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Section 1-1
Gestational Age

CAUTION **Gestational Age / FW tables or equations are NOT the same as Fetal Growth / FW Growth tables or equations!**

NOTICE **G.A. (Gestational Age) / FW:**
These are normal ranges for **estimating an unknown gestational age** from the sonographically measured variable.

1-1-1 Abdominal Circumference (AC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open.home.htm
Date: December 2003

AC (cm)	GA		AC (cm)	GA	
	w	± d		w	± d
5.2	11	7	23.0	27	14
6.3	12	7	24.2	28	14
7.4	13	7	25.9	29	14
8.4	14	7	26.2	30	14
9.6	15	7	27.2	31	21
10.6	16	7	28.3	32	21
12.0	17	7	29.4	33	21
13.1	18	10	30.5	34	21
14.0	19	10	31.5	35	21
15.1	20	10	32.5	36	28
16.4	21	10	33.3	37	28
17.6	22	10	34.2	38	28
18.6	23	10	35.6	39	28
20.1	24	10	36.2	40	28
21.2	25	10	36.7	41	28
22.3	26	14			

1-1-2 Abdominal Circumference (AC) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol.Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

NOTE: AC and GA Values are taken from Fetal Growth Table; AC (50% values) are used as Input and GA as Output!

AC (mm)	GA (Week)
95,00	15
106,40	16
118,00	17
129,20	18
140,40	19
151,40	20
162,30	21
173,00	22
183,60	23
194,00	24
204,40	25
214,50	26
224,50	27
234,40	28
244,00	29
253,60	30
263,00	31
272,20	32
281,20	33
290,20	34
298,80	35
307,40	36
316,00	37
324,70	38
332,40	39
339,00	40

1-1-3 Abdominal Circumference (AC) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 3. Abdominal measurements", Br.J.Obstet.Gynaecol. Vol. 101, 1994, pages 125-131

NOTE: AC and GA Values are taken from Fetal Growth Table; AC (50% values) are used as Input and GA as Output!

AC (cm) Median	GA (week)	AC (cm) Median	GA (week)
5.89	12	23.91	28
7.09	13	24.94	29
8.27	14	25.96	30
9.45	15	26.96	31
10.62	16	27.95	32
11.78	17	28.92	33
12.93	18	29.88	34
14.08	19	30.82	35
15.21	20	31.74	36
16.34	21	32.64	37
17.46	22	33.53	38
18.56	23	34.40	39
19.66	24	35.25	40
20.74	25	36.08	41
21.81	26	36.89	42
22.87	27		

1-1-4 Abdominal Circumference (AC) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight"
Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 7{,}61 + 0{,}7645 \times AC + 0{,}00393 \times AC^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 8.0 cm
Max Range: 35.50 cm

Standard Deviation (±): 1SD = 1.2 weeks

AC (cm)	GA (w +d)	AC (cm)	GA (w +d)
8.00	13w6d	22.00	26w2d
8.50	14w1d	22.50	26w6d
9.00	14w4d	23.00	27w2d
9.50	15w0d	23.50	27w5d
10.00	15w4d	24.00	28w1d
10.50	16w1d	24.50	28w5d
11.00	16w4d	25.00	29w1d
11.50	16w6d	25.50	29w5d
12.00	17w2d	26.00	30w1d
12.50	17w6d	26.50	30w4d
13.00	18w1d	27.00	31w1d
13.50	18w4d	27.50	31w4d
14.00	19w1d	28.00	32w1d
14.50	19w4d	28.50	32w4d
15.00	20w0d	29.00	33w1d
15.50	20w3d	29.50	33w4d
16.00	20w6d	30.00	34w1d
16.50	21w2d	30.50	34w4d
17.00	21w5d	31.00	35w1d
17.50	22w1d	31.50	35w4d
18.00	22w4d	32.00	36w1d
18.50	23w1d	32.50	36w4d
19.00	23w4d	33.00	37w1d
19.50	24w0d	33.50	37w4d
20.00	24w4d	34.00	38w1d
20.50	24w6d	34.50	38w5d
21.00	25w4d	35.00	39w1d
21.50	25w6d	35.50	39w5d

