

II. Prediction of the growth spurt^{11,12}.

1. Body height

In female: starting to measure the body height every six months after age of 10:30. Once the body height increases 1 inch in 6 month period. Hand film has to be taken to help predicting the growth spurt. In male, starting to measure the body height every six months after age of 11:30. Once the body height increases 2 inches in 6 months period, hand film has to be taken to predict the growth spurt.

2. First Period- First menstruation in female or puberty hair growing in male.

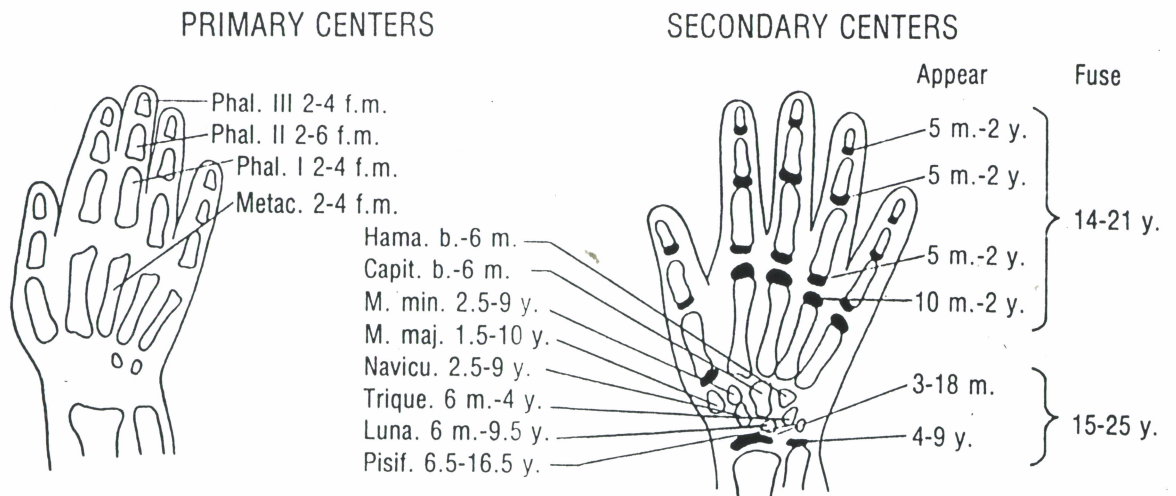
Once these signs showed, hand film has to be taken to help predicting the growth spurt.

3. Hand film to predict the skeletal age and predict the future body height.

Reference:

11) Marshall, D. : Radiographic Correlation of Hand, Wrist, and Tooth Development. Dental Radiography and Photograph 49: 51-74. 1976.
Eastman Kodak Company, Rochester, New York

12) Height-Prediction Table by using Hand film to predict the skeletal age and future body height. (Table attached at the appendix).



f.m. = fetal months; b. = birth; m. = postnatal months; y. = years

Figure 1—Development of the bones of the hand and wrist.

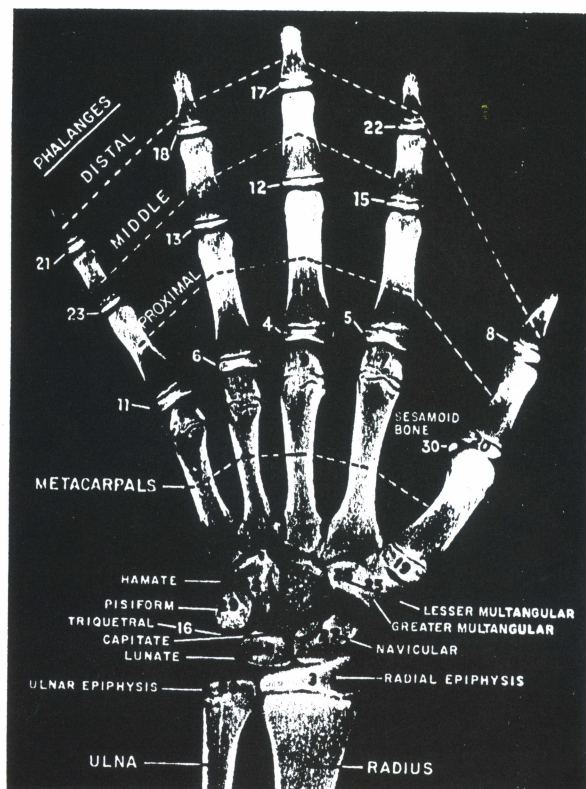


Figure 2—Bones of the hand and wrist.

Order of onset of ossification of bone growth centers

1. Capitate
2. Hamate
3. Distal epiphysis of the radius
4. Epiphysis of proximal phalange of third digit
5. Epiphysis of proximal phalange of second digit
- *6. Epiphysis of proximal phalange of fourth digit
7. Epiphysis of the second metacarpal
8. Epiphysis of distal phalange of the first digit
9. Epiphysis of the third metacarpal
10. Epiphysis of the fourth metacarpal
11. Epiphysis of proximal phalange of fifth digit
12. Epiphysis of middle phalange of the third digit
13. Epiphysis of middle phalange of the fourth digit
14. Epiphysis of the fifth metacarpal
15. Epiphysis of middle phalange of second digit
16. Triquetral
17. Epiphysis of distal phalange of the third digit
18. Epiphysis of distal phalange of the fourth digit
19. Epiphysis of the first metacarpal
20. Epiphysis of proximal phalange of the first digit
21. Epiphysis of distal phalange of the fifth digit
22. Epiphysis of distal phalange of the second digit
23. Epiphysis of middle phalange of the fifth digit
- *24. Lunate
- *25. Greater multangular (trapezium)
- *26. Lesser multangular (trapezoid)
- *27. Navicular (scaphoid)
28. Distal epiphysis of the ulna
29. Pisiform
30. Sesamoid of adductor pollicis

*Irregularities in the order of appearance are most apt to occur in these centers.

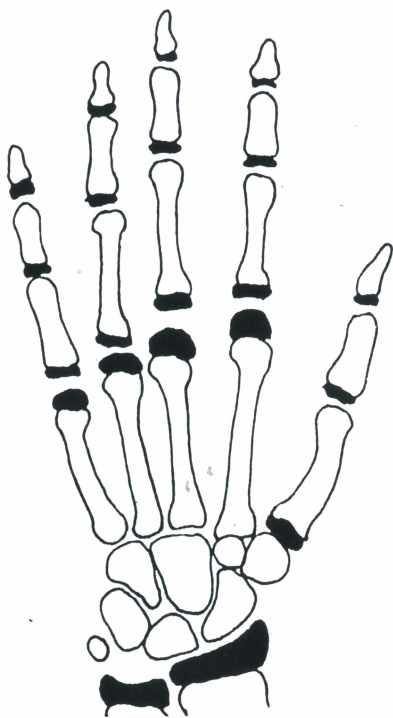
THIRTEEN YEARS

Dental Age

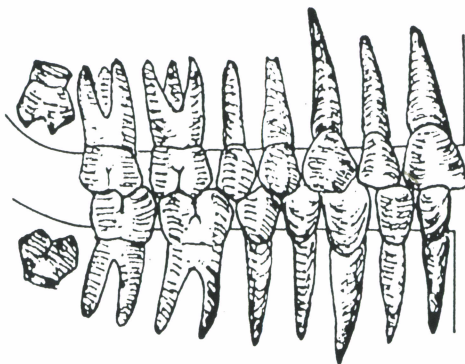
Eruption of all permanent teeth with the exception of the third molars.

Skeletal Age

The epiphyses of the middle phalanges are as wide as their shafts. The epiphyses of the proximal phalanges have increased in thickness.

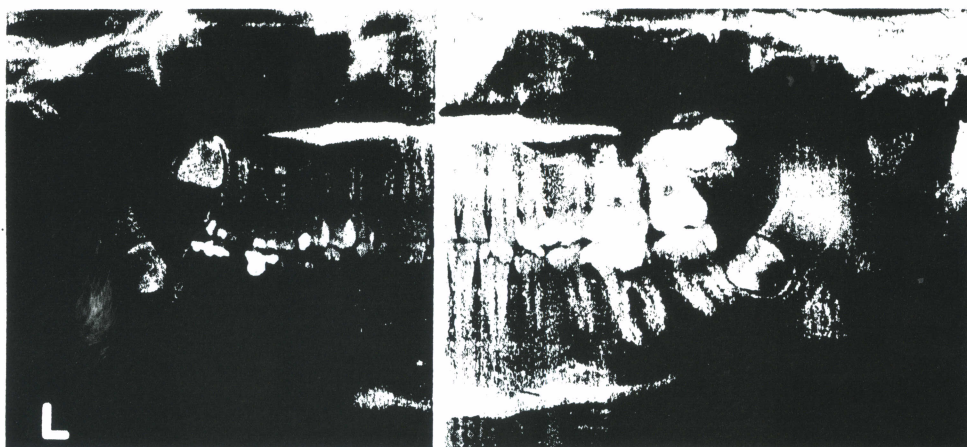


FOURTEEN YEARS



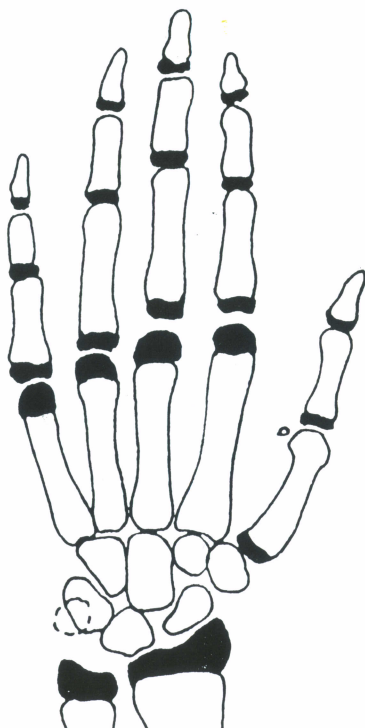
Dental Age

All permanent teeth have erupted and roots are fully formed, except third molar roots.



