be the standard.

Profile a Palm operation: local fasciotomy/fasciectomy (93 patients and 109 hands)

Family origin		Sex		Hand dominance		Hand involved		Occupation	
Northern European	74%	Male	79%	Right	90%	Right	21%	Manual	69%
Japanese	22%	Female	21%	Left	10%	Left	13%	Non-manual	31%
Southern European	4%					Both	66%		
		Other areas involved			19%			Age at onset (years)	
						Associated diseases		Male	51.9±10.3
		Family history			28%	Epilepsy	2%	Female	53.1±14.5
						Diabetes	6%		
		Previous operation			22%	Alcoholism	8%	Age at operation (years)	
						Trauma	21%	Male	60.7±10.5
								Female	61.3±15.2

Operation profile

Hand profile			Palm	Little finger	Thumb	Anaesthesia	
Palm only	11%	*Operation*					
No palm	1%	Local	100%	76%	63%	Local	24%
		Regional		15%	25%	Regional	34%
One ray	32%	Extensive		9%	12%	General	42%
Two rays	25%	Amputation					
Three or more rays	32%						
		Incision				Procedure at	
Thumb and thumb web	15%	Longitudinal	50%	62%	100%	PIP joint	5%
Index finger	15%	Transverse	50%	38%			
Middle finger	30%					Complications	13%
Ring finger	60%	*Closure*					
Little finger	66%	Suture	52%	66%	57%	Therapy	61%
		Open	12%	8%	43%		
		Graft	36%	26%		Splinting	43%

Profile a contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	n	Pre	Post	n	Pre	Post	n	Pre	Post	n	Pre	Post
MP joint	20	59.3±26.5	9.3±18.9	22	33.2±19.4	3.9±12.0	16	29.1±21.1	5.9±13.1	2	12.5±10.6	10.0±14.1	1	5.0	5.0
Outcome															
Perfect	70%	54.0±28.3	0± 0	82%	32.0±15.0	0± 0	81%	26.2±21.9	0± 0	50%	5.0	0± 0			
Improved	25%	74.0±19.2	25.0±21.2	14%	50.0±35.0	25.0±26.5	13%	42.5±17.7	27.5± 3.5						
Same/ worse	5%	60.0	60.0	4%	5.0	10.0	6%	40.0	40.0	50%	20.0	20.0	100%	5.0	5.0
PIP joint	21	47.5±21.5	22.9±22.9	9	55.3±23.3	1.3± 4.0	2	35.0±21.2	5.0± 7.1	0					
Outcome															
Perfect	29%	61.3±22.8	0± 0	89%	54.7±24.8	0± 0	50%	50.0	0± 0						
Improved	33%	52.9±19.1	29.3±27.3	11%	60.0	12.0	50%	20.0	10.0						
Same/ worse	38%	32.5±13.6	34.4±15.0												
DIP joint	6	31.5±23.2	6.7±12.1	1	65.0	0± 0	0								
Outcome															
Perfect	66%	36.0±28.5	0± 0	100%	65.0	0± 0									
Improved	17%	20.0	10.0												
Same/ worse	17%	25	30												

Profile b Palm operation: regional fasciectomy (650 patients and 729 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	88%	Male	85%	Right	95%	Right	19%	Manual	54%
Japanese	9%	Female	15%	Left	51%	Left	11%	Non-manual	46%
Southern European	3%					Both	70%		
		Other areas involved			29%			**Age at onset** (years)	
						Associated diseases		Male	48.3±12.7
		Family history			30%	Epilepsy	4%	Female	54.3±12.2
						Diabetes	8%	**Age at operation** (years)	
		Previous operation			19%	Alcoholism	14%	Male	57.6±10.9
						Trauma	14%	Female	61.6±10.4

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	6%	*Operation*					
No palm	2%	Local		2%	3%	Local	3%
		Regional	100%	61%	92%	Regional	45%
One ray	34%	Extensive		36%	5%	General	52%
Two rays	31%	Amputation		1%			
Three or more rays	29%						
		Incision				**Procedure at**	
Thumb and thumb web	24%	Longitudinal	77%	96%	100%	**PIP joint**	12%
Index finger	11%	Transverse	23%	4%			
Middle finger	30%					**Complications**	16%
Ring finger	64%	*Closure*					
Little finger	67%	Suture	82%	93%	94%	**Therapy**	74%
		Open	14%	1%			
		Graft	4%	5%	6%	**Splinting**	40%

Profile b contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	146	43.9±25.3	2.9±11.4	146	37.5±20.5	2.0± 6.6	59	27.8±15.2	2.3± 7.5	13	25.0±19.4	6.2±10.4	6	13.3± 6.1	7.5±12.5
Outcome															
Perfect	84%	41.7±23.9		85%	35.2±19.4	0± 0	87%	27.0±13.7	0± 0	69%	20.0±13.7	0± 0	67%	13.8± 4.8	0± 0
Improved	13%	56.4±23.9	11.8± 7.1	14%	52.1±21.5	13.7±12.2	10%	35.8±25.2	12.2± 4.5	23%	45.0±26.0	20.0±10.0			
Same/ worse	3%	31.3±39.7	48.7±47.1	1%	10.0	10.0	3%	25.0±21.2	30.0±28.3	8%	10.0	20.0	33%	12.5±10.6	22.5±10.6
PIP joint	141	54.1±27.3	28.8±23.9	74	45.9±27.1	14.6±17.1	21	35.1±18.6	16.3±17.4						
Outcome															
Perfect	18%	46.2±25.4	0± 0	43%	34.0±22.1	0± 0	43%	28.9±16.9	0± 0						
Improved	53%	66.7±21.5	30.4±18.0	45%	63.1±23.2	25.3±14.8	33%	44.3±16.4	22.9± 5.7						
Same/ worse	29%	33.2±24.0	44.5±25.1	12%	22.8±17.7	26.9±17.5	24%	28.6±20.1	36.6±16.6						
DIP joint	18	26.2±18.7	11.2±12.9	8	22.5±28.7	7.3±15.9	1	10.0	0± 0						
Outcome															
Perfect	44%	13.8± 6.9	0± 0	76%	14.2± 9.7	0± 0	100%	10.0	0± 0						
Improved	39%	42.1±19.1	16.4±6.9	12%	90.0	45.0									
Same/ worse	17%	24.3±18.9	29.3±14.0	12%	15.0	15.0									

