



Designation: D 4910 – 9902

## Standard Tables of Body Measurements for Infants, Sizes 0 to 24<sup>1</sup>

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### INTRODUCTION

These tables ~~are~~ were developed from data published by the U.S. Department of Commerce. These data were based on original research conducted by the U.S. Department of Agriculture<sup>2</sup> in the 1930's. This standard takes into consideration children's growth patterns reflected in the 1980 charts for the National Center for Health Statistics<sup>3</sup> and the 1977 Anthropometric Study of U.S. Infants and Children conducted by the University of Michigan.<sup>4</sup> All sudden shifts of proportion have been eliminated so as to reflect the gradual growth and development of the infant. To verify the proposed body measurements, a limited sampling of children was measured and fitted with garments made as directed in these tables.

<sup>1</sup> These tables are under the jurisdiction of ASTM Committee D-13 on Textiles and are the direct responsibility of Subcommittee D13.55 on Body Measurement for Apparel Sizing.

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D 4910 – 99.

<sup>2</sup> O'Brien, Ruth, et al., *Body Measurement to American Boys and Girls for Garment and Pattern Construction*, U.S. Department of Agriculture, Miscellaneous Publication No. 366, July 1941.

<sup>3</sup> Available from National Center for Health Statistics.

<sup>4</sup> Snyder, Lawrence, *Anthropometry of Infants, Children, and Youth to Age 18*, University of Michigan, May 1977.

### 1. Scope

1.1 These tables list body measurements of infants from size 0 to 24. Although these measurements are body measurements, they can be used as a baseline in designing apparel for infants in this ~~age~~ size range when taking into account such factors as fabric type, ease for body movement, styling, and fit.

1.2 Infants 0–24 designate sizes and do not refer to age.

1.3 The values stated in either acceptable metric SI units or ~~in other~~ inch-pound units shall be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system ~~shall~~ must be used independently of the other, without combining values in any way.

1.34 ~~This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.~~

### 2. Referenced Documents

2.1 *ASTM Standards:*

D 123 Terminology Relating to Textile Materials<sup>5</sup>

D 5219 Terminology Relating to Body Dimensions for Apparel Sizing<sup>6</sup>

2.2 *ISO Standard:*

ISO 3635 Size Designation of Clothes, Definitions, and Body Measurement Procedures<sup>7</sup>

### 3. Terminology

3.1 *Definitions:*

3.1.1 For definitions relating to body dimensions, refer to Terminology D 5219.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 07.01.

<sup>6</sup> *Annual Book of ASTM Standards*, Vol 07.02.

<sup>7</sup> Available from American National Standards Institute (ANSI), ~~H 25 W. 42nd~~ 43rd St., ~~13th~~ 4th Floor, New York, NY 10036.

3.1.2 For definitions of other textile terms; used in these tables, this standard, refer to Terminology D 123.

#### 4. Significance and Use

4.1 The use of the body measurement information in Tables 1 will assist manufacturers to develop patterns and garments that are consistent with the current anthropometric characteristics of the population of interest. This practice in turn should reduce or minimize consumer confusion and dissatisfaction related to apparel sizing. (Also refer to ISO Size Designation Standard.) and 2 will assist manufacturers in developing patterns and garments that are consistent with the current anthropometric characteristics of the population of interest. This practice should in turn reduce or minimize consumer confusion and dissatisfaction related to apparel sizing. (Also refer to ISO 3635 Size Designation Procedures.)

#### 5. Apparatus

5.1 ~~Tape measure that is~~

5.1 Tape Measure, dimensionally stable and approximately 15-mm ( $\frac{1}{2}$ -in.) wide and accurately graduated in millimetre mm ( $\frac{1}{16}$ -in.) increments.

5.2 Plastic Goniometer, to measure the degree of shoulder slope.

5.3 Scale, standard, calibrated; body weight type for infants.

5.4 Plastic Ruler, dimensionally stable, flat and accurately graduated in mm ( $\frac{1}{16}$ -in.) increments.

#### 6. Procedure

6.1 *General:*

6.1.1 For all vertical measurements, ~~subject should~~ is to be lying down on its back, on a flat surface, with legs extended.

6.1.2 For all horizontal measurements, hold subject in a vertical position.

6.1.3 ~~Measurements for infant body are taken~~

6.1.3 Take measurements over nude body.

6.1.4 Take all measurements from the same side of the body for consistency.

6.1.5 Refer to Terminology D 5219 for the location of all points to be measured.

6.2 *Body Measurements:*

6.2.1 Height/~~Stature~~—Measure the straight distance from the top of the head to the soles of the feet while subject is lying down flat with legs extended and foot positioned at 1.57 rad ( $90^\circ$  to the leg).