Skeletal Age

Beginning of fusion of the epiphyses to the metacarpals, phalanges, radius and ulna, which have begun to cap their shafts. Ossification center of the sesamoid in the tendon of the adductor pollicis is visible.

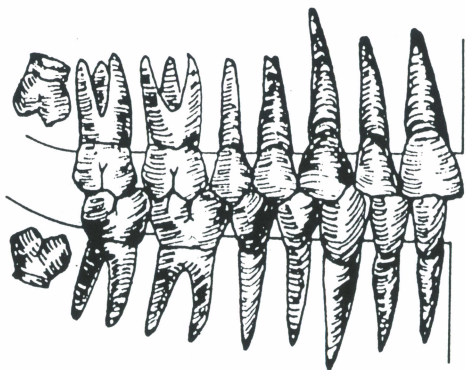


Dental Radiography and Photography

FIFTEEN YEARS

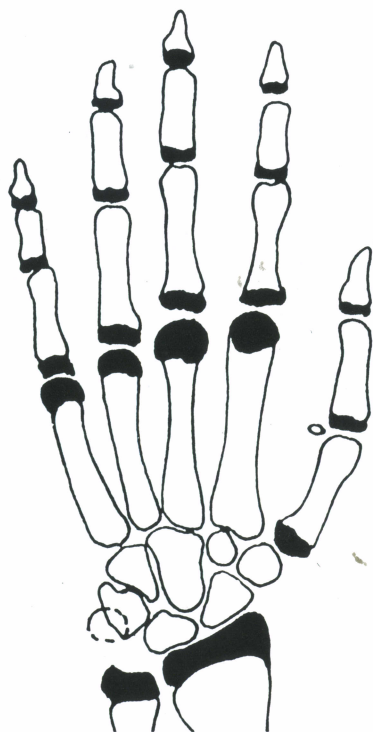
Dental Age

All permanent teeth have erupted except the third molars, which are still developing.



Skeletal Age

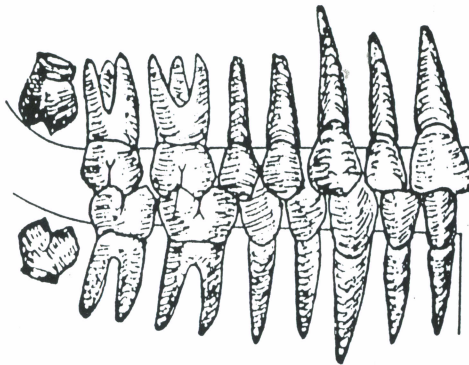
Epiphysis of the radius has capped its shaft. All carpal bones have attained adult shapes. This is the stage of skeletal development girls attain at menarche and boys at puberty.



SIXTEEN YEARS

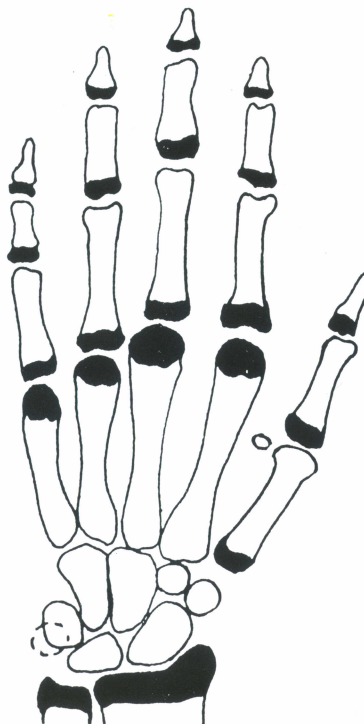
Dental Age

All permanent teeth have erupted except the third molars.



Skeletal Age

Fusion of epiphyses to their shafts at the proximal, middle, and distal phalanges, as well as the metacarpals and radial and ulnar bones.

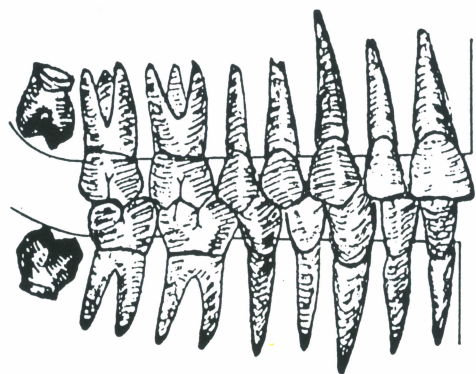


Dental Radiography and Photography

SEVENTEEN YEARS

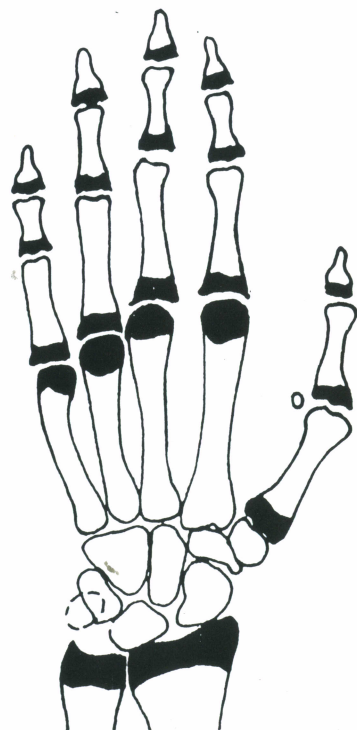
Dental Age

All permanent teeth have erupted except the third molars.

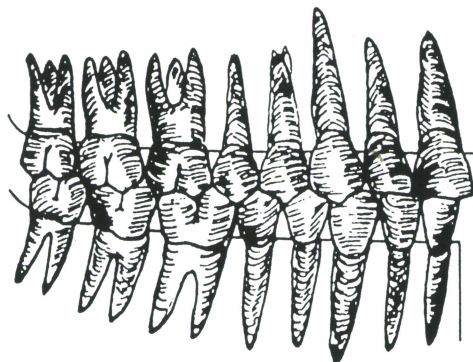


Skeletal Age

Fusion of the epiphysis has been completed in the ulna. With fusion of an epiphysis with its shaft, the epiphysial cartilage plate, which previously had separated them, is eliminated; the radiolucent line, which represents the cartilage plate, disappears.

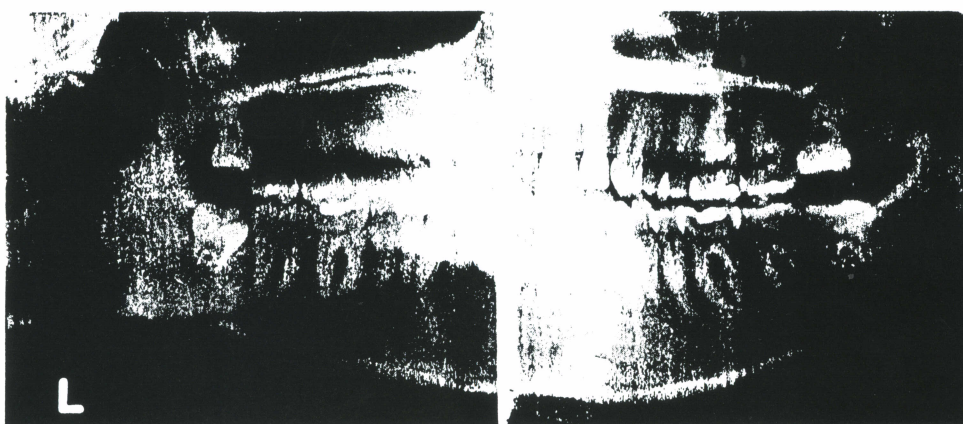


EIGHTEEN YEARS



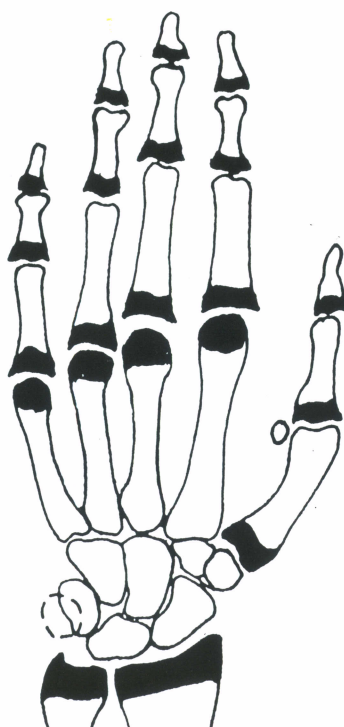
Dental Age

Complete eruption of all permanent teeth, including the third molars.



Skeletal Age

Complete fusion of all the epiphyses and calcification of the sesamoid bone of the adductor pollicis. All epiphyses, except those of the radius, have fused with their shafts.