Profile c Palm operation: extensive fasciectomy (258 patients and 286 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	87%	Male	89%	Right	98%	Right	15%	Manual	45%
Japanese	10%	Female	11%	Left	2%	Left	10%	Non-manual	55%
Southern European	3%					Both	75%		
		Other areas involved			33%			**Age at onset** (years)	
						Associated diseases		Male	45.9±12.5
		Family history			35%	Epilepsy	2%	Female	56.6±10.0
						Diabetes	7%		
		Previous operation			20%	Alcoholism	8%	**Age at operation** (years)	
						Trauma	9%	Male	56.1±10.6
								Female	63.6±8.9

Operation profile

Hand profile			**Palm**	**Little finger**	**Thumb**	**Anaesthesia**	
Palm only	3%	*Operation*					
No palm	3%	Local		4%	5%	Local	3%
		Regional		46%	66%	Regional	70%
One ray	27%	Extensive	100%	50%	29%	General	27%
Two rays	34%	Amputation					
Three or more rays	36%						
		Incision				**Procedure at**	
Thumb and thumb web	24%	Longitudinal	82%	94%	100%	**PIP joint**	8%
Index finger	13%	Transverse	18%	6%			
Middle finger	38%					**Complications**	14%
Ring finger	71%	*Closure*					
Little finger	72%	Suture	81%	91%	88%	**Therapy**	90%
		Open	19%	3%	7%		
		Graft		6%	5%	**Splinting**	42%

Profile c contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb		
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	19	48.3±20.8	18.4± 6.1	15	40.9±20.6	2.3± 5.6	8	26.3±17.9	3.8± 8.8	0			4	30.0±14.1	0
Outcome															
Perfect	89%	48.6±19.3	0	80%	38.3±24.6	0	75%	28.3±19.7	0	0%			100%	30.0±14.1	0
Improved	11%	45.0±42.4	17.5±10.6	20%	51.0±14.9	11.7± 7.2	25%	20.0±14.1	15.0±14.1	0%			0%		
Same/ worse	0%			0%			0%			0%			0%		
PIP joint	20	53.6±19.5	22.2±19.7	10	53.2±23.8	25.3±26.3	1	40.0	0	1	45.0	15.0			
Outcome															
Perfect	25%	36.0± 6.5	0	60%	47.5±17.5	0	100%	40.0	0	0%					
Improved	70%	59.4±19.7	27.4± 4	30%	76.3±17.0	20.0± 8.7	0%			100%	45.0	15.0			
Same/ worse	5%	60.0	60.0	10%	18.0	20.0	0%			0%					
DIP joint	7	27.1±12.3	5.3± 9.3	3	38.0±40.1	6.7±11.5									
Outcome															
Perfect	71%	22.4± 9.3	0	67%	15.0± 7.1	0									
Improved	29%	39.0±12.7	18.5± 4.9	33%	84.0	20.0									
Same/ worse	0%			0%											

Profile d Palm operation: dermofasciectomy (73 patients and 74 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	87%	Male	93%	Right	91%	Right	20%	Manual	37%
Japanese	10%	Female	7%	Left	9%	Left	7%	Non-manual	63%
Southern European	3%					Both	73%		
		Other areas involved			32%			**Age at onset** (years)	
						Associated diseases		Male	41.4±11.2
		Family history			17%	Epilepsy	5%	Female	43.8± 3.0
						Diabetes	7%		
		Previous operation			34%	Alcoholism	11%	**Age at operation** (years)	
						Trauma	7%	Male	52.5±10.4
								Female	57.2± 5.3

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	3%	*Operation*					
No palm		Local		1%	18%	Local	11%
		Regional		26%	27%	Regional	23%
One ray	27%	Extensive	100%	72%	55%	General	66%
Two rays	30%	Amputation		1%			
Three or more rays	41%						
		Incision				**Procedure at**	
Thumb and thumb web	31%	Longitudinal	47%	88%	100%	**PIP joint**	19%
Index finger	19%	Transverse	53%	12%			
Middle finger	34%					**Complications**	45%
Ring finger	62%	*Closure*					
Little finger	89%	Suture		44%	55%	**Therapy**	78%
		Open		2%			
		Graft	100%	54%	45%	**Splinting**	58%

Profile d contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb		
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	58	39.8±22.5	2.4± 8.6	59	35.5±18.1	2.3± 9.6	39	27.5±14.5	0.5± 2.3	11	23.5±10.6	0	4	20.5±10.2	22.5±28.7
Outcome															
Perfect	89%	40.5±22.8	0	92%	33.8±77.8	0	92%	28.3±14.4	0	100%	23.5±10.6	0	50%	17.5± 3.5	0
Improved	10%	37.5±22.0	15.3±11.1	7%	57.5± 9.6	19.5±17.8	3%	13.0	10.0	0%			25%	35.0	30.0
Same/ worse	1%	20.0	50.0	1%	40.0	60.0	3%	10.0	10.0	0%			25%	12.0	60.0
PIP joint	49	50.2±24.0	24.5±19.4	30	48.9±25.9	14.6±17.1	8	44.6±30.8		3	25.0±17.3	15.0±15.0			
Outcome															
Perfect	16%	46.3±28.4	0	37%	39.1±20.3	0	16%	25.0± 0		33%	15.0	0			
Improved	65%	56.7±20.9	24.8±13.6	43%	66.3±21.8	38.8±22.3	68%	69.3±23.3	35.0±18.3	33%	45.0	30.0			
Same/ worse	18%	30.6±21.1	45.6±21.2	20%	29.2±21.3	42.3±24.4	16%	15.0± 7.1	35.0±21.2	33%	15.0	15.0			
DIP joint	12	26.6±15.1	7.9±12.0	6	40.0±27.7	2.5± 6.1	1	20.0	0						
Outcome															
Perfect	58%	21.4±12.1	0	83%	45.0±27.8	0	100%	20.0	0						
Improved	25%	43.0±13.1	11.7± 7.6	0%			0%								
Same/ worse	17%	20.0±14.1	30.0± 0	17%	15.0	15.0	0%								