1-1-5 Abdominal Circumference (AC) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501

$$GA = 8{,}14 + 0{,}753 \times AC + 0{,}0036 \times AC^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 5.0 cm
Max Range: 38.0 cm

Standard Deviation:

GA (weeks)		± 2SD (weeks)
Low	High	
12	18	1.66
18	24	2.06
24	30	2.18
30	36	2.96
36	42	3.04

AC (mm)	GA (weeks)		AC (mm)	GA (weeks)		AC (mm)	GA (weeks)		AC (mm)	GA (weeks)	
	mean	± 2SD		mean	± 2SD		mean	± 2SD		mean	± 2SD
<50	n/a	——	135	19.0	2.1	225	26.9	2.2	315	35.4	3.0
50	12.0	1.7	140	19.4	2.1	230	27.4	2.2	320	35.9	3.0
55	12.4	1.7	145	19.8	2.1	235	27.8	2.2	321	36.0	3.1
60	12.8	1.7	150	20.2	2.1	240	28.3	2.2	325	36.4	3.1
65	13.2	1.7	155	20.7	2.1	245	28.7	2.2	330	36.9	3.1
70	13.6	1.7	160	21.1	2.1	250	29.2	2.2	335	37.4	3.1
75	14.0	1.7	165	21.5	2.1	255	29.7	2.2	340	37.9	3.1
80	14.4	1.7	170	22.0	2.1	258	30.0	2.2	345	38.4	3.1
85	14.8	1.7	175	22.4	2.1	259	30.1	3.0	350	38.9	3.1
90	15.2	1.7	180	22.9	2.1	260	30.2	3.0	355	39.4	3.1
95	15.6	1.7	185	23.3	2.1	265	30.6	3.0	360	39.9	3.1
100	16.0	1.7	190	23.7	2.1	270	31.1	3.0	365	40.4	3.1
105	16.4	1.7	192	23.9	2.1	275	31.6	3.0	370	40.9	3.1
110	16.9	1.7	193	24.0	2.2	280	32.0	3.0	375	41.4	3.1
115	17.3	1.7	195	24.2	2.2	285	32.5	3.0	380	42.0	3.1
120	17.7	1.7	200	24.6	2.2	290	33.0	3.0	385	42.5	3.1
123	17.9	1.7	205	25.1	2.2	295	33.5	3.0	>385	n/a	——
124	18.0	2.1	210	25.5	2.2	300	34.0	3.0			
125	18.1	2.1	215	26.0	2.2	305	34.5	3.0			
130	18.5	2.1	220	26.4	2.2	310	34.9	3.0			

1-1-6 Abdominal Circumference (AC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer - Verlag, New York, 1986, p.431.

AC (cm)	GA (weeks)
5.30	12
6.30	13
7.50	14
8.50	15
9.70	16
10.70	17
11.60	18
12.60	19
13.50	20
14.50	21
15.50	22
16.50	23
17.30	24
18.30	25
19.10	26
20.20	27
21.10	28
22.20	29
23.00	30
24.00	31
24.90	32
25.80	33
26.80	34
27.70	35
28.70	36
29.60	37
30.60	38
31.50	39
32.00	40

1-1-7 Abdominal Circumference (AC) HOBBINS

Reference: Document by E-Mail of Hobbins

$$GA = 12{,}099 - (0{,}0011628 \times AC) + (0{,}00045839 \times AC^2) - (0{,}69 \times 10^{-6} \times AC^3)$$

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

1-1-8 Abdominal Circumference (AC) JEANTY

Reference: *Jeanty P., Cousaert E., Cantraine F. "Normal Growth of the Abdominal Perimeter" American Journal of Perinatology; Volume 1 Number 2; January 1984; pages 129-135*

NOTE: AC and GA Values are taken from the Fetal Growth Table and converted to a Fetal Age Table (Growth table see: Section 1-2-7 on page 1-133)