6.2.2 Body Weight—Weigh the nude infant on ~~an~~ a calibrated infant scale.

6.2.3 Chest Girth—Measure the horizontally circumference around the body under the arms and across the nipples so as to include fullest part of the chest apex including the lower portion of the shoulder blades.

6.2.4 Waist Girth—Measure the minimum horizontally circumference around the body at waist height.

6.2.5 Hip/Seat~~Hip~~ Girth—Measure horizontally the maximum circumference around the body at hip height.

6.2.6 Vertical Trunk/~~Neck Base~~ Girth—Measure from (1) a point on the shoulder, midway between circumference of the neck and over the normal armhole line to (2) cervicale at the bottom of the crotch back, and back up to the shoulder taking care to avoid constriction top of the collarbone at the crotch. The measurement should be made over the nude body. front.

6.2.7 Head Circumference/~~Armscye~~ Girth—Measure the maximum circumference of distance from the head above shoulder joint through the front break-point, the armpit, the back-break point, and to the starting point with the arms down.

6.2.8 Neck Base/~~Upper Arm~~ Girth—Measure around the neck touching maximum circumference of the cervical at arm midway between the back elbow and shoulder joints with the upper borders of the collar bone at the front following the points that would be made by a fine-linked chain pressed over these points. arm bent 1.57 rad ( $90^\circ$ ).

6.2.9 Armscye—~~With~~ Elbow Girth—Measure the arm hanging down, measure maximum circumference of the distance from elbow over the shoulder joint through prominence of the front break point, elbow bone with the armpit, the back-break point, and the starting point. arm bent 1.57 rad ( $90^\circ$ ).

6.2.10 Upper Arm/~~Wrist~~ Girth—Measure the maximum circumference of the arm midway between wrist over the elbow inner and shoulder joint. outer prominence of the wrist bones.

6.2.11 Elbow/~~Thigh~~ Girth—Measure the maximum circumference of the elbow while upper leg close to the arm is straight. crotch.

6.2.12 Wrist/~~Ankle~~ Girth—Measure the maximum circumference of the wrist ankle over the inner and outer greatest prominence at the lower end of the forearm. ankle bones.

6.2.13 Thigh/~~Total Vertical Trunk~~—Measure the circumference of from a point on the upper part right shoulder midway between the neck base and shoulder joint down the back, through the crotch, and up over the prominence of the leg (close right chest apex to the starting point, avoiding constriction at the crotch).

6.2.14 Shoulder/~~Total Crotch Length~~—Measure from the widest point of the neck base measurement distance from waist level at the shoulder center front through the crotch and to the armpit or armhole girth point of waist level at the shoulder. center back avoiding constriction at the crotch.

6.2.15 Across Shoulder/~~Head~~ Girth—Measure across the back from the top maximum horizontal circumference of one shoulder joint to the top of head above the other shoulder joint. ears.