Profile e Finger operation: local fasciotomy/fasciectomy (93 patients and 103 ops.)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	87%	Male	78%	Right	94%	Right	27%	Manual	58%
Japanese	10%	Female	23%	Left	6%	Left	7%	Non-manual	42%
Southern European	3%					Both	66%		
		Other areas involved			28%			**Age at onset** (years)	
						Associated diseases		Male	48.9±12.0
		Family history			26%	Epilepsy	2%	Female	52.7±12.6
						Diabetes	4%		
		Previous operation			23%	Alcoholism	14%	**Age at operation** (years)	
						Trauma	14%	Male	57.8±11.8
								Female	62.0±13.0

Operation profile

Hand profile			**Palm**	**Little finger**	**Thumb**	**Anaesthesia**	
Palm only	3%	*Operation*					
No palm	6%	Local	69%	93%	83%	Local	26%
		Regional	20%	3%	17%	Regional	36%
One ray	38%	Extensive	11%	3%		General	38%
Two rays	30%	Amputation		1%			
Three or more rays	32%						
		Incision				**Procedure at**	
Thumb and thumb web	19%	Longitudinal	60%	64%	100%	**PIP joint**	12%
Index finger	18%	Transverse	40%	36%			
Middle finger	40%					**Complications**	18%
Ring finger	80%	*Closure*					
Little finger	74%	Suture	58%	56%	50%	**Therapy**	65%
		Open	12%	7%	50%		
		Graft	30%	37%		**Splinting**	39%

Profile e contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	18	48.2±36.4	4.7±14.4	16	32.3±15.1	0± 0	6	37.7±25.7	0.8±2.0	1	20.0±0	0±0	2	15.5±14.8	2.5±3.5
Outcome															
Perfect	83%	40.5±34.8	0± 0	100%	32.3±15.1	0± 0	83%	43.2±24.4	0± 0	100%	20.0±0	0±0	50%	26.0	0±0
Improved	17%	86.7±10.4	28.3±27.5	0%			17%	10.0	5.0	0%					
Same/ worse	0%			0%			0%			0%			50%	5.0	5.0
PIP joint	28	50.0±22.1	23.2±22.7	15	62.8±24.7	7.7±18.3	3	36.7±15.3	10.0±10.0						
Outcome															
Perfect	28%	55.1±23.3	0± 0	73%	58.6±23.7	0± 0	33%	50.0	0± 0						
Improved	39%	58.2±21.5	27.7±21.4	27%	74.3±27.2	28.8±27.6	67%	30.0±14.1	15.0± 7.1						
Same/ worse	32%	35.6±15.7	38.3±18.4	0%			0%								
DIP joint	7	29.1±22.1	5.3±11.3	4	60.0±24.8	0± 0	1	10.0± 0	0± 0						
Outcome															
Perfect	72%	31.8±26.3	0± 0	100%	60.0±24.8	0± 0	100%	10.0	0± 0						
Improved	14%	20.0± 0	10.0± 0												
Same/ worse	14%	25.0± 0	30 ± 0												

Profile f Finger operation: regional fasciectomy (531 patients and 588 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	86%	Male	87%	Right	94%	Right	20%	Manual	45%
Japanese	12%	Female	13%	Left	6%	Left	10%	Non-manual	55%
Southern European	2%					Both	70%		
		Other areas involved			27%			**Age at onset (years)**	
						Associated diseases		Male	47.6±12.8
		Family history			27%	Epilepsy	4%	Female	53.4±11.7
						Diabetes	7%		
		Previous operation			22%	Alcoholism	9%	**Age at operation (years)**	
						Trauma	15%	Male	57.1±11.0
								Female	60.9±9.6

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	1%	*Operation*					
No palm	7%	Local	3%	1%	4%	Local	3%
		Regional	70%	95%	89%	Regional	55%
One ray	34%	Extensive	27%	4%	7%	General	42%
Two rays	36%	Amputation					
Three or more rays	29%						
		Incision				**Procedure at**	
Thumb and thumb web	21%	Longitudinal	79%	94%	100%	**PIP joint**	12%
Index finger	13%	Transverse	21%	6%			
Middle finger	32%					**Complications**	15%
Ring finger	68%	*Closure*					
Little finger	72%	Suture	81%	93%	89%	**Therapy**	85%
		Open	11%	2%			
		Graft	8%	5%	11%	**Splinting**	36%

Profile f contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb		
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	90	47.6±25.0	3.2±13.8	80	43.7±22.3	4.2±10.6	24	32.1±18.9	2.6± 5.6	1	60.0	20.0	3	13.3±2.9	0±0
Outcome															
Perfect	84%	46.4±23.5	0± 0	74%	42.3±21.6	0± 0	79%	30.0±16.9	0± 0						
Improved	12%	60.6±27.9	9.5± 7.9	22%	52.8±22.2	14.0±13.2	21%	40.0±25.7	12.6± 4.9	100%	60.0	20.0	100%	13.3±2.9	0±0
Same/ worse	3%	38.3±45.4	61.7±49.1	4%	18.3±18.9	26.7±28.9									
PIP joint	94	54.8±28.3	25.0±25.7	64	46.2±27.4	14.3±21.7	18	37.8±19.8	17.4±20.5						
Outcome															
Perfect	23%	43.6±25.9	0± 0	50%	36.9±23.4	0± 0	45%	30.0±14.6	0± 0						
Improved	53%	66.5±23.4	28.2±20.7	34%	68.0±22.5	25.7±22.0	33%	52.5±16.7	29.2±16.9						
Same/ worse	24%	33.2±19.2	47.4±19.8	16%	31.0±20.2	35.2±25.1	22%	25.8±21.2	34.5±20.9						
DIP joint	16	26.3±15.5	8.6±13.3	11	22.9±25.4	6.6±13.9	4	22.5±18.9	12.5±25.0						
Outcome															
Perfect	56%	19.1±11.8	0± 0	73%	19.4±16.8	0± 0	75%	13.3± 5.8	0± 0						
Improved	31%	39.0±11.4	15.0±19.4	9%	90.0	45.0									
Same/ worse	13%	26.5±26.2	31.5±19.1	18%	10.0± 7.1	14.0± 1.4	25%								