Dental Radiography and Photography

Appendix II

Height-Prediction Tables

AVERAGE BOYS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR BOYS WITH SKELETAL AGES WITHIN ONE YEAR OF THEIR CHRONOLOGICAL AGES

Skeletal Ages 7 Through 12 Years

Skeletal Age	7-0	7-3	7-6	7-9	8-0	8-3	8-6	8-9	9-0	9-3	9-6	9-9	10-0	10-3	10-6	10-9	11-0	11-3	11-6	11-9	12-0	12-3	12-6	12-9
% of Mature Height	69.5	70.2	70.9	71.6	72.3	73.1	73.9	74.6	75.2	76.1	76.9	77.7	78.4	79.1	79.5	80.0	80.4	81.2	81.8	82.7	83.4	84.3	85.3	86.3
Ht. (inches)																								
42	60.4																							
43	61.9	61.3	60.6	60.1																				
44	63.3	62.7	62.1	61.5	60.9	60.2																		
45	64.7	64.1	63.5	62.8	62.2	61.6	60.9	60.3																
46	66.2	65.5	64.9	64.2	63.6	62.9	62.2	61.7	61.2	60.4														
47	67.6	67.0	66.3	65.6	65.0	64.3	63.6	63.0	62.5	61.8	61.1	60.5												
48	69.1	68.4	67.7	67.0	66.4	65.7	65.0	64.3	63.8	63.1	62.4	61.8	61.2	60.7	60.4	60.0								
49	70.5	69.8	69.1	68.4	67.8	67.0	66.3	65.7	65.2	64.4	63.7	63.1	62.5	61.9	61.6	61.3	60.9	60.3						
50	71.9	71.2	70.5	69.8	69.2	68.4	67.7	67.0	66.5	65.7	65.0	64.4	63.8	63.2	62.9	62.5	62.2	61.6	61.1	60.5				
51	73.4	72.6	71.9	71.2	70.5	69.8	69.0	68.4	67.8	67.0	66.3	65.6	65.1	64.5	64.2	63.8	63.4	62.8	62.3	61.7	61.1	60.5	59.8	
52	74.8	74.1	73.3	72.6	71.9	71.1	70.4	69.7	69.1	68.3	67.6	66.9	66.3	65.7	65.4	65.0	64.7	64.0	63.6	62.9	62.3	61.7	61.0	60.3
53	76.3	75.5	74.8	74.0	73.3	72.5	71.7	71.0	70.5	69.6	68.9	68.2	67.6	67.0	66.7	66.3	65.9	65.3	64.8	64.1	63.5	62.9	62.1	61.4
54	77.7	76.9	76.2	75.4	74.7	73.9	73.1	72.4	71.8	71.0	70.2	69.5	68.9	68.3	67.9	67.5	67.2	66.5	66.0	65.3	64.7	64.1	63.3	62.6
55	79.1	78.3	77.6	76.8	76.1	75.2	74.4	73.7	73.1	72.3	71.5	70.8	70.2	69.5	69.2	68.8	68.4	67.7	67.2	66.5	65.9	65.2	64.5	63.7
56	80.6	79.8	79.0	78.2	77.5	76.6	75.8	75.1	74.5	73.6	72.8	72.1	71.4	70.8	70.4	70.0	69.7	69.0	68.5	67.7	67.1	66.4	65.6	64.9
57			80.4	79.6	78.8	78.0	77.1	76.4	75.8	74.9	74.1	73.4	72.7	72.1	71.7	71.3	70.9	70.2	69.7	68.9	68.3	67.6	66.8	66.0
58					80.2	79.3	78.5	77.7	77.1	76.2	75.4	74.6	74.0	73.3	73.0	72.5	72.1	71.4	70.9	70.1	69.5	68.8	68.0	67.2
59						80.7	79.8	79.1	78.5	77.5	76.7	75.9	75.3	74.6	74.2	73.8	73.4	72.7	72.1	71.3	70.7	70.0	69.2	68.4
60								80.4	79.8	78.8	78.0	77.2	76.5	75.9	75.5	75.0	74.6	73.9	73.3	72.6	71.9	71.2	70.3	69.5
61										80.2	79.3	78.5	77.8	77.1	76.7	76.3	75.9	75.1	74.6	73.8	73.1	72.4	71.5	70.7
62											80.6	79.8	79.1	78.4	78.0	77.5	77.1	76.4	75.8	75.0	74.3	73.5	72.7	71.8
63													80.4	79.6	79.2	78.8	78.4	77.6	77.0	76.2	75.5	74.7	73.9	73.0
64														80.9	80.5	80.0			79.6	78.8	78.2	77.4	76.7	75.0
65																	80.8	80.0		79.5	78.6	77.9	77.1	76.2
66																			80.7	79.8		79.1	78.3	77.4
67																					80.3	79.5	78.5	77.6
68																							80.7	79.7
69																								80.9
																								80.0

AVERAGE BOYS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR BOYS WITH SKELETAL AGES WITHIN ONE YEAR OF THEIR CHRONOLOGICAL AGES

Skeletal Ages 13 Years to Maturity

Skeletal Age	13-0	13-3	13-6	13-9	14-0	14-3	14-6	14-9	15-0	15-3	15-6	15-9	16-0	16-3	16-6	16-9	17-0	17-3	17-6	17-9	18-0	18-3	18-6
% of Mature Height	87.6	89.0	90.2	91.4	92.7	93.8	94.8	95.8	96.8	97.3	97.6	98.0	98.2	98.5	98.7	98.9	99.1	99.3	99.4	99.5	99.6	99.8	100.0
Ht. (inches)																							
53	60.5																						
54	61.6	60.7																					
55	62.8	61.8	61.0	60.2																			
56	63.9	62.9	62.1	61.3	60.4																		
57	65.1	64.0	63.2	62.4	61.5	60.8	60.1																
58	66.2	65.2	64.3	63.5	62.6	61.8	61.2	60.5															
59	67.4	66.3	65.4	64.6	63.6	62.9	62.2	61.6	61.0	60.6	60.5	60.2	60.1										
60	68.5	67.4	66.5	65.6	64.7	64.0	63.3	62.6	62.0	61.7	61.5	61.2	61.1	60.9	60.8	60.7	60.5	60.4	60.4	60.3	60.2	60.1	60.0
61	69.6	68.5	67.6	66.7	65.8	65.0	64.3	63.7	63.0	62.7	62.5	62.2	62.1	61.9	61.8	61.7	61.6	61.4	61.4	61.3	61.2	61.1	61.0
62	70.8	69.7	68.7	67.8	66.9	66.1	65.4	64.7	64.1	63.7	63.5	63.3	63.1	62.9	62.8	62.7	62.6	62.4	62.4	62.3	62.2	62.1	62.0
63	71.9	70.8	69.8	68.9	68.0	67.2	66.5	65.8	65.1	64.7	64.5	64.3	64.2	64.0	63.8	63.7	63.6	63.4	63.4	63.3	63.3	63.1	63.0
64	73.1	71.9	71.0	70.0	69.0	68.2	67.5	66.8	66.1	65.8	65.6	65.3	65.2	65.0	64.8	64.7	64.6	64.4	64.4	64.3	64.3	64.1	64.0
65	74.2	73.0	72.1	71.1	70.1	69.3	68.6	67.8	67.2	66.8	66.6	66.3	66.2	66.0	65.9	65.7	65.6	65.5	65.4	65.3	65.3	65.1	65.0
66	75.3	74.2	73.2	72.2	71.2	70.4	69.6	68.9	68.2	67.8	67.6	67.3	67.2	67.0	66.9	66.7	66.6	66.5	66.4	66.3	66.3	66.1	66.0
67	76.5	75.3	74.3	73.3	72.3	71.4	70.7	69.9	69.2	68.9	68.6	68.4	68.2	68.0	67.9	67.7	67.6	67.5	67.4	67.3	67.3	67.1	67.0
68	77.6	76.4	75.4	74.4	73.4	72.5	71.7	71.0	70.3	69.9	69.7	69.4	69.2	69.0	68.9	68.8	68.6	68.5	68.4	68.3	68.3	68.1	68.0
69	78.8	77.5	76.5	75.5	74.4	73.6	72.8	72.0	71.3	70.9	70.7	70.4	70.3	70.0	69.9	69.8	69.6	69.5	69.4	69.3	69.3	69.1	69.0
70	79.9	78.7	77.6	76.6	75.5	74.6	73.8	73.1	72.3	71.9	71.7	71.4	71.3	71.1	70.9	70.8	70.6	70.5	70.4	70.4	70.3	70.1	70.0
71		79.8	78.7	77.7	76.6	75.7	74.9	74.1	73.4	73.0	72.7	72.4	72.3	72.1	71.9	71.8	71.6	71.5	71.4	71.4	71.3	71.1	71.0
72			80.9	79.8	78.8	77.7	76.8	75.9	75.2	74.4	74.0	73.8	73.5	73.1	73.0	72.8	72.7	72.5	72.4	72.4	72.3	72.1	72.0
73				80.9	79.9	78.7	77.8	77.0	76.2	75.4	75.0	74.8	74.5	74.1	74.0	73.8	73.7	73.5	73.4	73.4	73.3	73.1	73.0
74						79.8	78.9	78.1	77.2	76.4	76.0	75.8	75.5	75.4	75.1	75.0	74.8	74.7	74.5	74.4	74.4	74.3	74.1
75								79.1	78.3	77.5	77.1	76.8	76.5	76.4	76.1	76.0	75.8	75.7	75.5	75.5	75.4	75.3	75.2
76									80.2	79.3	78.5	78.1	77.9	77.6	77.4	77.2	77.0	76.8	76.7	76.5	76.5	76.4	76.2
77										80.4	79.5	79.1	78.9	78.6	78.4	78.2	78.0	77.9	77.7	77.5	77.4	77.3	77.2
78											80.6	80.2	79.9	79.6	79.4	79.2	79.0	78.9	78.7	78.5	78.4	78.3	78.2

Height-Prediction Tables

ACCELERATED BOYS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR BOYS WITH SKELETAL AGES ONE YEAR
OR MORE ADVANCED OVER THEIR CHRONOLOGICAL AGES