**TABLE 2.1 Infants 0 to 24—Body Measurements Without Clothing, SI (Metric Units)**

Size	0 to 3	3 to 6	6 to 9	9 to 12	12 to 18	18 to 24
Height, Centimetres	Up to 60	60 to 68	69 to 72	73 to 78	79 to 83	84 to 88
Stature, cm	Up to 60	60 to 68	69 to 72	73 to 78	79 to 83	84 to 88
Weight, Kilograms	Up to 6.5	6.6 to 7.4	7.5 to 8.2	8.3 to 9.2	9.3 to 11.0	11.1 to 12.6
Body Weight, kg	Up to 6.5	6.6 to 7.4	7.5 to 8.2	8.3 to 9.2	9.3 to 11.0	11.1 to 12.6
All Table Data is in Centimetres <sup>A</sup>						
Girth Measurements, cm						
Chest	41.8	44.5	45.7	47.0	49.5	52.4
Chest Girth	41.9	44.4	45.7	47.0	49.5	52.1
Waist	45.7	47.0	47.6	48.3	49.5	60.6
Waist Girth	45.7	47.0	47.6	48.3	49.5	50.8
Hip/Seat	43.2	45.7	47.0	48.3	50.8	53.3
Hip Girth	43.2	45.7	47.0	48.3	50.8	53.3
Vertical Trunk	63.6	68.6	71.4	73.7	76.7	83.8
Neck Base Girth	21.0	68.6	71.4	73.7	76.7	83.8
Head Circumference	41.9	43.2-44.5	46.4	48.3	50.8	
Neck Base	21.6	22.0	22.5	23.5	24.4	25.4
Neck Base	2.2	22.9	22.5	23.5	24.4	25.4
Armseye	15.2	16.6	17.6	18.4	20.0	21.6
Armseye Girth	15.2	16.8	17.6	18.4	20.0	21.6
Upper Arm	13.0	13.7	14.0	14.3	14.9	15.6
Upper-Arm Girth	13.0	13.7	14.0	14.3	14.9	15.6
Elbow	14.8	16.2	15.8	15.9	16.5	17.1
Elbow Girth	14.6	15.2	15.6	15.9	16.5	17.1
Wrist	...	...	...	...	...	...
Wrist Girth	10.2	10.5	10.6	10.8	11.1	11.4
Thigh	23.5	25.4	25.9	26.7	28.2	29.5
Thigh Girth	23.5	25.1	25.9	26.7	28.3	29.8
Shoulder Length	7.4	7.3	7.3	7.5	7.6	7.9
Ankle Girth	11.4	12.1	12.4	12.7	13.3	14.0
Across Shoulder	21.0	21.6	21.9	22.2	22.9	23.5
Total Vertical Trunk Length	63.5	68.6	71.1	73.7	78.7	83.8
Total Crotch Length	26.3	31.1	32.5	34.0	35.9	39.7
Total Crotch Length	28.3	31.1	32.5	34.0	36.8	39.7
Arm Length	16.9	20.0	21.6	23.2	24.4	29.5
Head Girth	41.9	43.2	44.4	46.4	48.3	2.5
Cervical to Wrist <sup>27.3</sup>						39.8
Vertical Measurement <sup>27.3</sup>						39.8
Cervical to Knee	34.4	35.6	37.5	40.0	44.5	48.9
Cervical Height	43.8	35.6	37.5	40.0	44.5	48.9
Cervical Height	42.6	50.8	54.8	57.6	64.6	71.8
Cervical Height	42.6	50.8	54.3	57.8	64.8	71.8
Head and Neck Length	14.6	15.2	15.6	15.9	16.5	17.1
Cervical to Back Waist	15.2	16.5	17.1	17.8	19.0	20.3
Center Back Waist Length	15.2	16.5	17.1	17.8	19.0	20.3
Front Waist Length	14.6	15.9	16.5	17.1	18.4	19.7
Center Front Waist Length	14.6	15.9	16.5	17.1	18.4	19.7
Cervical to Knee Height	31.1	35.6	37.8	40.0	44.4	48.9
Scye Depth	8.8	9.6	9.8	10.2	10.8	11.4
Scye Depth	8.9	9.5	9.8	10.2	10.8	11.4
Waist Height	28.6	34.3	37.1	40.0	45.7	51.4
Waist to Knee	15.9	19.4	20.6	22.2	25.4	25.9
Hip Height	22.2	27.3	29.8	32.4	37.5	42.5
Hip Height	22.2	27.3	29.8	32.4	37.6	42.5
Waist to Knee Height	15.9	19.0	20.6	22.2	25.4	28.6
Crotch Height	18.4	23.5	26.7	27.9	32.4	36.8
Waist to Knee	19.0	23.5	25.7	27.9	32.4	36.8
Knee Height	12.7	15.2	16.5	17.8	20.3	22.9
Knee Height	12.7	15.2	16.5	17.8	20.3	22.9
Ankle Height	...	...	...	...	...	...
Ankle Height	3.5	3.8	4.0	4.1	4.4	4.8
Width and Length Measurements, cm						
Shoulder Length	6.7	7.0	7.1	7.3	7.6	7.9
Across Back Shoulder Width	18.4	19.7	20.3	21.0	22.2	23.5
Arm Length	17.8	20.6	22.1	23.5	26.4	29.2
Cervical to Wrist Length	27.0	30.5	32.2	34.0	37.5	41.0
Foot Length	...	...	...	...	...	...
Foot Length	9.5	10.8	11.4	12.1	13.3	14.6
Foot Width	...	...	...	...	...	...
Foot Width	4.4	4.8	5.1	5.4	5.7	6.0

<sup>A</sup>These measurements are for the nude body. No allowance has been given for clothing or diapers. Add approximately 8 cm to the vertical trunk measurement to accommodate the diaper.