Profile g Finger operation: extensive fasciotomy/fasciectomy (358 patients and 415 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	92%	Male	86%	Right	97%	Right	11%	Manual	58%
Japanese	6%	Female	14%	Left	3%	Left	11%	Non-manual	42%
Southern European	2%					Both	78%		
		Other areas involved			35%			**Age at onset (years)**	
						Associated diseases		Male	47.5±13.1
		Family history			35%	Epilepsy	3%	Female	57.4±11.1
						Diabetes	8%		
		Previous operation			22%	Alcoholism	16%	**Age at operation (years)**	
						Trauma	8%	Male	57.9±11.9
								Female	63.3±10.1

Operation profile

Hand profile			**Palm**	**Little finger**	**Thumb**	**Anaesthesia**	
Palm only	1%	*Operation*					
No palm	4%	Local	2%		2%	Local	2%
		Regional	60%	2%	71%	Regional	49%
One ray	28%	Extensive	38%	98%	27%	General	49%
Two rays	30%	Amputation					
Three or more rays	41%						
		Incision				**Procedure at**	
Thumb and thumb web	34%	Longitudinal	73%	97%	100%	**PIP joint**	14%
Index finger	13%	Transverse	27%	3%			
Middle finger	36%					**Complications**	20%
Ring finger	69%	*Closure*					
Little finger	77%	Suture	69%	92%	92%	**Therapy**	72%
		Open	23%	2%	5%		
		Graft	8%	6%	3%	**Splinting**	59%

Profile g contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	100%	43.5±23.0	1.4± 4.5	64	40.2±18.7	1.8± 6.9	19	39.7±18.7	0	2	30.0±14.1	12.5±17.7			
Outcome															
Perfect	89%	43.2±22.7	0	90%	39.1±18.4	0	100%	39.7±18.7	0	50%	40.0	0			
Improved	10%	48.8±26.2	12.2± 6.1	8%	57.6±12.6	17.6±15.9	0%			0%					
Same/ worse	1%	5.0	20.0	2%	15.0	25.0	0%			50%	20.0	25.0			
PIP joint	134	51.4±23.2	30.0±20.8	58	49.6±25.4	22.4±19.9	17	40.1±24.1	22.1±19.3	6	39.2±15.6	13.3±11.7			
Outcome															
Perfect	13%	43.1±19.5	0	31%	41.1±22.5		29%	28.0±15.2		34%	50.0	0			
Improved	60%	61.6±19.7	29.0±14.6	55%	60.5±22.4	31.2±14.0	48%	53.4±26.1	25.0±12.2	33%	47.5±3.5	17.5±3.5			
Same/ worse	27%	33.2±19.2	47.4±19.8	14%	24.7±19.9	37.4±21.0	23%	28.8±17.5	43.8±13.8	33%	20.0± 7.1	22.0±10.6			
DIP joint	25	27.9±16.8	9.1±10.7	7	34.1±26.7	2.9± 7.6	1	10.0	5.0	1	35.0	0			
Outcome															
Perfect	52%	20.4±10.9	0	86%	25.8± 7.1	0				100%	35.0	0			
Improved	36%	41.3±18.2	15.8± 4.9	14%	84.0	20.0	100%	10.0	5.0						
Same/ worse	12%	20.0±10.0	28.3± 2.9												

Profile h Finger operation: dermofasciectomy (77 patients and 81 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	98%	Male	93%	Right	96%	Right	16%	Manual	42%
Southern European	2%	Female	7%	Left	4%	Left	6%	Non-manual	58%
						Both	78%		
		Other areas involved			33%			**Age at onset** (years)	
						Associated diseases		Male	41.7±9.9
		Family history			23%	Epilepsy	4%	Female	44.0±6.3
						Diabetes	6%		
		Previous operation			41%	Alcoholism	10%	**Age at operation** (years)	
						Trauma	11%	Male	53.6±8.9
								Female	55.0±5.1

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only		*Operation*					
No palm	9%	Local	1%	3%		Local	15%
		Regional	21%	13%	40%	Regional	30%
One ray	43%	Extensive	78%	84%	60%	General	56%
Two rays	26%	Amputation					
Three or more rays	31%						
		Incision				**Procedure at**	
Thumb and thumb web	27%	Longitudinal	53%	91%	100%	**PIP joint**	16%
Index finger	15%	Transverse	47%	9%			
Middle finger	23%					**Complications**	37%
Ring finger	47%	*Closure*					
Little finger	91%	Suture	29%		60%	**Therapy**	83%
		Open	5%		40%		
		Graft	66%	100%		**Splinting**	59%

Profile h contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	1	50.0	0							11	23.5±10.6	0			
Outcome															
Perfect	100%	50.0±	0							100%	23.5±10.6	0			
Improved	0%									0%					
Same/ worse	0%									0%					
PIP joint	2	55.0±28.3	35.0±7.1												
Outcome															
Perfect	0%														
Improved	100%	55.0±28.3	35.0±7.1												
Same/ worse	0%														
DIP joint															
Outcome															
Perfect															
Improved															
Same/ worse															

Profile i Palm closure: suture (794 patients and 896 hands)

Family origin		Sex		Hand dominance		Hand involved		Occupation	
Northern European	87%	Male	85%	Right	95%	Right	18%	Manual	51%
Japan	10%	Female	15%	Left	5%	Left	12%	Non-manual	49%
Southern European	3%					Both	70%		
		Other areas involved			29%			Age at onset (years)	
						Associated diseases		Male	47.5±12.7
		Family history			32%	Epilepsy	3%	Female	55.2±11.4
						Diabetes	7%		
		Previous operation			20%	Alcoholism	10%	Age at operation (years)	
						Trauma	14%	Male	55.2±11.4
								Female	62.3±10.6

