

Anthropometrics

Table 1: Standing anthropometric estimates derived from the U.S. adult (19 to 65 years) population (Pheasant, 2006)

Dimension	Measurement Description	Male (cm / inches)			Female (cm / inches)		
		5th %ile	50th %ile	95th %ile	5th %ile	50th %ile	95th %ile
Stature*	Top of the head	167.0 / 65.7	178.5 / 70.3	190.0 / 74.8	155.0 / 61.0	165.5 / 65.2	176.0 / 69.3
Eye height*	Corner of the eye	155.9 / 61.5	167.4 / 65.9	178.9 / 70.4	144.6 / 56.9	154.9 / 60.9	165.2 / 65.0
Shoulder height*	Acromion	136.0 / 53.5	147.0 / 57.9	158.0 / 62.2	125.5 / 49.4	135.5 / 53.3	145.5 / 57.3
Elbow height*	Olecranon process	105.0 / 41.3	113.5 / 44.7	122.0 / 48.0	97.5 / 38.4	105.0 / 41.3	112.5 / 44.3
Knuckle height*	Head of the 3rd metacarpal	73.0 / 28.7	79.5 / 31.3	86.0 / 33.9	70.0 / 27.6	76.0 / 29.9	82.0 / 32.3
Knee height*	Top of the kneecap	49.5 / 19.5	55.0 / 21.7	60.5 / 23.8	46.0 / 18.1	50.5 / 19.9	55.0 / 21.7
Forward grip reach (arm raised horizontally forward at shoulder level)	From the back of the shoulder blades to the centre of a rod gripped vertically	72.5 / 28.5	78.5 / 30.9	84.5 / 33.3	65.5 / 25.8	71.0 / 27.9	76.5 / 30.1
Vertical grip reach* (arm raised vertically above the head)	Centre of a rod gripped vertically	195.0 / 76.8	208.0 / 81.9	221.0 / 87.0	180.5 / 71.1	192.5 / 75.8	204.5 / 80.5

* vertical distances are measured from the floor to the landmark identified within the 'Measurement Description' column

Note: all vertical height measurements include shoe height

Table 2: Sitting anthropometric estimates derived from the U.S. adult (19 to 65 years) population (Pheasant, 2006)

Dimension	Measurement Description	Male (cm / inches)			Female (cm / inches)		
		5th %ile	50th %ile	95th %ile	5th %ile	50th %ile	95th %ile
Sitting height*	Top of the head	85.5 / 33.7	91.5 / 36.0	97.5 / 38.4	80.0 / 31.5	86.0 / 33.9	92.0 / 36.2
Sitting eye height*	Corner of the eye	74.0 / 29.1	80.0 / 31.5	86.0 / 33.9	69.0 / 27.2	75.0 / 29.5	81.0 / 31.9
Sitting shoulder height*	Acromion	54.5 / 21.5	60.0 / 23.6	65.5 / 25.8	51.0 / 20.1	56.5 / 22.2	62.0 / 24.4
Sitting elbow height*	Olecranon process	19.5 / 7.7	24.5 / 9.6	29.5 / 11.6	18.5 / 7.3	23.5 / 9.2	28.5 / 11.2
Buttock to popliteal length	From the back of the uncompressed buttocks to the popliteal angle	44.5 / 17.5	50.0 / 19.6	55.5 / 21.9	44.0 / 17.3	49.0 / 19.2	54.0 / 21.3
Knee height*	Top of the kneecap	49.5 / 19.5	55.0 / 21.7	60.5 / 23.8	46.0 / 18.1	50.5 / 19.9	55.0 / 21.7
Popliteal height*	Popliteal angle	39.5 / 15.6	44.5 / 17.5	49.5 / 19.5	36.0 / 14.2	40.5 / 15.9	45.0 / 17.7
Sitting vertical grip reach* (arm raised vertically above the head)	Centre of a rod gripped vertically	115.5 / 45.5	125.5 / 49.4	135.5 / 53.3	107.0 / 42.1	116.0 / 45.7	125.0 / 49.2

* vertical distances are measured from the floor to the landmark identified within the 'Measurement Description' column

* vertical distances are measured from the sitting surface to the landmark identified within the 'Measurement Description' column

Note: all vertical height measurements include shoe height

Table 3: Specific anthropometric estimates derived from the USA population documented in the ADULTDATA dataset (DTI, 2000)

Dimension	Measurement Description	Male (cm / inches)			Female (cm / inches)		
		5th %ile	50th %ile	95th %ile	5th %ile	50th %ile	95th %ile
Sitting forward grip reach (arm raised horizontally forward at shoulder level)	From the seat back or wall to the centre of a rod gripped vertically	67.2 / 26.5	74.0 / 29.1	80.8 / 31.8	61.5 / 24.2	68.4 / 26.9	75.4 / 29.7
Sitting forward fingertip reach (arm raised horizontally forward at shoulder level)	From the seat back or wall to the tip of the middle finger	84.2 / 33.2	90.9 / 35.8	97.5 / 38.4	74.6 / 29.4	81.1 / 31.9	87.6 / 34.5
Overhead grip reach	From the floor to the centre of a rod gripped horizontally	194.5 / 76.6	210.0 / 82.7	225.4 / 88.7	182.2 / 71.7	195.2 / 76.9	208.3 / 82.0
Hand breadth (including thumb)	Across the palm of the hand at the level of the base of the thumb	9.8 / 3.9	10.7 / 4.2	11.7 / 4.6	8.2 / 3.2	9.2 / 3.6	10.2 / 4.0
Index finger depth	Across the proximal interphalangeal joint of the index finger	1.6 / 0.63	1.8 / 0.71	2.0 / 0.79	1.4 / 0.55	1.6 / 0.63	1.8 / 0.71
Shoulder breadth (deltoid)	Horizontal distance between points of maximum protrusion of the deltoid	44.9 / 17.7	50.9 / 20.0	56.9 / 22.4	38.1 / 15.0	47.4 / 18.7	56.8 / 22.4
Finger grip diameter (thumb to index finger)	Diameter of grasping a cone at the largest circumference permitting the tips of the thumb and index finger to touch	3.6 / 1.4	4.1 / 1.6	4.6 / 1.8	3.2 / 1.3	3.7 / 1.5	4.3 / 1.7
Knee height	From the floor to lateral tibial plateau	42.4 / 16.7	46.9 / 18.5	51.3 / 20.2	38.6 / 15.2	43.3 / 17.1	48.0 / 18.9
Instep height	From the floor to highest point on the top of the foot	7.1 / 2.8	8.1 / 3.2	9.1 / 3.6	6.1 / 2.4	7.1 / 2.8	8.0 / 3.2