6.2.16 *Total Crotch Length* *Cervical Height*—Measure the straight distance from (1) waist level at the center front through the

**TABLE 1 2 Infants 0 to 24—Body Measurements Without Clothing, ( Inch-Pound Units)**

Size—	0 to 3	3 to 6	6 to 9	9 to 12	12 to 18	18 to 24
Height, Inches	Up to 23½	24 to 26½	27 to 27½	28 to 30½	31 to 32½	33 to 34½
Stature, in.	Up to 23½	24 to 26½	27 to 27½	28 to 30½	31 to 32½	33 to 34½
Weight, Pounds	Up to 12.0	12.5 to 16.0	16.5 to 18.0	18.5 to 20.0	20.5 to 24.0	24.5 to 27.6
Body Weight, lb	Up to 12.0	12.5 to 16.0	18.5 to 20.0	20.5 to 24.0	24.5 to 27.6	25 to 28
All Table Data is in Inches <sup>A</sup>						
Girth Measurements, in.						
Chest	16½	17½	18	18½	19½	20½
Chest Girth	16½	17½	18	18½	19½	20½
Waist	18	18½	18¾	19	19½	20
Waist Girth	18	18½	18¾	19	19½	20
Hip/Seat	17	18	18½	19	20	21
Hip Girth	17	18	18½	19	20	21
Vertical Trunk	25	27	28	29	31	33
Neck Base Girth	8¼	8¾	9	9	9	9
Head Circumference	16.5	17	17.5	18.25	19	20
Neck Base	8½	8½	8½	8½	8½	8½
Neck Base	8½	8½	8½	8½	8½	8½
Armscye	6	6½	6½	7¼	7½	8½
Armscye Girth	6	6½	6½	7¼	7½	8½
Upper Arm	6¼	6¾	6¾	7¼	7½	8½
Upper-Arm Girth	5½	5¾	5½	5¾	5¾	6½
Elbow	5¾	6	6¼	6¼	6½	6¾
Elbow Girth	5¾	6	6¼	6¼	6½	6¾
Wrist	4	4½	4½	4¼	4¾	4½
Wrist Girth	4	4½	4½	4¼	4¾	4½
Thigh	9¼	9¾	10¾	10½	11½	11¾
Thigh Girth	9¼	9¾	10¾	10½	11½	11¾
Shoulder Length	2¼	2¾	2¾	2½	3	3¼
Ankle Girth	4½	4¾	4¾	5	5¼	5½
Across Shoulder	6¼	6½	6¾	8¾	9	9¼
Total Vertical Trunk Length	25	27	28	29	31	33
Total Crotch Length	12½	12¼	12¾	13¾	14½	15½
Total Crotch Length	11½	12¼	12¾	13¾	14½	15½
Arm Length	6½	7	8½	8¼	10¾	11½
Head Girth	16½	17	17½	18¼	19	1
Vertical Measurements, in.						
Cervical to Wrist	10¾	12	12	13	25½	28¼
Cervical Height	17¼	20	21¾	22¾	25½	28¼
Head and Neck Length	15¾	6	6¾	6¾	6¾	6¾
Head and Neck Length	5¾	6	6½	6¼	6½	6¾
Cervical to Knee	12¼	14	14¾	17	7½	8
Center Back Waist Length	6	6½	6¾	7	7½	8
Center Front Waist Length	5¾	6¼	6½	6¾	7¼	7¾
Center Front Waist Length	5¾	6¼	6½	6¾	7¼	7¾
Cervical Height	17¼	20	21¾	22¾	25½	28¼
Cervical to Knee Height	12¼	14	14¾	15¾	17½	19¼
Head and Neck Length	5¾	6	6½	6¼	6½	6¾
Scye Depth	3½	3¾	3¾	4	4¼	4½
Cervical to Back Waist	6	6½	6¾	7	7½	8
Waist Height	11¼	13½	14½	15¾	18	20¼
Front Waist Length	6¾	6¼	6½	6¾	7¼	7¾
Hip Height	8¾	10¾	11¾	12¾	14¾	16¾
Scye Depth	3½	3¾	3¾	4	4¼	4½
Waist to Knee Height	6¼	7½	8½	8¾	10	11¼
Crotch Height	7½	9¼	10½	11	12¾	14½
Crotch Height	7½	9¼	10½	11	12¾	14½
Waist Height	11¼	13½	14½	15¾	18	20¼
Knee Height	5	6	6½	7	8	9
Waist to Knee	6¼	7½	8½	8¾	10	11¼
Ankle Height	1¾	1½	1¾	1¾	1¾	1¾
Width and Length Measurements, in.						
Hip Height	8¾	10¾	11¾	12¾	14¾	16¾
Shoulder Length	2½	2¾	2¾	2¾	3	3½
Crotch Height	7¾	9¼	10½	11	12¾	14½
Across Back Shoulder Width	7¼	7¾	8	8¼	8¾	9¼
Knee Height	5	6	6½	7	8	9
Arm Length	7	8½	8½	9¼	10¾	11½
Ankle Height	5	6	6½	7	8	9
Cervical to Wrist Length	10¾	12	12½	13¾	14¾	16¾
Foot Length	3¾	4¼	4½	4¾	5¼	5¾
Foot Length	3¾	4¼	4½	4¾	5¼	5¾
Foot Width	1¾	1¾	2	2½	2¼	2¾