Operation profile

Hand profile			Palm	Little finger	Thumb	Anaesthesia	
Palm only	6%	*Operation*					
No palm	3%	Local	6%	6%	7%	Local	5%
		Regional	68%	59%	83%	Regional	54%
One ray	35%	Extensive	26%	34%	10%	General	41%
Two rays	33%	Amputation		1%			
Three or more rays	26%						
		Incision				Procedure at	
Thumb and thumb web	21%	Longitudinal	89%	97%	100%	PIP joint	10%
Index finger	11%	Transverse	11%	3%			
Middle finger	31%					Complications	15%
Ring finger	63%	*Closure*					
Little finger	65%	Suture	100%	94%	96%	Therapy	78%
		Open		1%			
		Graft		5%	4%	Splinting	37%

Profile i contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	156	45.6±26.0	3.5±11.5	157	34.8±19.3	2.1± 7.5	67	23.8±12.9	1.9± 5.9	14	14.3± 9.2	3.6±7.4	7	12.4±4.8	9.3±22.4
Outcome															
Perfect	81%	43.8±24.9	0± 0	86%	32.8±18.4	0± 0	87%	23.8±12.0	0± 0	79%	14.1±10.2	0±0	71%	14.0±4.2	0± 0
Improved	16%	55.5±27.1	13.5±12.1	12%	51.3±19.9	13.3±11.5	10%	27.2±19.4	10.8± 2.0	7%	15.0	10.0			
Same/ worse	3%	37.0±36.7	43.0±35.6	2%	18.3±18.9	26.7±28.9	4%	20.0±17.3	20.0±17.3	14%	15.0± 7.1	20.0±0	29%	8.5±4.9	32.5±38.9
PIP joint	146	54.9±26.3	25.2±23.2	75	45.1±26.4	15.5±20.6	25	38.9±23.1	18.2±18.6						
Outcome															
Perfect	20%	47.7±26.5	0± 0	45%	36.4±20.2	0± 0	40%	27.0±15.5	0± 0						
Improved	58%	63.2±22.4	27.3±18.0	39%	65.1±22.5	28.1±20.1	44%	54.7±20.6	30.0±12.4						
Same/ worse	22%	35.6±24.1	43.1±26.3	16%	22.1±16.4	29.1±21.4	16%	20.0±17.8	31.3±20.2						
DIP joint	26	25.5±13.6	9.6±12.6	10	37.3±30.9	6.0±14.5	3	26.7±20.8	16.7±28.9						
Outcome															
Perfect	50%	15.4± 7.5	0± 0	80%	36.9±28.0	0± 0	67%	15.0±7.1	0± 0						
Improved	38%	35.4±12.4	14.5± 7.2	10%	90.0	40.0									
Same/ worse	12%	33.3±10.4	35.0±8.7	10%	15.0	15.0	33%	50.0	50.0						

Profile j Palm closure: open (128 patients and 174 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	90%	Male	90%	Right	95%	Right	16%	Manual	62%
Japan	9%	Female	10%	Left	5%	Left	7%	Non-manual	38%
Southern European	1%					Both	77%		
		Other areas involved			35%			**Age at onset (years)**	
						Associated disease		Male	49.0±12.2
		Family history			33%	Epilepsy	4%	Female	51.3±15.1
						Diabetes	10%		
		Previous operation			15%	Alcoholism	20%	**Age at operation (years)**	
						Trauma	12%	Male	57.6±10.5
								Female	62.0±10.2

		Operation profile					
Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	2%	*Operation*					
No palm	1%	Local	8%	8%	13%	Local	2%
		Regional	60%	36%	65%	Regional	47%
One ray	18%	Extensive	32%	56%	23%	General	51%
Two rays	28%	Amputation					
Three or more rays	52%						
		Incision				**Procedure at**	
Thumb and thumb web	34%	Longitudinal	24%	86%	100%	**PIP joint**	11%
Index finger	15%	Transverse	76%	14%			
Middle finger	43%					**Complications**	17%
Ring finger	78%	*Closure*					
Little finger	88%	Suture		84%	81%	**Therapy**	77%
		Open	100%	11%	19%		
		Graft		5%		**Splinting**	62%

Profile j contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	55	40.1±20.9	1.9± 6.5	57	39.8±20.5	2.6±10.2	38	31.6±14.9	2.8± 8.7	12	34.0±14.8	4.2±10.0	2	13.3±6.1	20.0±17.3
Outcome															
Perfect	91%	38.5±21.0	0± 0	89%	38.1±19.8	0± 0	92%	30.7±13.7	0± 0	83%	28.8± 9.3	0± 0	50%	20.0	0± 0
Improved	9%	56.0± 8.2	21.0± 8.2	11%	57.5±20.2	24.5±22.9	5%	42.5±38.9	14.0± 8.5	17%	60.0± 0.0	25.0± 7.1			
Same/ worse	0%	0	0	0%			3%	40.0	50.0				50%	20.0	30.0
PIP joint	49	46.5±25.9	34.8±20.5	29	48.0±26.6	17.9±18.9	6	26.3± 9.1	26.3±19.6						
Outcome															
Perfect	8%	46.3±25.0	0± 0	41%	36.9±26.6	0± 0	17%	25.0	0± 0						
Improved	49%	62.2±21.7	32.9±16.2	48%	59.6±23.3	26.5±12.1	33%	25.0± 7.1	15.0± 7.1						
Same/ worse	43%	28.6±18.4	43.7±19.3	10%	38.3±25.7	49.0±11.5	50%	27.7±13.3	42.7± 7.5						
DIP joint	9	24.8±23.6	10.3±12.7	3	13.3± 7.6	4.3± 7.5	0								
Outcome															
Perfect	56%	21.0±14.3	0± 0	67%	17.0± 3.5	0± 0									
Improved	11%	80.0	20.0± 0	0%											
Same/ worse	33%	12.7± 6.4	24.3± 6.0	33%	5.0	13.0									