Skeletal Ages 7 Through 11 Years

Skeletal Age	7-0	7-3	7-6	7-9	8-0	8-3	8-6	8-9	9-0	9-3	9-6	9-9	10-0	10-3	10-6	10-9	11-0	11-3	11-6	11-9
% of Mature Height	67.0	67.6	68.3	68.9	69.6	70.3	70.9	71.5	72.0	72.8	73.4	74.1	74.7	75.3	75.8	76.3	76.7	77.6	78.6	80.0
Ht. (inches)																				
41	61.2	60.7	60.0																	
42	62.7	62.1	61.5	61.0	60.3															
43	64.2	63.6	63.0	62.4	61.8	61.2	60.6	60.1												
44	65.7	65.1	64.4	63.9	63.2	62.6	62.1	61.5	61.1	60.4										
45	67.2	66.6	65.9	65.3	64.7	64.0	63.5	62.9	62.5	61.8	61.3	60.7	60.2							
46	68.7	68.0	67.3	66.8	66.1	65.4	64.9	64.3	63.9	63.2	62.7	62.1	61.6	61.1	60.7	60.3	60.0			
47	70.1	69.5	68.8	68.2	67.5	66.9	66.3	65.7	65.3	64.6	64.0	63.4	62.9	62.4	62.0	61.6	61.3	60.6		
48	71.6	71.0	70.3	69.7	69.0	68.3	67.7	67.1	66.7	65.9	65.4	64.8	64.3	63.7	63.3	62.9	62.6	61.9	61.1	60.0
49	73.1	72.5	71.7	71.1	70.4	69.7	69.1	68.5	68.1	67.3	66.8	66.1	65.6	65.1	64.6	64.2	63.9	63.1	62.3	61.3
50	74.6	74.0	73.2	72.6	71.8	71.1	70.5	69.9	69.4	68.7	68.1	67.5	66.9	66.4	66.0	65.5	65.2	64.4	63.6	62.5
51	76.2	75.4	74.7	74.0	73.3	72.5	71.9	71.3	70.6	70.1	69.5	68.8	68.3	67.7	67.3	66.8	66.5	65.7	64.9	63.8
52	77.6	76.9	76.1	75.5	74.7	74.0	73.3	72.7	72.2	71.4	70.8	70.2	69.6	69.1	68.6	68.2	67.8	67.0	66.2	65.0
53	79.1	78.4	77.6	76.9	76.2	75.4	74.8	74.1	73.6	72.8	72.2	71.5	71.0	70.4	69.9	69.5	69.1	68.3	67.4	66.3
54	80.6	79.9	79.1	78.4	77.6	76.8	76.2	75.5	75.0	74.2	73.6	72.9	72.3	71.7	71.2	70.8	70.4	69.6	68.7	67.5
55			80.5	79.8	79.0	78.2	77.6	76.9	76.4	75.5	74.9	74.2	73.6	73.0	72.6	72.1	71.7	70.9	70.0	68.8
56					80.5	79.7	79.0	78.3	77.8	76.9	76.3	75.6	75.0	74.4	73.9	73.4	73.0	72.2	71.2	70.0
57						80.4	79.7	79.0	78.3	77.7	76.9	76.3	75.7	75.2	74.7	74.3	73.5	72.5	71.3	70.1
58								80.6	79.7	79.0	78.3	77.6	77.0	76.5	76.0	75.6	74.7	73.8	72.5	71.3
59										80.4	79.6	79.0	78.3	77.6	77.0	76.5	75.6	74.7	73.8	72.5
60												80.3	79.7	79.0	78.4	77.8	77.3	76.9	76.0	75.1
61														80.3	79.7	79.2	78.6	78.2	77.3	76.3
62																80.5	79.9	79.5	78.6	77.6
63																	81.3	80.8	79.9	78.9
64																				80.2

ACCELERATED BOYS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR BOYS WITH SKELETAL AGES ONE YEAR
OR MORE ADVANCED OVER THEIR CHRONOLOGICAL AGES

Skeletal Ages 12 Through 17 Years

Skeletal Age	12-0	12-3	12-6	12-9	13-0	13-3	13-6	13-9	14-0	14-3	14-6	14-9	15-0	15-3	15-6	15-9	16-0	16-3	16-6	16-9	17-0
% of Mature Height	80.9	81.8	82.8	83.9	85.0	86.3	87.5	89.0	90.5	91.8	93.0	94.3	95.8	96.7	97.1	97.6	98.0	98.3	98.5	98.8	99.0
Ht. (inches)																					
49	60.6																				
50	61.8	61.1	60.4																		
51	63.0	62.3	61.6	60.8	60.0																
52	64.3	63.6	62.8	62.0	61.2	60.3															
53	65.5	64.8	64.0	63.2	62.4	61.4	60.6														
54	66.7	66.0	65.2	64.4	63.5	62.6	61.7	60.7													
55	68.0	67.2	66.4	65.6	64.7	63.7	62.9	61.8	60.8												
56	69.2	68.5	67.6	66.7	65.9	64.9	64.0	62.9	61.9	61.0	60.2										
57	70.5	69.7	68.8	67.9	67.1	66.0	65.1	64.0	63.0	62.1	61.3	60.4									
58	71.7	70.9	70.0	69.1	68.2	67.2	66.3	65.2	64.1	63.2	62.4	61.5	60.5	60.0							
59	72.9	72.1	71.3	70.3	69.4	68.4	67.4	66.3	65.2	64.3	63.4	62.6	61.6	61.0	60.8	60.5	60.2	60.0			
60	74.2	73.4	72.5	71.5	70.6	69.5	68.6	67.4	66.3	65.4	64.5	63.6	62.6	62.0	61.8	61.5	61.2	61.0	60.9	60.7	60.6
61	75.4	74.6	73.7	72.7	71.8	70.7	69.7	68.5	67.4	66.4	65.6	64.7	63.7	63.1	62.8	62.5	62.2	62.1	61.9	61.7	61.6
62	76.6	75.8	74.9	73.9	72.9	71.8	70.9	69.7	68.5	67.5	66.7	65.7	64.7	64.1	63.9	63.5	63.3	63.1	62.9	62.8	62.6
63	77.9	77.0	76.1	75.1	74.1	73.0	72.0	70.8	69.6	68.6	67.7	66.8	65.8	65.1	64.9	64.5	64.3	64.1	64.0	63.8	63.6
64	79.1	78.2	77.3	76.3	75.3	74.2	73.1	71.9	70.7	69.7	68.8	67.9	66.8	66.2	65.9	65.6	65.3	65.1	65.0	64.8	64.6
65	80.3	79.5	78.5	77.5	76.5	75.3	74.3	73.0	71.8	70.8	69.9	68.9	67.8	67.2	66.9	66.6	66.3	66.1	66.0	65.8	65.7
66		80.7	79.7	78.7	77.6	76.5	75.4	74.2	72.9	71.9	71.0	70.0	68.9	68.3	68.0	67.6	67.3	67.1	67.0	66.8	66.7
67			80.9	79.9	78.8	77.6	76.6	75.3	74.0	73.0	72.0	71.1	69.9	69.3	69.0	68.6	68.4	68.2	68.0	67.8	67.7
68					80.0	78.8	77.7	76.4	75.1	74.1	73.1	72.1	71.0	70.3	70.0	69.7	69.4	69.2	69.0	68.8	68.7
69						80.0	78.9	77.5	76.2	75.2	74.2	73.2	72.0	71.4	71.1	70.7	70.4	70.2	70.0	69.8	69.7
70							80.0	78.7	77.3	76.3	75.3	74.2	73.1	72.4	72.1	71.7	71.4	71.2	71.1	70.8	70.7
71								80.9	79.6	78.4	77.4	76.4	75.2	74.5	74.2	73.8	73.5	73.1	72.9	72.7	72.7
72									80.7	79.5	78.5	77.4	76.2	75.5	75.2	74.8	74.5	74.3	74.1	73.9	73.7
73										80.6	79.6	78.5	77.2	76.5	76.2	75.8	75.5	75.3	75.1	74.9	74.7
74											80.6	79.5	78.3	77.6	77.2	76.8	76.5	76.3	76.1	75.9	75.8
75												80.6	79.3	78.6	78.3	77.9	77.6	77.3	77.2	76.9	76.8
76													80.4	79.6	79.3	78.9	78.6	78.3	78.2	77.9	77.8
77														80.7	80.3	79.9	79.6	79.3	79.2	78.9	78.8

Appendix II

Height-Prediction Tables

RETARDED BOYS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR BOYS WITH SKELETAL AGES ONE YEAR OR MORE RETARDED FOR THEIR CHRONOLOGICAL AGES