<sup>A</sup>These measurements are for the nude body. No allowance has been given for clothing or diapers. Add approximately 3 in. to the vertical trunk measurement to accommodate the diaper.

~~eroteh and cervicale to (2) the waist level at soles of the center back feet while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.17 *ArmHead and Neck Length*—With—Measure the arm bent 90° at the elbow, measure distance from (1) the top crown of the shoulder along the outside or posterior surface of the arm over the elbow head to (2) the prominent wrist bone at cervicale (contour) with the back of head erect and the hand near the little finger. neck unbent while subject is lying down flat with legs extended.~~

~~6.2.18 *Cervicale to Wrist*—WithCenter Back Waist Length—Measure the elbow bent, measure distance from the (1) cervicale by way of the top of the shoulder and along the outside surface of the arm around the elbow to (2) the prominent wrist bone at the center back of waist level along the hand near the little finger spine (contour).~~

~~6.2.19 *Cervicale to Knee*—WithCenter Front Waist Length—Measure the child lying down flat, measure the distance straight from the center front neck base line to the center front waist level (contour).~~

~~6.2.20 *Cervicale to Knee Height*—With—Measure the child lying down flat, measure the distance straight distance from the cervicale to a point level with the soles midpoint of the back of the knee (or crease) while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.21 *Head and Neck Length*—WithScye Depth—Measure the child lying down and the neck unbent, measure straight vertical distance from the crown cervicale to the cervicale back-break point level with the arms down.~~

~~6.2.22 *Cervicale to BackwaistWaist Height*—Measure along the spraight distance from the cervical waist level to the soles of the feet along the side of the body while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.23 *Front Waist LengthHip Height*—Measure the straight distance from the front hip level to the soles of the neck base to feet along the front side of the body while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.24 *Scye DepthWaist to Knee Height*—Measure along the spraight distance from the cervicale waist level to a point level to an imaginary horizontal line connecting with the mid-underarm points midpoint of the back of the knee (or crease) along the side of the body while subject is lying down flat with legs extended.~~

~~6.2.25 *WaistCrotch Height*—With—Measure the child lying down flat, measure the distance straight distance from the waist midpoint of the crotch to the soles of the feet while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.26 *Waist to Knee*—WithKnee Height—Measure the child lying down flat, measure the distance straight distance from the waist midpoint (or crease) of the knee to the soles of the feet while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.27 *HipAnkle Height*—Measure the straight distance at from the side prominence of the body from the hip level outer ankle bone to the soles of the feet while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°).~~

~~6.2.28 *Crotch Height*—WithShoulder Length—Measure the child lying down flat, measure the distance straight from the midpoint side of the eroteh neck base to the soles top of the feet shoulder joint with the arm down.~~

~~6.2.29 *Knee Height*—WithAcross Back Shoulder Width—Measure the child lying down flat, measure the horizontal distance straight across the back from the top of one shoulder joint to the soles top of the other shoulder joint with the arms down.~~

~~6.2.30 *Ankle HeightArm Length*—Measure the distance at from the side top of the body from shoulder joint along the outer ankle bone outside of the arm over the elbow to the soles of prominent wrist bone with the arm bent at 1.57 rad (90°) and the and placed on the hip.~~

~~6.2.31 *FootCervicale to Wrist Length*—Measure the distance from the cervicale over top of the shoulder joint along the outside of the arm over the elbow to the prominent wrist bone with the arm bent at 1.57 rad (90°) and the and placed on the hip.~~

~~6.2.32 *Foot Length*—Measure the straight distance from the prominence of the back of the heel to the prominence of the longest toe with foot on a flat surface and without shoes (use stable flat ruler).~~

~~6.2.33 *Foot Width*—To be submitted.—Measure the straight distance from one side of the foot to the other side at the widest part with foot on a flat surface and without shoes (use stable flat ruler).~~

## 7. Keywords

### 7.1 apparel; body measurements; garment sizes; infants; tables

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