Profile k Palm closure: graft (128 patients and 139 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	84%	Male	86%	Right	93%	Right	24%	Manual	43%
Japan	12%	Female	14%	Left	7%	Left	6%	Non-manual	57%
Southern European	4%					Both	71%		
		Other areas involved			27%			**Age at onset (years)**	
						Associated diseases		Male	44.3±13.0
		Family history			17%	Epilepsy	5%	Female	48.0±13.3
						Diabetes	4%		
		Previous operation			37%	Alcoholism	10%	**Age at operation (years)**	
						Trauma	8%	Male	55.3±11.4
								Female	58.4±12.8

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	8%	*Operation*					
No palm		Local	28%	17%	10%	Local	13%
		Regional	19%	27%	53%	**Regional**	22%
One ray	29%	Extensive	53%	55%	37%	**General**	64%
Two rays	24%	Amputation		1%			
Three or more rays	39%						
		Incision				**Procedure at**	
Thumb and thumb web	29%	Longitudinal	40%	79%	100%	**PIP joint**	19%
Index finger	20%	Transverse	60%	21%			
Middle finger	37%					**Complications**	34%
Ring finger	58%	*Closure*					
Little finger	79%	Suture		49%	58%	**Therapy**	68%
		Open		1%			
		Graft	100%	50%	42%	**Splinting**	49%

Profile k contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb		
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	30%	47.7±23.3	4.2±16.9	30	39.8±21.1	2.5± 5.8	18	34.8±22.0	4.7±10.2	0			5	25.5±12.5	3.0±6.7
Outcome															
Perfect	90%	47.3±21.4	0± 0	80%	37.8±19.7	0± 0	78%	35.8±23.4	0± 0				80%	30.0±14.1	0
Improved	7%	45.0±42.4	17.5±10.6	20%	51.3±25.2	12.5± 6.7	22%	31.3±18.4	21.3±11.1				20%	5.0	15.0
Same/ worse	3%	20.0± 0	90.0												
PIP joint	35	54.3±19.6	23.5±23.3	20	58.3±24.3	12.3±18.6	6	55.0±16.7	27.5±36.6						
Outcome															
Perfect	34%	48.2±21.0	0± 0	60%	53.2±22.9	0± 0	50%	43.3± 5.8	0± 0						
Improved	52%	58.1±15.7	29.3±16.0	35%	72.7±18.5	32.1±17.9	16%	60.0	20.0						
Same/ worse	14%	48.0±23.1	59.0±11.4	5%	18.0± 0	20.0	34%	70.0±21.2	72.5±17.7						
DIP joint	9	35.2±17.9	5.8± 8.9	6	35.7±31.9	3.3± 8.2	0								
Outcome															
Perfect	67%	34.0±21.8	0± 0	83%	26.0±23.8	0± 0									
Improved	33%	37.7±9.3	17.3±4.0	17%	84.0	20.0									
Same/ worse															

Profile 1 Finger closure: suture (881 patients and 1017 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	89%	Male	86%	Right	95%	Right	18%	Manual	50%
Japan	9%	Female	14%	Left	5%	Left	10%	Non-manual	50%
Southern European	2%					Both	72%		
		Other areas involved			32%			**Age at onset** (years)	
						Associated diseases		Male	47.3±12.9
		Family history			31%	Epilepsy	4%	Female	54.9±11.4
						Diabetes	7%		
		Previous operation			23%	Alcoholism	12%	**Age at operation** (years)	
						Trauma	12%	Male	57.1±11.1
								Female	62.8±9.7

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	2%	*Operation*					
No palm	6%	Local	5%	6%	6%	Local	4%
		Regional	65%	54%	80%	Regional	53%
One ray	32%	Extensive	30%	39%	14%	General	44%
Two rays	34%	Amputation		1%			
Three or more rays	32%						
		Incision				**Procedure at**	
Thumb and thumb web	26%	Longitudinal	78%	96%	100%	**PIP joint**	12%
Index finger	13%	Transverse	22%	4%			
Middle finger	34%					**Complications**	17%
Ring finger	67%	*Closure*					
Little finger	73%	Suture	79%	96%	96%	**Therapy**	79%
		Open	14%				
		Graft	7%	3%	4%	**Splinting**	44%

Profile 1 contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb		
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	170	46.2±24.7	2.6±11.3	136	41.6±20.7	3.9± 9.4	42	36.5±18.4	1.5± 4.5	4	35.0±19.1	11.3±13.1	5	11 ±4.2	1.0±2.2
Outcome															
Perfect	86%	44.8±23.4	0± 0	81%	40.2±19.9	0± 0	80%	35.9±17.7	0± 0	50%	30.0±14.1	0± 0	80%	12.5±2.9	0±0
Improved	12%	60.8±26.7	12.7±13.1	16%	55.5±19.4	15.4±13.6	12%	41.0±24.6	13.0± 4.5	25%	60.0	20.0			
Same/ worse	2%	32.5±38.9	51.3±45.2	3%	17.5±15.5	26.3±23.6	0%			25%	20.0	25.0	20%	5.0	5.0
PIP joint	203	52.6±25.1	28.6±22.8	115	47.1±26.6	16.9±20.1	34	37.7±19.0	20.0±20.0						
Outcome															
Perfect	17%	46.9±25.3	0± 0	42%	37.5±20.9	0± 0	35%	29.6±13.4	0± 0						
Improved	55%	62.9±21.5	29.2±17.3	45%	64.2±23.0	28.6±18.2	44%	48.7±17.1	27.3±14.0						
Same/ worse	28%	35.4±21.9	45.2±22.4	13%	22.2±15.5	30.6±20.3	21%	25.0±18.3	38.6±18.4						
DIP joint	39	26.4±16.4	10.2±12.8	15	34.9±30.3	5.3±12.6	6	18.3±16.0	9.2±20.1						
Outcome															
Perfect	51%	16.6± 9.4	0± 0	81%	30.0±25.2	0± 0	66%	12.5± 5.0	0± 0						
Improved	36%	39.4±16.9	16.9± 8.5	13%	87.0± 4.2	32.5±17.7	17%	20.0	10.0						
Same/ worse	13%	26.0±12.9	32.0± 7.6	6%	5.0	15.0	17%	40.0	45.0						