AC (cm)	GA (w+d)	AC (cm)	GA (w+d)	AC (cm)	GA (w+d)
5.00	11w2d	14.00	19w6d	23.00	28w3d
5.50	11w5d	14.50	20w2d	23.50	29w0d
6.00	12w1d	15.00	20w6d	24.00	29w3d
6.50	12w5d	15.50	21w2d	24.50	30w0d
7.00	13w1d	16.00	21w5d	25.00	30w4d
7.50	13w4d	16.50	22w2d	25.50	31w1d
8.00	14w1d	17.00	22w5d	26.00	31w5d
8.50	14w4d	17.50	23w1d	26.50	32w2d
9.00	15w0d	18.00	23w5d	27.00	32w6d
9.50	15w4d	18.50	24w1d	27.50	33w3d
10.00	16w0d	19.00	24w4d	28.00	34w1d
10.50	16w3d	19.50	25w1d	28.50	34w6d
11.00	17w0d	20.00	25w4d	29.00	35w4d
11.50	17w3d	20.50	26w0d	29.50	36w2d
12.00	17w6d	21.00	26w4d	30.00	37w0d
12.50	18w3d	21.50	27w0d	30.50	37w6d
13.00	18w6d	22.00	27w3d	31.00	38w6d
13.50	19w2d	22.50	28w0d	31.50	39w6d

1-1-9 Abdominal Circumference (AC) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J. Med Ultrasonics Vol. 28 No.5 (2001)

AC (cm)	GA (w+d / d)		AC (cm)	GA (w+d / d)	
	Mean	± 1SD		Mean	± 1SD
10,00	15w3d	8	21,50	27w0d	12
10,50	16w0d	8	22,00	27w3d	12
11,00	16w4d	8	22,50	28w0d	12
11,50	17w0d	8	23,00	28w4d	12
12,00	17w4d	9	23,50	29w0d	12
12,50	18w0d	9	24,00	29w4d	13
13,00	18w4d	9	24,50	30w1d	13
13,50	19w0d	9	25,00	30w5d	13
14,00	19w4d	9	25,50	31w2d	13
14,50	20w0d	9	26,00	31w6d	13
15,00	20w3d	10	26,50	32w3d	13
15,50	21w0d	10	27,00	33w1d	13
16,00	21w3d	10	27,50	33w5d	14
16,50	22w0d	10	28,00	34w2d	14
17,00	22w3d	10	28,50	35w0d	14
17,50	22w6d	10	29,00	35w4d	14
18,00	23w3d	11	29,50	36w2d	14
18,50	23w6d	11	30,00	37w0d	14
19,00	24w3d	11	30,50	37w5d	14
19,50	24w6d	11	31,00	38w2d	15
20,00	25w3d	11	31,50	39w0d	15
20,50	25w6d	11	32,00	39w6d	15
21,00	26w3d	12	32,50	40w4d	15