Skeletal Ages 6 Through 13 Years

Skeletal Age	6-0	6-3	6-6	6-9	7-0	7-3	7-6	7-9	8-0	8-3	8-6	8-9	9-0	9-3	9-6	9-9	10-0	10-3	10-6	10-9	11-0	11-3	11-6	11-9	12-0	12-3	12-6	12-9	13-0
% of Mature Height	68.0	69.0	70.0	70.9	71.8	72.8	73.8	74.7	75.6	76.5	77.3	77.9	78.6	79.4	80.0	80.7	81.2	81.6	81.9	82.1	82.3	82.7	83.2	83.9	84.5	85.2	86.0	86.9	88.0
Ht. (inches)																													
41	60.3																												
42	61.8	60.9	60.0																										
43	63.2	62.3	61.4	60.6																									
44	64.7	63.8	62.9	62.1	61.3	60.4																							
45	66.2	65.2	64.3	63.5	62.7	61.8	61.0	60.2																					
46	67.6	66.7	65.7	64.9	64.1	63.2	62.3	61.6	60.8	60.1																			
47	69.1	68.1	67.1	66.3	65.5	64.6	63.7	62.9	62.2	61.4	60.8	60.3																	
48	70.6	69.6	68.6	67.7	66.9	65.9	65.0	64.3	63.5	62.7	62.1	61.6	61.1	60.5	60.0														
49	72.1	71.0	70.0	69.1	68.3	67.3	66.4	65.6	64.8	64.1	63.4	62.9	62.3	61.7	61.3	60.7	60.3	60.0											
50	73.5	72.5	71.4	70.5	69.6	68.7	67.8	66.9	66.1	65.4	64.7	64.2	63.6	63.0	62.5	62.0	61.6	61.3	61.1	60.9	60.8	60.5	60.1						
51	75.0	73.9	72.9	71.9	71.0	70.1	69.1	68.3	67.5	66.7	66.0	65.5	64.9	64.2	63.8	63.2	62.8	62.5	62.3	62.1	62.0	61.7	61.3	60.8	60.4				
52	76.5	75.4	74.3	73.3	72.4	71.4	70.5	69.6	68.8	68.0	67.3	66.8	66.2	65.5	65.0	64.4	64.0	63.7	63.5	63.3	63.2	62.9	62.5	62.0	61.5	61.0	60.5		
53	77.9	76.8	75.7	74.8	73.8	72.8	71.8	71.0	70.1	69.3	68.6	68.0	67.4	66.8	66.3	65.7	65.3	65.0	64.7	64.6	64.4	64.1	63.7	63.2	62.7	62.2	61.6	61.0	60.2
54	79.4	78.3	77.1	76.2	75.2	74.2	73.2	72.3	71.4	70.6	69.9	69.3	68.7	68.0	67.5	66.9	66.5	66.2	65.9	65.8	65.6	65.3	64.9	64.4	63.9	63.4	62.8	62.1	61.4
55	80.9	79.7	78.6	77.6	76.6	75.5	74.5	73.6	72.8	71.9	71.2	70.6	70.0	69.3	68.8	68.2	67.7	67.4	67.2	67.0	66.8	66.5	66.1	65.6	65.1	64.6	64.0	63.3	62.5
56		80.0	79.0	78.0	76.9	75.9	75.0	74.1	73.2	72.4	71.9	71.2	70.5	70.0	69.4	69.0	68.6	68.4	68.2	68.0	67.7	67.3	66.7	66.3	65.7	65.1	64.4	63.6	
57			80.4	79.4	78.3	77.2	76.3	75.4	74.5	73.7	73.2	72.5	71.8	71.3	70.6	70.2	69.9	69.6	69.4	69.3	68.9	68.5	67.9	67.5	66.9	66.3	65.6	64.8	
58				80.8	79.7	78.6	77.6	76.7	75.8	75.0	74.5	73.8	73.0	72.5	71.9	71.4	71.1	70.8	70.6	70.5	70.1	69.7	69.1	68.6	68.1	67.4	66.7	65.9	
59					79.9	79.0	78.0	77.1	76.3	75.7	75.1	74.3	73.8	73.1	72.7	72.3	72.0	71.9	71.7	71.3	70.9	70.3	69.8	69.2	68.6	67.9	67.0		
60						80.3	79.4	78.4	77.6	77.0	76.3	75.6	75.0	74.4	73.9	73.5	73.3	73.1	72.9	72.6	72.1	71.5	71.0	70.4	69.8	69.0	68.2		
61							80.7	79.7	78.9	78.3	77.6	76.8	76.3	75.6	75.1	74.8	74.5	74.3	74.1	73.8	73.3	72.7	72.2	71.6	70.9	70.2	69.3		
62								80.2	79.6	78.9	78.1	77.5	76.8	76.4	76.0	75.7	75.5	75.3	75.0	74.5	73.9	73.4	72.8	72.1	71.3	70.5			
63									80.9	80.2	79.3	78.8	78.1	77.6	77.2	76.9	76.7	76.5	76.2	75.7	75.1	74.6	73.9	73.3	72.5	71.6			
64												80.6	80.0	79.3	78.8	78.4	78.1	78.0	77.8	77.4	76.9	76.3	75.7	75.1	74.4	73.6	72.7		
65															80.5	80.0	79.7	79.4	79.2	79.0	78.6	78.1	77.5	76.9	76.3	75.6	74.8	73.9	
66																	80.9	80.6	80.4	80.2	79.8	79.3	78.7	78.1	77.5	76.7	75.9	75.0	
67																						80.5	79.9	79.3	78.6	77.9	77.1	76.1	

* NOTE: For predicting mature height of retarded boys older than 13 years, the second table of this Appendix, for average boys with skeletal ages from 13 years to maturity, is adequate; the figures for retarded boys and for average boys are very similar for this age range. For discussion, see text, page 45.

Height-Prediction Tables

AVERAGE GIRLS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR GIRLS WITH SKELETAL AGES WITHIN
ONE YEAR OF THEIR CHRONOLOGICAL AGES

Skeletal Ages 6 Through 11 Years

Skeletal Age	6-0	6-3	6-6	6-10	7-0	7-3	7-6	7-10	8-0	8-3	8-6	8-10	9-0	9-3	9-6	9-9	10-0	10-3	10-6	10-9	11-0	11-3	11-6	11-9
% of Mature Height	72.0	72.9	73.8	75.1	75.7	76.5	77.2	78.2	79.0	80.1	81.0	82.1	82.7	83.6	84.4	85.3	86.2	87.4	88.4	89.6	90.6	91.0	91.4	91.8
Ht. (inches)																								
37	51.4																							
38	52.8	52.1	51.5																					
39	54.2	53.5	52.8	52.0	51.5	51.0																		
40	55.6	54.9	54.2	53.3	52.8	52.3	51.8	51.2																
41	56.9	56.2	55.6	54.6	54.2	53.6	53.1	52.4	51.9	51.2														
42	58.3	57.6	56.9	55.9	55.5	54.9	54.4	53.7	53.2	52.4	51.9	51.2												
43	59.7	59.0	58.3	57.3	56.8	56.2	55.7	55.0	54.4	53.7	53.1	52.4	52.0	51.4										
44	61.1	60.4	59.6	58.6	58.1	57.5	57.0	56.3	55.7	54.9	54.3	53.6	53.2	52.6	52.1	51.6	51.0							
45	62.5	61.7	61.0	59.9	59.4	58.8	58.3	57.5	57.0	56.2	55.6	54.8	54.4	53.8	53.3	52.8	52.2	51.5						
46	63.9	63.1	62.3	61.3	60.8	60.1	59.6	58.8	58.2	57.4	56.8	56.0	55.6	55.0	54.5	53.9	53.4	52.6	52.0	51.3				
47	65.3	64.5	63.7	62.6	62.1	61.4	60.9	60.1	59.5	58.7	58.0	57.2	56.8	56.2	55.7	55.1	54.5	53.8	53.2	52.5	51.9	51.6	51.4	51.2
48	66.7	65.8	65.0	63.9	63.4	62.7	62.2	61.4	60.8	59.9	59.3	58.5	58.0	57.4	56.9	56.3	55.7	54.9	54.3	53.6	53.0	52.7	52.5	52.3
49	68.1	67.2	66.4	65.2	64.7	64.1	63.5	62.7	62.0	61.2	60.5	59.7	59.3	58.6	58.1	57.4	56.8	56.1	55.4	54.7	54.1	53.8	53.6	53.4
50	69.4	68.6	67.8	66.6	66.1	65.4	64.8	63.9	63.3	62.4	61.7	60.9	60.5	59.8	59.2	58.6	58.0	57.2	56.6	55.8	55.2	54.9	54.7	54.5
51	70.8	70.0	69.1	67.9	67.4	66.7	66.1	65.2	64.6	63.7	63.0	62.1	61.7	61.0	60.4	59.8	59.2	58.4	57.7	56.9	56.3	56.0	55.8	55.6
52	72.2	71.3	70.5	69.2	68.7	68.0	67.4	66.5	65.8	64.9	64.2	63.3	62.9	62.2	61.6	61.0	60.3	59.5	58.8	58.0	57.4	57.1	56.9	56.6
53	73.6	72.7	71.8	70.6	70.0	69.3	68.7	67.8	67.1	66.2	65.4	64.6	64.1	63.4	62.8	62.1	61.5	60.6	60.0	59.2	58.5	58.2	58.0	57.7
54		74.1	73.2	71.9	71.3	70.6	69.9	69.1	68.4	67.4	66.7	65.8	65.3	64.6	64.0	63.3	62.6	61.8	61.1	60.3	59.6	59.3	59.1	58.8
55			74.5	73.2	72.7	71.9	71.2	70.3	69.6	68.7	67.9	67.0	66.5	65.8	65.2	64.5	63.8	62.9	62.2	61.4	60.7	60.4	60.2	59.9
56				74.6	74.0	73.2	72.5	71.6	70.9	69.9	69.1	68.2	67.7	67.0	66.4	65.7	65.0	64.1	63.3	62.5	61.8	61.5	61.3	61.0
57					74.5	73.8	72.9	72.2	71.2	70.4	69.4	68.9	68.2	67.5	66.8	66.1	65.2	64.5	63.6	62.9	62.6	62.4	62.1	
58						74.2	73.4	72.4	71.6	70.6	70.1	69.4	68.7	68.0	67.3	66.4	65.6	64.7	64.0	63.7	63.5	63.2		
59							74.7	73.7	72.8	71.9	71.3	70.6	69.9	69.2	68.4	67.5	66.7	65.8	65.1	64.8	64.6	64.3		
60								74.9	74.1	73.2	72.6	71.8	71.1	70.3	69.6	68.7	67.9	67.0	66.2	65.5	65.2	65.0		
61									74.3	73.8	73.0	72.3	71.5	70.8	69.8	69.0	68.1	67.3	66.7	66.4	66.2			
62										74.2	73.5	72.7	71.9	70.9	70.1	69.2	68.4	67.5	66.7	66.1	65.8	65.6		
63											74.6	73.9	73.1	72.1	71.3	70.3	69.5	68.7	67.9	67.0	66.2	65.9	65.6	
64												74.2	73.5	72.7	71.9	70.9	70.1	69.2	68.4	67.5	66.7	66.1	65.8	
65													74.4	73.5	72.5	71.7	71.4	71.1	70.8	70.6	70.3	70.0	69.7	
66														74.7	73.7	72.9	72.5	72.2	71.9	71.4	71.1	70.8		
67															74.8	74.0	73.6	73.3	73.0	72.7	72.4	72.1		
68																	74.7	74.4	74.1					

