

Appendix

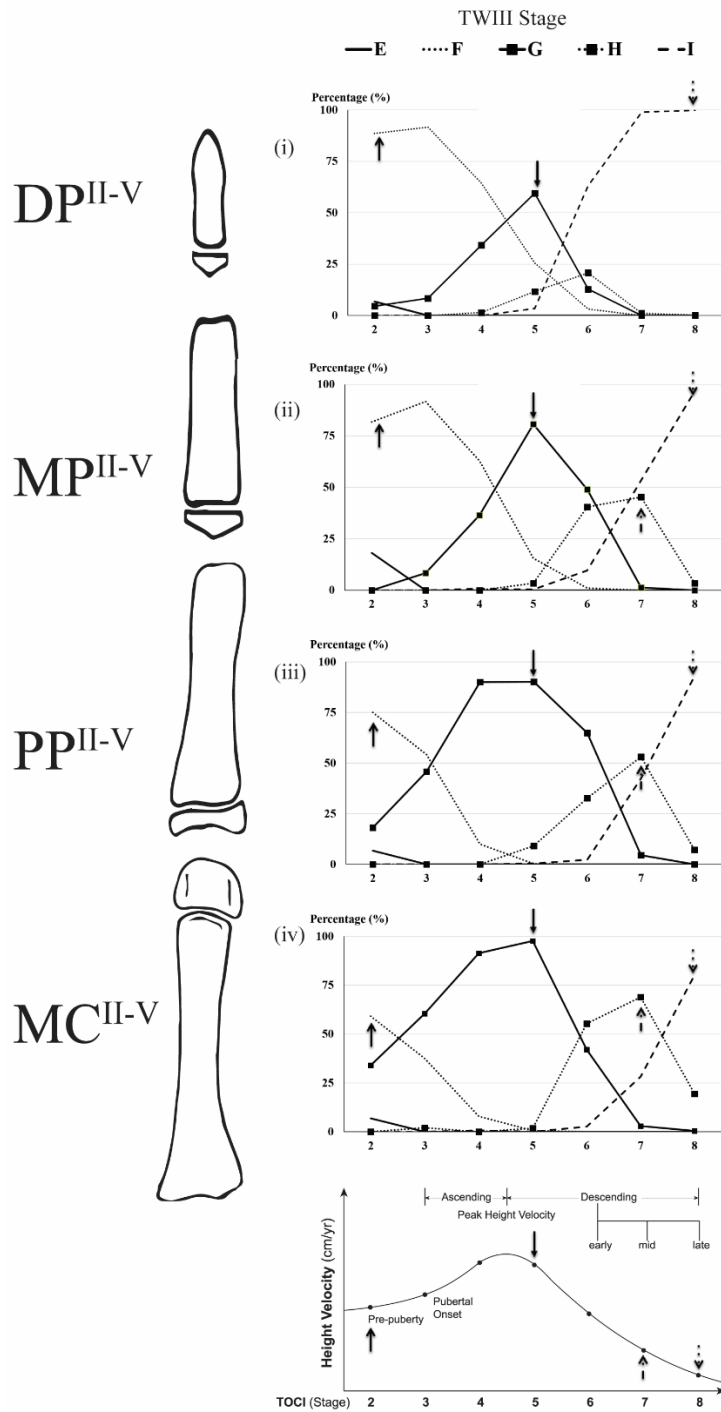


Fig. E-1
 TW3 stages of the ossification patterns of the distal, middle, and proximal phalangeal and metacarpal (DP, MP, PP, and MC) epiphyses of the ulnar 4 digits versus the corresponding TOCI stages for the thumb. The data (derived from Table E-1) showed the middle and

proximal phalangeal and metacarpal epiphyses to have similar ossification patterns with 4 sequential peaks at TW3 stages F, G, H, and I (marked with arrows in ii, iii, and iv) that correlated significantly with TOCI stages 2, 5, 7, and 8, respectively. Similarly, the distal phalangeal epiphysis had 3 peaks at TW3 stages F, G, and I (marked with arrows in i) that correlated with TOCI stages 2, 5, and 8, respectively. The integrated pubertal growth diagram (bottom of the figure) summarizes the relationship of the ossification patterns of all 4 digits that matched with the different growth phases. The solid upward arrow marks the peak in TW3 stage-F ratings in all phalanges and the metacarpal bone at TOCI stage 2, the solid downward arrow marks the peak in TW3 stage-G ratings in all phalanges and the metacarpal bone at TOCI stage 5, the broken upward arrow marks the peak in TW3 stage-H ratings in all phalanges and the metacarpal bone except the distal phalanx at TOCI stage 7, and the broken downward arrow marks the peak in TW3 stage-I ratings in all phalanges and the metacarpal bone at TOCI stage 8.

TABLE E-1 Percentages of Key TW3 Stages of Ulnar 4 Digits Versus TOCI Stages of Thumb

Epiphysis*	TOCI Stage	Percentages of TW3 Stages				
		E	F	G	H	I
DP	2	6.82	88.64	4.55	0.00	0.00
	3	0.00	91.67	8.33	0.00	0.00
	4	0.00	64.29	34.29	1.43	0.00
	5	0.00	25.56	59.44	11.67	3.33
	6	0.00	3.19	12.77	20.74	63.30
	7	0.00	0.00	0.00	1.05	98.95
	8	0.00	0.00	0.00	0.20	99.80
	MP	2	18.18	81.82	0.00	0.00
3		0.00	91.67	8.33	0.00	0.00
4		0.00	62.86	36.43	0.00	0.71
5		0.00	15.56	80.69	3.33	0.42
6		0.00	1.06	48.94	40.43	9.57
7		0.00	0.00	1.32	45.26	53.42
8		0.00	0.00	0.00	3.37	96.63
PP		2	6.82	75.00	18.18	0.00
	3	0.00	54.17	45.83	0.00	0.00
	4	0.00	10.00	90.00	0.00	0.00
	5	0.00	0.28	90.14	9.17	0.42
	6	0.00	0.00	64.89	32.80	2.30
	7	0.00	0.00	4.47	53.16	42.37
	8	0.00	0.00	0.00	7.14	92.86
	MC	2	6.82	59.09	34.09	0.00
3		0.00	37.50	60.42	2.08	0.00
4		0.00	7.86	91.43	0.00	0.71
5		0.00	0.56	97.64	1.81	0.00
6		0.00	0.00	42.02	55.32	2.66
7		0.00	0.00	2.89	68.95	28.16
8		0.00	0.00	0.40	19.44	80.16

*DP, MP, and PP = distal, middle, and proximal phalanges, and MC = metacarpal bone.