1-1-10 Abdominal Circumference (AC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d
5,7	12w0d	9,7	15w4d	13,7	19w0d	17,7	22w5d	21,7	26w4d	25,7	30w4d	29,7	34w6d	33,7	39w4d
5,8	12w1d	9,8	15w4d	13,8	19w1d	17,8	22w6d	21,8	26w4d	25,8	30w5d	29,8	35w0d	33,8	39w5d
5,9	12w1d	9,9	15w5d	13,9	19w2d	17,9	22w6d	21,9	26w5d	25,9	30w5d	29,9	35w1d	33,9	39w6d
6,0	12w2d	10,0	15w5d	14,0	19w2d	18,0	23w0d	22,0	26w6d	26,0	30w6d	30,0	35w2d	34,0	40w0d
6,1	12w3d	10,1	15w6d	14,1	19w3d	18,1	23w1d	22,1	27w0d	26,1	31w0d	30,1	35w2d	34,1	40w1d
6,2	12w3d	10,2	16w0d	14,2	19w4d	18,2	23w1d	22,2	27w0d	26,2	31w1d	30,2	35w3d	34,2	40w2d
6,3	12w4d	10,3	16w0d	14,3	19w4d	18,3	23w2d	22,3	27w1d	26,3	31w1d	30,3	35w4d	34,3	40w3d
6,4	12w4d	10,4	16w1d	14,4	19w5d	18,4	23w3d	22,4	27w2d	26,4	31w2d	30,4	35w5d	34,4	40w4d
6,5	12w5d	10,5	16w1d	14,5	19w5d	18,5	23w3d	22,5	27w2d	26,5	31w3d	30,5	35w6d	34,5	40w4d
6,6	12w6d	10,6	16w2d	14,6	19w6d	18,6	23w4d	22,6	27w3d	26,6	31w4d	30,6	35w6d	34,6	40w5d
6,7	12w6d	10,7	16w3d	14,7	20w0d	18,7	23w5d	22,7	27w4d	26,7	31w4d	30,7	36w0d	34,7	40w6d
6,8	13w0d	10,8	16w3d	14,8	20w0d	18,8	23w5d	22,8	27w4d	26,8	31w5d	30,8	36w1d	34,8	41w0d
6,9	13w0d	10,9	16w4d	14,9	20w1d	18,9	23w6d	22,9	27w5d	26,9	31w6d	30,9	36w2d	34,9	41w1d
7,0	13w1d	11,0	16w5d	15,0	20w2d	19,0	24w0d	23,0	27w6d	27,0	32w0d	31,0	36w3d	35,0	41w2d
7,1	13w2d	11,1	16w5d	15,1	20w2d	19,1	24w0d	23,1	27w6d	27,1	32w0d	31,1	36w3d	35,1	41w3d
7,2	13w2d	11,2	16w6d	15,2	20w3d	19,2	24w1d	23,2	28w0d	27,2	32w1d	31,2	36w4d	35,2	41w4d
7,3	13w3d	11,3	16w6d	15,3	20w4d	19,3	24w2d	23,3	28w1d	27,3	32w2d	31,3	36w5d	35,3	41w5d
7,4	13w3d	11,4	17w0d	15,4	20w4d	19,4	24w2d	23,4	28w2d	27,4	32w3d	31,4	36w6d	35,4	41w6d
7,5	13w4d	11,5	17w1d	15,5	20w5d	19,5	24w3d	23,5	28w2d	27,5	32w3d	31,5	37w0d	35,5	42w0d
7,6	13w5d	11,6	17w1d	15,6	20w5d	19,6	24w4d	23,6	28w3d	27,6	32w4d	31,6	37w0d		
7,7	13w5d	11,7	17w2d	15,7	20w6d	19,7	24w4d	23,7	28w4d	27,7	32w5d	31,7	37w1d		
7,8	13w6d	11,8	17w2d	15,8	21w0d	19,8	24w5d	23,8	28w4d	27,8	32w6d	31,8	37w2d		
7,9	14w0d	11,9	17w3d	15,9	21w0d	19,9	24w6d	23,9	28w5d	27,9	32w6d	31,9	37w3d		
8,0	14w0d	12,0	17w4d	16,0	21w1d	20,0	24w6d	24,0	28w6d	28,0	33w0d	32,0	37w4d		
8,1	14w1d	12,1	17w4d	16,1	21w2d	20,1	25w0d	24,1	29w0d	28,1	33w1d	32,1	37w5d		
8,2	14w1d	12,2	17w5d	16,2	21w2d	20,2	25w1d	24,2	29w0d	28,2	33w2d	32,2	37w5d		
8,3	14w2d	12,3	17w6d	16,3	21w3d	20,3	25w1d	24,3	29w1d	28,3	33w2d	32,3	37w6d		
8,4	14w3d	12,4	17w6d	16,4	21w4d	20,4	25w2d	24,4	29w2d	28,4	33w3d	32,4	38w0d		
8,5	14w3d	12,5	18w0d	16,5	21w4d	20,5	25w3d	24,5	29w2d	28,5	33w4d	32,5	38w1d		
8,6	14w4d	12,6	18w0d	16,6	21w5d	20,6	25w3d	24,6	29w3d	28,6	33w5d	32,6	38w2d		
8,7	14w4d	12,7	18w1d	16,7	21w6d	20,7	25w4d	24,7	29w4d	28,7	33w5d	32,7	38w3d		
8,8	14w5d	12,8	18w2d	16,8	21w6d	20,8	25w5d	24,8	29w4d	28,8	33w6d	32,8	38w4d		
8,9	14w6d	12,9	18w2d	16,9	22w0d	20,9	25w5d	24,9	29w5d	28,9	34w0d	32,9	38w4d		
9,0	14w6d	13,0	18w3d	17,0	22w0d	21,0	25w6d	25,0	29w6d	29,0	34w1d	33,0	38w5d		
9,1	15w0d	13,1	18w4d	17,1	22w1d	21,1	26w0d	25,1	30w0d	29,1	34w2d	33,1	38w6d		
9,2	15w0d	13,2	18w4d	17,2	22w2d	21,2	26w0d	25,2	30w0d	29,2	34w2d	33,2	39w0d		
9,3	15w1d	13,3	18w5d	17,3	22w2d	21,3	26w1d	25,3	30w1d	29,3	34w3d	33,3	39w1d		
9,4	15w2d	13,4	18w5d	17,4	22w3d	21,4	26w2d	25,4	30w2d	29,4	34w4d	33,4	39w2d		
9,5	15w2d	13,5	18w6d	17,5	22w4d	21,5	26w2d	25,5	30w3d	29,5	34w5d	33,5	39w3d		
9,6	15w3d	13,6	19w0d	17,6	22w4d	21,6	26w3d	25,6	30w3d	29,6	34w5d	33,6	39w3d		