AVERAGE GIRLS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR GIRLS WITH SKELETAL AGES WITHIN
ONE YEAR OF THEIR CHRONOLOGICAL AGES

Skeletal Ages 12 Through 18 Years

Skeletal Age	12-0	12-3	12-6	12-9	13-0	13-3	13-6	13-9	14-0	14-3	14-6	14-9	15-0	15-3	15-6	15-9	16-0	16-3	16-6	16-9	17-0	17-6	18-0
% of Mature Height	92.2	93.2	94.1	95.0	95.8	96.7	97.4	97.8	98.0	98.3	98.6	98.8	99.0	99.1	99.3	99.4	99.6	99.6	99.7	99.8	99.9	99.95	100.0
Ht. (inches)																							
47	51.0																						
48	52.1	51.5	51.0																				
49	53.1	52.6	52.1	51.6	51.1																		
50	54.2	53.6	53.1	52.6	52.2	51.7	51.3	51.1	51.0														
51	55.3	54.7	54.2	53.7	53.2	52.7	52.4	52.1	52.0	51.9	51.7	51.6	51.5	51.5	51.4	51.3	51.2	51.2	51.2	51.1	51.1	51.0	51.0
52	56.4	55.8	55.3	54.7	54.3	53.8	53.4	53.2	53.1	52.9	52.7	52.6	52.5	52.5	52.4	52.3	52.2	52.2	52.2	52.1	52.1	52.0	52.0
53	57.5	56.9	56.3	55.8	55.3	54.8	54.4	54.2	54.1	53.9	53.8	53.6	53.5	53.5	53.4	53.3	53.2	53.2	53.2	53.1	53.1	53.0	53.0
54	58.6	57.9	57.4	56.8	56.4	55.8	55.4	55.2	55.1	54.9	54.8	54.7	54.5	54.5	54.4	54.3	54.2	54.2	54.2	54.1	54.1	54.0	54.0
55	59.7	59.0	58.4	57.9	57.4	56.9	56.5	56.2	56.1	56.0	55.8	55.7	55.6	55.5	55.4	55.3	55.2	55.2	55.2	55.1	55.1	55.0	55.0
56	60.7	60.1	59.5	58.9	58.5	57.9	57.5	57.3	57.1	57.0	56.8	56.7	56.6	56.5	56.4	56.3	56.2	56.2	56.2	56.1	56.1	56.0	56.0
57	61.8	61.2	60.6	60.0	59.5	58.9	58.5	58.3	58.2	58.0	57.8	57.7	57.6	57.5	57.4	57.3	57.2	57.2	57.2	57.1	57.1	57.0	57.0
58	62.9	62.2	61.6	61.1	60.5	60.0	59.5	59.3	59.2	59.0	58.8	58.7	58.6	58.5	58.4	58.3	58.2	58.2	58.2	58.1	58.1	58.0	58.0
59	64.0	63.3	62.7	62.1	61.6	61.0	60.6	60.3	60.2	60.0	59.8	59.7	59.6	59.5	59.4	59.4	59.2	59.2	59.2	59.1	59.1	59.0	59.0
60	65.1	64.4	63.8	63.2	62.6	62.0	61.6	61.3	61.2	61.0	60.9	60.7	60.6	60.5	60.4	60.4	60.2	60.2	60.2	60.1	60.1	60.0	60.0
61	66.2	65.5	64.8	64.2	63.7	63.1	62.6	62.4	62.2	62.1	61.9	61.7	61.6	61.6	61.4	61.4	61.2	61.2	61.2	61.1	61.1	61.0	61.0
62	67.2	66.5	65.9	65.3	64.7	64.1	63.7	63.4	63.3	63.1	62.9	62.8	62.6	62.6	62.4	62.4	62.2	62.2	62.2	62.1	62.1	62.0	62.0
63	68.3	67.6	67.0	66.3	65.8	65.1	64.7	64.4	64.3	64.1	63.9	63.8	63.6	63.6	63.4	63.4	63.3	63.3	63.2	63.1	63.1	63.0	63.0
64	69.4	68.7	68.0	67.4	66.8	66.2	65.7	65.4	65.3	65.1	64.9	64.8	64.6	64.6	64.4	64.4	64.3	64.3	64.2	64.1	64.1	64.0	64.0
65	70.5	69.7	69.1	68.4	67.8	67.2	66.7	66.5	66.3	66.1	65.9	65.8	65.7	65.6	65.5	65.4	65.3	65.3	65.2	65.1	65.1	65.0	65.0
66	71.6	70.8	70.1	69.5	68.9	68.3	67.8	67.5	67.3	67.1	66.9	66.8	66.7	66.6	66.5	66.4	66.3	66.3	66.2	66.1	66.1	66.0	66.0
67	72.7	71.9	71.2	70.5	69.9	69.3	68.8	68.5	68.4	68.2	68.0	67.8	67.7	67.6	67.5	67.4	67.3	67.3	67.2	67.1	67.1	67.0	67.0
68	73.8	73.0	72.3	71.6	71.0	70.3	69.8	69.5	69.4	69.2	69.0	68.8	68.7	68.6	68.5	68.4	68.3	68.3	68.2	68.1	68.1	68.0	68.0
69	74.8	74.0	73.3	72.6	72.0	71.4	70.8	70.6	70.4	70.2	70.0	69.8	69.7	69.6	69.5	69.4	69.3	69.3	69.2	69.1	69.1	69.0	69.0
70		74.4		73.7	73.1	72.4	71.9	71.6	71.4	71.2	71.0	70.8	70.7	70.6	70.5	70.4	70.3	70.3	70.2	70.1	70.1	70.0	70.0
71				74.7	74.1	73.4	72.9	72.6	72.4	72.2	72.0	71.9	71.7	71.6	71.5	71.4	71.3	71.3	71.2	71.1	71.1	71.0	71.0
72						74.5	73.9	73.6	73.5	73.2	73.0	72.9	72.7	72.7	72.5	72.4	72.3	72.3	72.2	72.1	72.1	72.0	72.0
73							74.9	74.6	74.5	74.3	74.0	73.9	73.7	73.7	73.5	73.4	73.3	73.3	73.2	73.1	73.1	73.0	73.0
74												73.9	73.7	73.7	73.5	73.4	73.3	73.3	73.2	73.1	73.1	73.0	73.0

Height-Prediction Tables

ACCELERATED GIRLS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR GIRLS WITH SKELETAL AGES ONE YEAR
OR MORE ADVANCED OVER THEIR CHRONOLOGICAL AGES

Skeletal Ages 7 Through 11 Years

Skeletal Age	7-0	7-3	7-6	7-10	8-0	8-3	8-6	8-10	9-0	9-3	9-6	9-9	10-0	10-3	10-6	10-9	11-0	11-3	11-6	11-9
% of Mature Height	71.2	72.2	73.2	74.2	75.0	76.0	77.1	78.4	79.0	80.0	80.9	81.9	82.8	84.1	85.6	87.0	88.3	88.7	89.1	89.7
Ht. (inches)																				
37	52.0	51.2																		
38	53.4	52.6	51.9	51.2																
39	54.8	54.0	53.3	52.6	52.0	51.3														
40	56.2	55.4	54.6	53.9	53.3	52.6	51.9	51.0												
41	57.6	56.8	56.0	55.3	54.7	53.9	53.2	52.3	51.9	51.3										
42	59.0	58.2	57.4	56.6	56.0	55.3	54.5	53.6	53.2	52.5	51.9	51.3								
43	60.4	59.6	58.7	58.0	57.3	56.6	55.8	54.8	54.4	53.8	53.2	52.5	51.9	51.1						
44	61.8	60.9	60.1	59.3	58.7	57.9	57.1	56.1	55.7	55.0	54.4	53.7	53.1	52.3	51.4					
45	63.2	62.3	61.5	60.6	60.0	59.2	58.4	57.4	57.0	56.3	55.6	54.9	54.3	53.5	52.6	51.7	51.0			
46	64.6	63.7	62.8	62.0	61.3	60.5	59.7	58.7	58.2	57.5	56.9	56.2	55.6	54.7	53.7	52.9	52.1	51.9	51.6	51.3
47	66.0	65.1	64.2	63.3	62.7	61.8	61.0	59.9	59.5	58.8	58.1	57.4	56.8	55.9	54.9	54.0	53.2	53.0	52.7	52.4
48	67.4	66.5	65.6	64.7	64.0	63.2	62.3	61.2	60.8	60.0	59.3	58.6	58.0	57.1	56.1	55.2	54.4	54.1	53.9	53.5
49	68.8	67.9	66.9	66.0	65.3	64.5	63.6	62.5	62.0	61.3	60.6	59.8	59.2	58.3	57.2	56.3	55.5	55.2	55.0	54.6
50	70.2	69.3	68.3	67.4	66.7	65.8	64.9	63.8	63.3	62.5	61.8	61.1	60.4	59.5	58.4	57.5	56.6	56.4	56.1	55.7
51	71.6	70.6	69.7	68.7	68.0	67.1	66.1	65.1	64.6	63.8	63.0	62.3	61.6	60.6	59.6	58.6	57.8	57.5	57.2	56.9
52	73.0	72.0	71.0	70.1	69.3	68.4	67.4	66.3	65.8	65.0	64.3	63.5	62.8	61.8	60.7	59.8	58.9	58.6	58.4	58.0
53	74.4	73.4	72.4	71.4	70.7	69.7	68.7	67.6	67.1	66.3	65.5	64.7	64.0	63.0	61.9	60.9	60.0	59.8	59.5	59.1
54		74.8	73.8		72.8	72.0	71.1	70.0	68.9	68.4	67.5	66.7	65.9	65.2	64.2	63.1	62.1	62.0	61.7	61.3
55				74.1	73.3	72.4	71.3	70.2	69.6	68.8	68.0	67.2	66.4	65.4	64.3	63.2	62.3	62.2	61.9	61.5
56					74.7	73.7		72.6	71.4	70.9	70.0	69.2	68.4	67.6	66.6	65.4	64.4	63.4	63.1	62.8
57							73.9	72.7	72.2	71.3	70.5	69.6	68.8	67.8	66.6	65.5	64.6	64.3	64.0	63.5
58								74.0	73.4	72.5	71.7	70.8	70.0	69.0	67.8	66.7	65.7	65.4	65.1	64.7
59									74.7	73.8	72.9	72.0	71.3	70.2	68.9	67.8	66.8	66.5	66.2	65.8
60											74.2	73.3	72.5	71.3	70.1	69.0	68.0	67.6	67.3	66.9
61												74.5	73.7	72.5	71.3	70.1	69.1	68.8	68.5	68.0
62													74.9	73.7	72.4	71.3	70.2	69.9	69.6	69.1
63														74.9	73.6	72.4	71.3	71.0	70.7	70.2
64															74.8	73.6	72.5	72.2	71.8	71.3
65																74.7	73.6	73.3	72.9	72.5
66																	74.7	74.4	74.1	73.6
67																				74.7