Profile m Finger closure: open (29 patients and 29 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	79%	Male	90%	Right	88%	Right	24%	Manual	62%
Japan	21%	Female	10%	Left	12%	Left	14%	Non-manual	38%
						Both	62%		
		Other areas involved			28%			**Age at onset (years)**	
						Associated diseases		Male	51.9±10.4
		Family history			25%	Epilepsy	7%	Female	59.0±12.7
						Diabetes	10%		
		Previous operation			14%	Alcoholism	17%	**Age at operation (years)**	
						Trauma	21%	Male	58.2±2.5
								Female	70.0±6.9

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only		*Operation*					
No palm		Local	24%	33%	50%	Local	10%
		Regional	36%	32%		Regional	72%
One ray	34%	Extensive	40%	33%	50%	General	18%
Two rays	17%	Amputation		2%			
Three or more rays	48%						
		Incision				**Procedure at**	
Thumb and thumb web	24%	Longitudinal	36%	49%	100%	**PIP joint**	10%
Index finger	14%	Transverse	64%	51%			
Middle finger	41%					**Complications**	0%
Ring finger	66%	*Closure*					
Little finger	86%	Suture	22%	18%		**Therapy**	72%
		Open	70%	80%	86%		
		Graft	8%	2%	14%	**Splinting**	52%

Profile m contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	6	49.5±31.2	2.5± 6.1	4	32.5±18.9	0.5± 1.0	4	21.3±11.1	2.0± 4.0	0			0		
Outcome															
Perfect	83%	47.4±34.4	0+0	75%	36.7±20.8	0± 0	75%	23.3±12.6	0± 0						
Improved	17%	60.0± 0.0	15.0	25%	20.0	2.0	25%	15.0	8.0						
Same/ worse	0%			0%			0%								
PIP joint	7	49.6±35.8	25.3±16.9	4	60.5±35.9	15.5±31.0	2	31.5±16.3	26.5±23.3						
Outcome															
Perfect	0%			75%	60.7±44.1	0± 0									
Improved	57%	71.8±29.8	23.8± 9.5	0%			50%	20.0	10.0						
Same/ worse	43%	20.0±15.0	27.3±26.8	25%	60.0	62.0	50%	43.0	43.0						
DIP joint	1	8.0	18.0	2	10.0±7.1	6.5±9.2	0								
Outcome															
Perfect	0%			50%	15.0	0± 0									
Improved	0%			0%											
Same/ worse	100%	8.0	18.0	50%	5.0	13.0									

Profile n Finger closure: graft (149 patients and 160 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	91%	Male	90%	Right	97%	Right	19%	Manual	45%
Japan	5%	Female	10%	Left	3%	Left	5%	Non-manual	55%
Southern European	4%					Both	76%		
		Other areas involved			33%			**Age at onset** (years)	
						Associated diseases		Male	42.1±13.0
		Family history			26%	Epilepsy	3%	Female	45.9±12.8
						Diabetes	4%		
		Previous operation			48%	Alcoholism	11%	**Age at operation** (years)	
						Trauma	9%	Male	53.6±11.5
								Female	56.1±10.8

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only		*Operation*					
No palm	9%	Local	15%	20%	6%	Local	14%
		Regional	31%	20%	53%	Regional	35%
One ray	39%	Extensive	54%	57%	41%	General	51%
Two rays	27%	Amputation		3%			
Three or more rays	34%						
		Incision				**Procedure at**	
Thumb and thumb web	27%	Longitudinal	56%	80%	100%	**PIP joint**	22%
Index finger	18%	Transverse	44%	20%			
Middle finger	32%					**Complications**	29%
Ring finger	53%	*Closure*					
Little finger	84%	Suture	36%	18%	67%	**Therapy**	76%
		Open	7%				
		Graft	57%	82%	33%	**Splinting**	51%

Profile n contd.

	Little finger			Ring finger			Middle finger			Index finger			Thumb	
	n	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post	*n*	Pre	Post
MP joint	31	43.3±26.7	1.8± 5.4	16	40.4±18.6	2.5±10.0	5	35.2±30.5	1.0± 2.2	0			4	31.5±13.0	0±0
Outcome															
Perfect	87%	42.2±25.9	0± 0	94%	40.5±19.2	0± 0	80%	41.5±31.3	0± 0				100%	31.5±13.0	0
Improved	13%	50.0±38.1	13.8± 8.5	6%	20.0	2.0	20%	10.0	5.0						
Same/ worse	0%			0%			0%								
PIP joint	47	56.2±23.3	23.8±24.5	18	60.4±22.5	17.9±25.6	6	57.0±31.4	23.3±33.1						
Outcome															
Perfect	30%	43.5±17.8	0± 0	56%	58.3±25.7	0± 0	50%	33.3±20.8	0± 0						
Improved	60%	63.8±20.3	29.4±19.0	33%	65.0±22.2	32.2±20.2	33%	78.5±26.2	27.5± 3.5						
Same/ worse	20%	43.0±34.0	59.4±26.1	11%	57.5± 3.5	65.0±14.1	17%	85.0	85.0						
DIP joint	10	36.9±14.8	4.5± 7.2	5	35.0±24.7	0± 0	0								
Outcome															
Perfect	70%	37.7±17.8	0± 0	100%	35.0±24.7	0± 0									
Improved	30%	35.0± 5.0	15.0± 0	0%											
Same/ worse	0%			0%											

Profile o No recurrence or extension (180 patients and 229 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	82%	Male	88%	Right	95%	Right	23%	Manual	58%
Japan	17%	Female	12%	Left	5%	Left	12%	Non-manual	42%
Southern European	1%					Both	65%		
		Other areas involved			21%			**Age at onset (years)**	
						Associated diseases		Male	51.1±10.8
		Family history			27%	Epilepsy	2%	Female	53.6±13.6
						Diabetes	7%		
		Previous operation			0%	Alcoholism	12%	**Age at operation (years)**	
						Trauma	16%	Male	58.4±10.5
								Female	59.1±12.4