1-1-11 Abdominal Circumference (AC) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Text book and Atlas, 1991 Georg Thieme Verlag, pp.326

AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
5.60	10w6d	12w1d	13w2d	15.40	19w6d	21w3d	23w0d	25.20	28w6d	30w6d	32w5d
5.80	11w1d	12w2d	13w4d	15.60	20w1d	21w4d	23w1d	25.40	29w0d	30w6d	32w6d
6.00	11w2d	12w4d	13w5d	15.80	20w1d	21w6d	23w3d	25.60	29w1d	31w1d	33w1d
6.20	11w4d	12w5d	13w6d	16.00	20w3d	22w0d	23w4d	25.80	29w3d	31w2d	33w2d
6.40	11w5d	12w6d	14w1d	16.20	20w4d	22w1d	23w6d	26.00	29w4d	31w4d	33w4d
6.60	11w6d	13w1d	14w2d	16.40	20w6d	22w3d	24w0d	26.20	29w5d	31w5d	33w5d
6.80	12w0d	13w2d	14w4d	16.60	21w0d	22w4d	24w1d	26.40	29w6d	31w6d	33w6d
7.00	12w1d	13w4d	14w5d	16.80	21w1d	22w6d	24w3d	26.60	30w1d	32w1d	34w1d
7.20	12w3d	13w4d	14w6d	17.00	21w2d	23w0d	24w4d	26.80	30w2d	32w2d	34w2d
7.40	12w4d	13w6d	15w1d	17.20	21w4d	23w1d	24w6d	27.00	30w4d	32w4d	34w4d
7.60	12w6d	14w0d	15w2d	17.40	21w5d	23w2d	25w0d	27.20	30w4d	32w5d	34w5d
7.80	12w6d	14w1d	15w4d	17.60	21w6d	23w4d	25w1d	27.40	30w6d	32w6d	34w6d
8.00	13w1d	14w3d	15w5d	17.80	22w1d	23w5d	25w3d	27.60	31w0d	33w0d	35w1d
8.20	13w2d	14w4d	15w6d	18.00	22w1d	23w6d	25w4d	27.80	31w1d	33w1d	35w2d
8.40	13w4d	14w6d	16w1d	18.20	22w3d	24w1d	25w6d	28.00	31w3d	33w3d	35w4d
8.60	13w5d	15w0d	16w2d	18.40	22w4d	24w2d	26w0d	28.20	31w4d	33w4d	35w5d
8.80	13w6d	15w1d	16w4d	18.60	22w6d	24w4d	26w1d	28.40	31w5d	33w6d	35w6d
9.00	14w0d	15w3d	16w5d	18.80	23w0d	24w5d	26w3d	28.60	31w6d	34w0d	36w1d
9.20	14w1d	15w4d	16w6d	19.00	23w1d	24w6d	26w4d	28.80	32w1d	34w1d	36w2d
9.40	14w3d	15w5d	17w1d	19.20	23w2d	25w0d	26w6d	29.00	32w2d	34w3d	36w4d
9.60	14w4d	15w6d	17w2d	19.40	23w4d	25w1d	27w0d	29.20	32w4d	34w4d	36w5d
9.80	14w6d	16w1d	17w4d	19.60	23w5d	25w3d	27w1d	29.40	32w4d	34w5d	36w6d
10.00	14w6d	16w2d	17w5d	19.80	23w6d	25w4d	27w3d	29.60	32w6d	34w6d	37w1d
10.20	15w1d	16w4d	17w6d	20.00	24w1d	25w6d	27w4d	29.80	33w0d	35w1d	37w1d
10.40	15w2d	16w5d	18w1d	20.20	24w2d	26w0d	27w6d	30.00	33w1d	35w2d	37w3d