ACCELERATED GIRLS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR GIRLS WITH SKELETAL AGES ONE YEAR
OR MORE ADVANCED OVER THEIR CHRONOLOGICAL AGES

Skeletal Ages 12 Through 17 Years

Skeletal Age	12-0	12-3	12-6	12-9	13-0	13-3	13-6	13-9	14-0	14-3	14-6	14-9	15-0	15-3	15-6	15-9	16-0	16-3	16-6	16-9	17-0	17-6
% of Mature Height	90.1	91.3	92.4	93.5	94.5	95.5	96.3	96.8	97.2	97.7	98.0	98.3	98.6	98.8	99.0	99.2	99.3	99.4	99.5	99.7	99.8	99.95
Ht. (inches)																						
46	51.1																					
47	52.2	51.5																				
48	53.3	52.6	51.9	51.3																		
49	54.4	53.7	53.0	52.4	51.9	51.3	50.9															
50	55.5	54.8	54.1	53.5	52.9	52.4	51.9	51.7	51.4	51.2	51.0											
51	56.6	55.9	55.2	54.5	54.0	53.4	53.0	52.7	52.5	52.2	52.0	51.9	51.7	51.6	51.5	51.4	51.4	51.3	51.3	51.2	51.1	51.0
52	57.7	57.0	56.3	55.6	55.0	54.5	54.0	53.7	53.5	53.2	53.1	52.9	52.7	52.6	52.5	52.4	52.4	52.3	52.3	52.2	52.1	52.0
53	58.8	58.1	57.4	56.7	56.1	55.5	55.0	54.8	54.5	54.2	54.1	53.9	53.8	53.6	53.5	53.4	53.4	53.3	53.3	53.2	53.1	53.0
54	59.9	59.1	58.4	57.8	57.1	56.5	56.1	55.8	55.6	55.3	55.1	54.9	54.8	54.7	54.5	54.4	54.4	54.3	54.3	54.2	54.1	54.0
55	61.0	60.2	59.5	58.8	58.2	57.6	57.1	56.8	56.6	56.3	56.1	56.0	55.8	55.7	55.5	55.4	55.4	55.3	55.3	55.2	55.1	55.0
56	62.2	61.3	60.6	59.9	59.3	58.6	58.2	57.9	57.6	57.3	57.1	57.0	56.8	56.7	56.5	56.5	56.4	56.3	56.3	56.2	56.1	56.0
57	63.3	62.4	61.7	61.0	60.3	59.7	59.2	58.9	58.6	58.3	58.2	58.0	57.8	57.7	57.6	57.5	57.4	57.3	57.3	57.2	57.1	57.0
58	64.4	63.5	62.8	62.0	61.4	60.7	60.2	59.9	59.7	59.4	59.2	59.0	58.8	58.7	58.6	58.5	58.4	58.3	58.3	58.2	58.1	58.0
59	65.5	64.6	63.9	63.1	62.4	61.8	61.3	61.0	60.7	60.4	60.2	60.0	59.8	59.7	59.6	59.5	59.4	59.4	59.3	59.2	59.1	59.0
60	66.6	65.7	64.9	64.2	63.5	62.8	62.3	62.0	61.7	61.4	61.2	61.0	60.9	60.7	60.6	60.5	60.4	60.3	60.3	60.2	60.1	60.0
61	67.7	66.8	66.0	65.2	64.6	63.9	63.3	63.0	62.8	62.4	62.2	62.1	61.9	61.7	61.6	61.5	61.4	61.4	61.3	61.2	61.1	61.0
62	68.8	67.9	67.1	66.3	65.6	64.9	64.4	64.0	63.8	63.5	63.3	63.1	62.9	62.8	62.6	62.5	62.4	62.4	62.3	62.2	62.1	62.0
63	69.9	69.0	68.2	67.4	66.7	66.0	65.4	65.1	64.8	64.5	64.3	64.1	63.9	63.8	63.6	63.5	63.4	63.4	63.3	63.2	63.1	63.0
64	71.0	70.1	69.3	68.4	67.7	67.0	66.5	66.1	65.8	65.5	65.3	65.1	64.9	64.8	64.6	64.5	64.4	64.4	64.3	64.2	64.1	64.0
65	72.1	71.2	70.3	69.5	68.8	68.1	67.5	67.1	66.9	66.5	66.3	66.1	65.9	65.8	65.7	65.5	65.5	65.4	65.3	65.2	65.1	65.0
66	73.3	72.3	71.4	70.6	69.8	69.1	68.5	68.2	67.9	67.6	67.3	67.1	66.9	66.8	66.7	66.5	66.5	66.4	66.3	66.2	66.1	66.0
67	74.4	73.4	72.5	71.7	70.9	70.2	69.6	69.2	68.9	68.6	68.4	68.2	68.0	67.8	67.7	67.5	67.5	67.4	67.3	67.2	67.1	67.0
68		74.5		73.6	72.7	72.0	71.2	70.6	70.2	69.6	69.4	69.2	69.0	68.8	68.7	68.6	68.5	68.4	68.3	68.2	68.1	68.0
69			74.7	73.8	73.0	72.3	71.7	71.3	71.0	70.6	70.4	70.2	70.0	69.8	69.7	69.6	69.5	69.4	69.3	69.2	69.1	69.0
70				74.9	74.1	73.3	72.7	72.3	72.0	71.6	71.4	71.2	71.0	70.8	70.7	70.6	70.5	70.4	70.3	70.2	70.1	70.0
71						74.3	73.7	73.3	73.0	72.7	72.4	72.2	72.0	71.9	71.7	71.6	71.5	71.4	71.4	71.2	71.1	71.0
72							74.8	74.4	74.1	73.7	73.5	73.2	73.0	72.9	72.7	72.6	72.5	72.4	72.4	72.2	72.1	72.0
73										74.7	74.5	74.3	74.0	73.9	73.7	73.6	73.5	73.4	73.4	73.2	73.1	73.0
74															74.9	74.4	74.6	74.5	74.4	74.2	74.1	74.0

Height-Prediction Tables

RETARDED GIRLS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR GIRLS WITH SKELETAL AGES ONE YEAR
OR MORE RETARDED FOR THEIR CHRONOLOGICAL AGES