Operation profile

Hand profile			**Palm**	**Little finger**	**Thumb**	**Anaesthesia**	
Palm only	8%	*Operation*					
No palm	4%	Local	7%	5%		Local	6%
		Regional	68%	50%	84%	Regional	50%
One ray	34%	Extensive	25%	45%	16%	General	44%
Two rays	31%	Amputation					
Three or more rays	27%						
		Incision				**Procedure at**	
Thumb and thumb web	21%	Longitudinal	76%	93%	100%	**PIP joint**	7%
Index finger	8%	Transverse	24%	7%			
Middle finger	28%					**Complications**	19%
Ring finger	66%	*Closure*					
Little finger	67%	Suture	80%	97%	95%	**Therapy**	79%
		Open	15%	2%			
		Graft	5%	1%	5%	**Splinting**	41%

Profile p Recurrence or extension (158 patients and 219 hands)

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	86%	Male	88%	Right	92%	Right	16%	Manual	48%
Japan	11%	Female	12%	Left	8%	Left	10%	Non-manual	52%
Southern European	3%					Both	74%		
		Other areas involved			36%			**Age at onset** (years)	
						Associated diseases		Male	47.2±12.3
		Family history			32%	Epilepsy	3%	Female	56.7±10.4
						Diabetes	9%		
		Previous operation			0%	Alcoholism	12%	**Age at operation** (years)	
						Trauma	15%	Male	55.6±10.9
								Female	61.1±10.3

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	5%	*Operation*					
No palm	4%	Local	4%	6%	15%	Local	3%
		Regional	65%	55%	85%	Regional	62%
One ray	31%	Extensive	31%	39%		General	35%
Two rays	32%	Amputation					
Three or more rays	33%						
		Incision				**Procedure at**	
Thumb and thumb web	21%	Longitudinal	78%	97%	100%	**PIP joint**	10%
Index finger	14%	Transverse	22%	3%			
Middle finger	37%					**Complications**	14%
Ring finger	63%	*Closure*					
Little finger	72%	Suture	83%	98%	100%	**Therapy**	73%
		Open	15%				
		Graft	2%	1%		**Splinting**	34%

Profile q Outcome at PIPJ V: perfect — 50 hands

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	85%	Male	88%	Right	94%	Right	32%	Manual	50%
Japanese	11%	Female	12%	Left	6%	Left	6%	Non-manual	50%
Southern European	4%					Both	62%		
		Other areas involved			32%			**Age at onset (years)**	
						Associated diseases		Male	45.7±15.7
		Family history			36%	Epilepsy	2%	Female	50.5±12.3
						Diabetes	8%		
		Previous operation			20%	Alcoholism	8%	**Age at operation (years)**	
						Trauma	18%	Male	56.2±11.9
								Female	61.2±13.0

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	4%	*Operation*					
No palm	0%	Local	14%	16%		Local	4%
		Regional	57%	46%		Regional	51%
One ray	36%	Extensive	29%	38%		General	36%
Two rays	36%	Amputation					
Three or more rays	24%						
		Incision				**Procedure at**	
Thumb and thumb web	28%	Longitudinal	100%	100%		**PIP joint**	18%
Index finger	10%	Transverse					
Middle finger	20%					**Complications**	8%
Ring finger	42%	*Closure*					
Little finger	96%	Suture	64%	71%		**Therapy**	64%
		Open	9%	0%			
		Graft	27%	29%		**Splinting**	40%

Profile 1 Outcome at PIPJ V: improved — 145 hands

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	88%	Male	78%	Right	97%	Right	17%	Manual	48%
Japanese	11%	Female	22%	Left	3%	Left	12%	Non-manual	52%
Southern European	1%					Both	71%		
		Other areas involved			31%			**Age at onset** (years)	
Associated diseases		Male				**Associated diseases**		Male	49.0±13.4
		Family history			27%	Epilepsy	5%	Female	51.4±12.7
						Diabetes	6%		
		Previous operation			26%	Diabetes	6%		
						Alcoholism	16%	**Age at operation** (years)	
						Trauma	12%	Male	58.2±10.4
								Female	61.1±11.1

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	1%	*Operation*					
No palm	6%	Local	5%	8%		Local	5%
		Regional	58%	35%		Regional	56%
One ray	40%	Extensive	36%	57%		General	39%
Two rays	29%	Amputation					
Three or more rays	30%						
		Incision				**Procedure at**	
Thumb and thumb web	26%	Longitudinal	100%	100%		**PIP joint**	21%
Index finger	10%	Transverse					
Middle finger	22%					**Complications**	18%
Ring finger	47%	*Closure*					
Little finger	99%	Suture	67%	78%		**Therapy**	85%
		Open	19%	3%			
		Graft	14%	19%		**Splinting**	57%

Profile 8 Outcome at PIPJ V: same/worse — 66 hands

Family origin		**Sex**		**Hand dominance**		**Hand involved**		**Occupation**	
Northern European	89%	Male	77%	Right	95%	Right	15%	Manual	48%
Japanese	5%	Female	23%	Left	5%	Left	12%	Non-manual	52%
Southern European	2%					Both	70%		
Black American	6%								
		Other areas involved			29%			**Age at onset** (years)	
						Associated diseases		Male	47.9±13.6
		Family history			27%	Epilepsy	3%	Female	49.7±16.1
						Diabetes	12%		
		Previous operation			30%	Alcoholism	23%	**Age at operation** (years)	
						Trauma	12%	Male	57.0±12.7
								Female	61.7±13.2

Operation profile

Hand profile			Palm	Little finger	Thumb	**Anaesthesia**	
Palm only	2%	*Operation*					
No palm	5%	Local	14%	14%		Local	9%
		Regional	67%	32%		Regional	46%
One ray	32%	Extensive	18%	54%		General	45%
Two rays	24%	Amputation					
Three or more rays	42%						
		Incision				**Procedure at**	
Thumb and thumb web	27%	Longitudinal	100%	100%		**PIP joint**	15%
Index finger	11%	Transverse					
Middle finger	38%					**Complications**	36%
Ring finger	36%	*Closure*					
Little finger	98%	Suture	55%	87%		**Therapy**	82%
		Open	36%	5%			
		Graft	9%	8%		**Splinting**	70%