10.60	15w4d	16w6d	18w2d	20.40	24w3d	26w1d	27w6d	30.20	33w3d	35w4d	37w4d
10.80	15w5d	17w1d	18w3d	20.60	24w4d	26w3d	28w1d	30.40	33w4d	35w5d	37w6d
11.00	15w6d	17w2d	18w4d	20.80	24w6d	26w4d	28w2d	30.60	33w5d	35w6d	38w0d
11.20	16w0d	17w3d	18w6d	21.00	25w0d	26w6d	28w4d	30.80	33w6d	36w1d	38w1d
11.40	16w1d	17w4d	19w0d	21.20	25w1d	27w0d	28w5d	31.00	34w1d	36w2d	38w3d
11.60	16w3d	17w6d	19w1d	21.40	25w2d	27w1d	28w6d	31.20	34w2d	36w4d	38w4d
11.80	16w4d	18w0d	19w3d	21.60	25w4d	27w2d	29w1d	31.40	34w4d	36w4d	38w6d
12.00	16w6d	18w1d	19w4d	21.80	25w5d	27w4d	29w2d	31.60	34w4d	36w6d	39w0d
12.20	17w0d	18w3d	19w6d	22.00	25w6d	27w5d	29w4d	31.80	34w6d	37w0d	39w1d
12.40	17w1d	18w4d	20w0d	22.20	26w1d	27w6d	29w5d	32.00	35w0d	37w1d	39w3d
12.60	17w2d	18w6d	20w1d	22.40	26w2d	28w1d	29w6d	32.20	35w1d	37w3d	39w4d
12.80	17w4d	19w0d	20w3d	22.60	26w3d	28w2d	30w1d	32.40	35w3d	37w4d	39w6d
13.00	17w5d	19w1d	20w4d	22.80	26w4d	28w4d	30w2d	32.60	35w4d	37w6d	40w0d
13.20	17w6d	19w2d	20w6d	23.00	26w6d	28w5d	30w4d	32.80	35w5d	38w0d	40w1d
13.40	18w0d	19w4d	21w0d	23.20	27w0d	28w6d	30w5d	33.00	35w6d	38w1d	40w3d

AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
13.60	18w1d	19w5d	21w1d	23.40	27w1d	29w0d	30w6d	33.20	36w1d	38w3d	40w4d
13.80	18w3d	19w6d	21w3d	23.60	27w3d	29w1d	31w1d	33.40	36w2d	38w4d	40w6d
14.00	18w4d	20w1d	21w4d	23.80	27w4d	29w3d	31w2d	33.60	36w4d	38w5d	41w0d
14.20	18w6d	20w2d	21w6d	24.00	27w5d	29w4d	31w4d	33.80	36w5d	38w6d	41w1d
14.40	19w0d	20w4d	22w0d	24.20	27w6d	29w6d	31w5d	34.00	36w6d	39w1d	41w3d
14.60	19w1d	20w5d	22w1d	24.40	28w1d	30w0d	31w6d	34.20	37w0d	39w2d	41w4d
14.80	19w2d	20w6d	22w3d	24.60	28w2d	30w1d	32w1d	34.40	37w1d	39w4d	41w6d
15.00	19w4d	21w1d	22w4d	24.80	28w3d	30w3d	32w2d	34.60	37w3d	39w5d	42w0d
15.20	19w5d	21w1d	22w6d	25.00	28w4d	30w4d	32w4d	34.80	37w4d	39w6d	42w1d

1-1-12 Abdominal Circumference (AC) NICOLAIDES

Reference: *R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48*

NOTE: AC and GA Values are taken from Fetal Growth Table; AC (50% values) are used as Input and GA as Output!