Skeletal Ages 6 Through 11 Years

Skeletal Age	6-0	6-3	6-6	6-10	7-0	7-3	7-6	7-10	8-0	8-3	8-6	8-10	9-0	9-3	9-6	9-9	10-0	10-3	10-6	10-9	11-0	11-3	11-6	11-9
% of Mature Height	73.3	74.2	75.1	76.3	77.0	77.9	78.8	79.7	80.4	81.3	82.3	83.6	84.1	85.1	85.8	86.6	87.4	88.4	89.6	90.7	91.8	92.2	92.6	92.9
Ht. (inches)																								
38	51.8	51.2																						
39	53.2	52.6	51.9	51.1																				
40	54.6	53.9	53.3	52.4	51.9	51.3																		
41	55.9	55.3	54.6	53.7	53.2	52.6	52.0	51.4																
42	57.3	56.6	55.9	55.0	54.5	53.9	53.3	52.7	52.2	51.7	51.0													
43	58.7	58.0	57.3	56.4	55.8	55.2	54.6	54.0	53.5	52.9	52.2	51.4	51.1											
44	60.0	59.3	58.6	57.7	57.1	56.5	55.8	55.2	54.7	54.1	53.5	52.6	52.3	51.7	51.3									
45	61.4	60.6	59.9	59.0	58.4	57.8	57.1	56.5	56.0	55.4	54.7	53.8	53.5	52.9	52.4	52.0	51.5							
46	62.8	62.0	61.3	60.3	59.7	59.1	58.4	57.7	57.2	56.6	55.9	55.0	54.7	54.1	53.6	53.1	52.6	52.0	51.3					
47	64.1	63.3	62.6	61.6	61.0	60.3	59.6	59.0	58.5	57.8	57.1	56.2	55.9	55.2	54.8	54.3	53.8	53.2	52.5	51.8	51.2	51.0		
48	65.5	64.7	63.9	62.9	62.3	61.6	60.9	60.2	59.7	59.0	58.3	57.4	57.1	56.4	55.9	55.4	54.9	54.3	53.6	52.9	52.3	52.1	51.8	51.7
49	66.9	66.0	65.2	64.2	63.6	62.9	62.2	61.5	60.9	60.3	59.5	58.6	58.3	57.6	57.1	56.6	56.1	55.4	54.7	54.0	53.4	53.1	52.9	52.7
50	68.2	67.4	66.6	65.5	64.9	64.2	63.5	62.7	62.2	61.5	60.8	59.8	59.5	58.8	58.3	57.7	57.2	56.6	55.8	55.1	54.5	54.2	54.0	53.8
51	69.6	68.7	67.9	66.8	66.2	65.5	64.7	64.0	63.4	62.7	62.0	61.0	60.6	59.9	59.4	58.9	58.4	57.7	56.9	56.2	55.6	55.3	55.1	54.9
52	70.9	70.1	69.2	68.2	67.5	66.8	66.0	65.2	64.7	64.0	63.2	62.2	61.8	61.1	60.6	60.0	59.5	58.8	58.0	57.3	56.6	56.4	56.2	56.0
53	72.3	71.4	70.6	69.5	68.8	68.0	67.3	66.5	65.9	65.2	64.4	63.4	63.0	62.3	61.8	61.2	60.6	60.0	59.2	58.4	57.7	57.5	57.2	57.1
54	73.7	72.8	71.9	70.8	70.1	69.3	68.5	67.8	67.2	66.4	65.6	64.6	64.2	63.5	62.9	62.4	61.8	61.1	60.3	59.5	58.8	58.6	58.3	58.1
55		74.1	73.2	72.1	71.4	70.6	69.8	69.0	68.4	67.7	66.8	65.8	65.4	64.6	64.1	63.5	62.9	62.2	61.4	60.6	59.9	59.7	59.4	59.2
56			74.6	73.4	72.7	71.9	71.1	70.3	69.7	68.9	68.0	67.0	66.6	65.8	65.3	64.7	64.1	63.3	62.5	61.7	61.0	60.7	60.5	60.3
57				74.7	74.0	73.2	72.3	71.5	70.9	70.1	69.3	68.2	67.8	67.0	66.4	65.8	65.2	64.5	63.6	62.8	62.1	61.8	61.6	61.4
58					74.5	73.6	72.8	72.1	71.3	70.5	69.4	69.0	68.2	67.6	67.0	66.4	65.6	64.7	63.9	63.2	62.9	62.6	62.4	
59						74.9	74.0	73.4	72.6	71.7	70.6	70.2	69.3	68.8	68.1	67.5	66.7	65.8	65.0	64.3	64.0	63.7	63.5	
60							74.6	73.8	72.9	71.8	71.3	70.5	69.9	69.3	68.7	67.9	67.0	66.2	65.4	65.1	64.8	64.6		
61								74.1	73.0	72.5	71.7	71.1	70.4	69.8	69.0	68.1	67.3	66.4	65.6	64.7	63.9	63.2	62.9	62.7
62									74.2	73.7	72.9	72.3	71.6	70.9	70.1	69.2	68.4	67.5	66.7	65.8	65.0	64.3	63.7	63.5
63										74.7	74.0	73.4	72.7	72.1	71.3	70.3	69.5	68.6	67.8	66.9	66.1	65.4	64.8	64.6
64											74.6	73.9	73.2	72.4	71.4	70.6	69.7	68.9	68.1	67.3	66.4	65.6	64.9	64.7
65												74.4	73.5	72.5	71.7	70.8	70.5	70.2	70.0					
66													74.7	73.7	72.8	71.9	71.6	71.3	71.0					
67														74.8	73.9	73.0	72.7	72.4	72.1					
68																74.1	73.8	73.4	73.2					
69																		74.8	74.5	74.3				

RETARDED GIRLS

PERCENTAGES AND ESTIMATED MATURE HEIGHTS FOR GIRLS WITH SKELETAL AGES ONE YEAR
OR MORE RETARDED FOR THEIR CHRONOLOGICAL AGES

Skeletal Ages 12 Through 17 Years

Skeletal Age	12-0	12-3	12-6	12-9	13-0	13-3	13-6	13-9	14-0	14-3	14-6	14-9	15-0	15-3	15-6	15-9	16-0	16-3	16-6	16-9	17-0
% of Mature Height	93.2	94.2	94.9	95.7	96.4	97.1	97.7	98.1	98.3	98.6	98.9	99.2	99.4	99.5	99.6	99.7	99.8	99.9	99.9	99.9	100.0
Ht. (inches)																					
48	51.5	51.0																			
49	52.6	52.0	51.6	51.2																	
50	53.6	53.1	52.7	52.2	51.9	51.5	51.2	51.0													
51	54.7	54.1	53.7	53.3	52.9	52.5	52.2	52.0	51.9	51.7	51.6	51.4	51.3	51.3	51.2	51.2	51.1	51.1	51.1	51.0	51.0
52	55.8	55.2	54.8	54.3	53.9	53.6	53.2	53.0	52.9	52.7	52.6	52.4	52.3	52.3	52.2	52.2	52.1	52.1	52.1	52.0	52.0
53	56.9	56.3	55.8	55.4	55.0	54.6	54.2	54.0	53.9	53.8	53.6	53.4	53.3	53.3	53.2	53.2	53.1	53.1	53.1	53.0	53.0
54	57.9	57.3	56.9	56.4	56.0	55.6	55.3	55.0	54.9	54.8	54.6	54.4	54.3	54.3	54.2	54.2	54.1	54.1	54.1	54.0	54.0
55	59.0	58.4	58.0	57.5	57.1	56.6	56.3	56.1	56.0	55.8	55.6	55.4	55.3	55.3	55.2	55.2	55.1	55.1	55.1	55.0	55.0
56	60.1	59.4	59.0	58.5	58.1	57.7	57.3	57.1	57.0	56.8	56.6	56.5	56.3	56.3	56.2	56.2	56.1	56.1	56.1	56.0	56.0
57	61.2	60.5	60.1	59.6	59.1	58.7	58.3	58.1	58.0	57.8	57.6	57.5	57.3	57.3	57.2	57.2	57.1	57.1	57.1	57.0	57.0
58	62.2	61.6	61.1	60.6	60.2	59.7	59.4	59.1	59.0	58.8	58.6	58.5	58.3	58.3	58.2	58.2	58.1	58.1	58.1	58.0	58.0
59	63.3	62.6	62.2	61.7	61.2	60.8	60.4	60.1	60.0	59.8	59.7	59.5	59.4	59.3	59.2	59.2	59.1	59.1	59.1	59.0	59.0
60	64.4	63.7	63.2	62.7	62.2	61.8	61.4	61.2	61.0	60.9	60.7	60.5	60.4	60.3	60.2	60.2	60.1	60.1	60.1	60.0	60.0
61	65.5	64.8	64.3	63.7	63.3	62.8	62.4	62.2	62.1	61.9	61.7	61.5	61.4	61.3	61.2	61.2	61.1	61.1	61.1	61.0	61.0
62	66.5	65.8	65.3	64.8	64.3	63.9	63.5	63.2	63.1	62.9	62.7	62.5	62.4	62.3	62.2	62.2	62.1	62.1	62.1	62.0	62.0
63	67.6	66.9	66.4	65.8	65.3	64.9	64.5	64.2	64.1	63.9	63.7	63.5	63.4	63.3	63.3	63.2	63.1	63.1	63.1	63.0	63.0
64	68.7	67.9	67.4	66.9	66.4	65.9	65.5	65.2	65.1	64.9	64.7	64.5	64.4	64.3	64.3	64.2	64.1	64.1	64.1	64.0	64.0
65	69.7	69.0	68.5	67.9	67.4	66.9	66.5	66.3	66.1	65.9	65.7	65.5	65.4	65.3	65.3	65.2	65.1	65.1	65.1	65.0	65.0
66	70.8	70.1	69.5	69.0	68.5	68.0	67.6	67.3	67.1	66.9	66.7	66.5	66.4	66.3	66.3	66.2	66.1	66.1	66.1	66.0	66.0
67	71.9	71.1	70.6	70.0	69.5	69.0	68.6	68.3	68.2	68.0	67.7	67.5	67.4	67.3	67.3	67.2	67.1	67.1	67.1	67.0	67.0
68	73.0	72.2	71.7	71.1	70.5	70.0	69.6	69.3	69.2	69.0	68.8	68.6	68.4	68.3	68.3	68.2	68.1	68.1	68.1	68.0	68.0
69	74.0	73.2	72.7	72.1	71.6	71.1	70.6	70.3	70.2	70.0	69.8	69.6	69.4	69.3	69.3	69.2	69.1	69.1	69.1	69.0	69.0
70		74.3	73.8	73.1	72.6	72.1	71.6	71.4	71.2	71.0	70.8	70.6	70.4	70.3	70.2	70.1	70.1	70.1	70.1	70.0	70.0
71			74.8	74.2	73.6	73.1	72.7	72.4	72.2	72.0	71.8	71.6	71.4	71.3	71.2	71.1	71.1	71.1	71.1	71.0	71.0
72					74.7	74.2	73.7	73.4	73.3	73.0	72.8	72.6	72.4	72.4	72.3	72.2	72.1	72.1	72.1	72.0	72.0
73						74.7	74.4	74.3	74.0	73.8	73.6	73.4	73.4	73.3	73.2	73.1	73.1	73.1	73.1	73.0	73.0
74							74.7	74.4	74.3	74.0	73.8	73.6	73.4	73.4	73.3	73.2	73.1	73.1	73.1	73.0	73.0