AC (cm)	GA (Week)	AC (cm)	GA (Week)
Median		Median	
9.00	14	23.10	27
9.90	15	24.30	28
10.80	16	25.40	29
11.80	17	26.60	30
12.80	18	27.70	31
13.90	19	28.70	32
14.90	20	29.70	33
16.10	21	30.70	34
17.20	22	31.60	35
18.30	23	32.40	36
19.50	24	33.20	37
20.70	25	33.90	38
21.90	26	34.50	39

1-1-13 Abdominal Circumference (AC) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

AC	GA (w+d/d)		AC	GA (w+d/d)	
(cm)	mean	± dec	(cm)	mean	± dec
10.00	15w3d	8d	22.00	27w3d	12d
10.50	16w0d	8d	22.50	28w0d	12d
11.00	16w4d	8d	23.00	28w4d	12d
11.50	17w0d	8d	23.50	29w0d	12d
12.00	17w4d	9d	24.00	29w4d	13d
12.50	18w0d	9d	24.50	30w1d	13d
13.00	18w4d	9d	25.00	30w5d	13d
13.50	19w0d	9d	25.50	31w2d	13d
14.00	19w4d	9d	26.00	31w6d	13d
14.50	20w0d	9d	26.50	32w3d	13d
15.00	20w3d	10d	27.00	33w1d	13d
15.50	21w0d	10d	27.50	33w5d	14d
16.00	21w3d	10d	28.00	34w2d	14d
16.50	22w0d	10d	28.50	35w0d	14d
17.00	22w3d	10d	29.00	35w4d	14d
17.50	22w6d	10d	29.50	36w2d	14d
18.00	23w3d	11d	30.00	37w0d	14d
18.50	23w6d	11d	30.50	37w5d	14d
19.00	24w3d	11d	31.00	38w2d	15d
19.50	24w6d	11d	31.50	39w0d	15d
20.00	25w3d	11d	32.00	39w6d	15d
20.50	25w6d	11d	32.50	40w4d	15d
21.00	26w3d	12d	33.00	41w2d	15d
21.50	27w0d	12d			

1-1-14 Abdominal Circumference (AC) TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

AC (cm)	GA (w+d/d)		AC (cm)	GA (w+d/d)	
	mean	± dec		mean	± dec
10.00	15w3d	8d	22.00	27w3d	12d
10.50	16w0d	8d	22.50	28w0d	12d
11.00	16w4d	8d	23.00	28w4d	12d
11.50	17w0d	8d	23.50	29w0d	12d
12.00	17w4d	9d	24.00	29w4d	13d
12.50	18w0d	9d	24.50	30w1d	13d
13.00	18w4d	9d	25.00	30w5d	13d
13.50	19w0d	9d	25.50	31w2d	13d
14.00	19w4d	9d	26.00	31w6d	13d
14.50	20w0d	9d	26.50	32w3d	13d
15.00	20w3d	10d	27.00	33w1d	13d
15.50	21w0d	10d	27.50	33w5d	14d
16.00	21w3d	10d	28.00	34w2d	14d
16.50	22w0d	10d	28.50	35w0d	14d
17.00	22w3d	10d	29.00	35w4d	14d
17.50	22w6d	10d	29.50	36w2d	14d
18.00	23w3d	11d	30.00	36w0d	14d
18.50	23w6d	11d	30.50	37w5d	14d
19.00	24w3d	11d	31.00	38w2d	15d
19.50	24w6d	11d	31.50	39w0d	15d
20.00	25w3d	11d	32.00	39w6d	15d
20.50	25w6d	11d	32.50	40w4d	15d
21.00	26w3d	12d	33.00	41w2d	15d
21.50	27w0d	12d			

1-1-15 Abdominal Diameter (AD) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: AD and GA Values are taken from Fetal Growth Table; AD values are used as Input and GA as Output!

AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)
34,0	111	53,0	149	72,0	187	90,8	225	106.8	263
34,5	112	53,5	150	72,5	188	91,2	226	107,2	264
35,0	113	54,0	151	73,0	189	91,6	227	107,6	265
35,5	114	54,5	152	73,5	190	92,0	228	108,0	266
36,0	115	55,0	153	74,0	191	92,5	229	108,4	267
36,5	116	55,5	154	74,5	192	93,0	230	108,8	268
37,0	117	56,0	155	75,0	193	93,5	231	109,2	269
37,5	118	56,5	156	75,5	194	94,0	232	109,6	270
38,0	119	57,0	157	76,0	195	94,4	233	110,0	271
38,5	120	57,5	158	76,5	196	94,8	234	110,3	272
39,0	121	58,0	159	77,0	197	95,2	235	110,7	273
39,5	122	58,5	160	77,5	198	95,6	236	111,0	274
40,0	123	59,0	161	78,0	199	96,0	237	111,3	275
40,5	124	59,5	162	78,5	200	96,5	238	111,7	276
41,0	125	60,0	163	79,0	201	97,0	239	112,0	277
41,5	126	60,5	164	79,5	202	97,5	240	112,3	278
42,0	127	61,0	165	80,0	203	98,0	241	112,7	279
42,5	128	61,5	166	80,5	204	98,4	242	113,0	280
43,0	129	62,0	167	81,0	205	98,8	243	113,3	281
43,5	130	62,5	168	81,5	206	99,2	244	113,5	282
44,0	131	63,0	169	82,0	207	99,6	245	113,8	283
44,5	132	63,5	170	82,5	208	100,0	246	114,0	284
45,0	133	64,0	171	83,0	209	100,5	247	114,3	285
45,5	134	64,5	172	83,5	210	101,0	248	114,5	286
46,0	135	65,0	173	84,0	211	101,4	249	114,8	287
46,5	136	65,5	174	84,5	212	101,8	250	115,0	288
47,0	137	66,0	175	85,0	213	102,2	251	115,3	289
47,5	138	66,5	176	85,3	214	102,6	252	115,5	290
48,0	139	67,0	177	86,0	215	103,0	253	115,8	291
48,5	140	67,5	178	86,5	216	103,4	254	116,0	292
49,0	141	68,0	179	87,0	217	103,8	255	116,2	293
49,5	142	68,5	180	87,5	218	104,2	256	116,4	294
50,0	143	69,0	181	88,0	219	104,6	257	116,6	295
50,5	144	69,5	182	88,5	220	105,0	258	116,8	296
51,0	145	70,0	183	89,0	221	105,3	259	117,0	297
51,5	146	70,5	184	89,5	222	105,7	260	117,2	298
52,0	147	71,0	185	90,0	223	106,0	261	117,4	299
52,2	148	71,5	186	90,4	224	106,4	262	117,6	300

1-1-16 Anterior Posterior Abdominal Diameter (APAD) MERZ

Reference: Merz E., Wellek S. Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones Ultraschall in Med. 17 (1996) 153-162

NOTE: APAD and GA Values are taken from Fetal Growth Table; APAD (50% values) are used as Input and GA as Output! (Growth table see: Section 1-2-17 on page 1-144)

NOTE: Values are copied from growth table.

APAD (cm)	GA (weeks)	APAD (cm)	GA (weeks)
50%		**50%**	
1.90	12.5	7.00	27.5
2.10	13.0	7.20	28.0
2.30	13.5	7.30	28.5
2.40	14.0	7.50	29.0
2.60	14.5	7.60	29.5
2.80	15.0	7.80	30.0
2.90	15.5	7.90	30.5
3.10	16.0	8.10	31.0
3.30	16.5	8.20	31.5
3.50	17.0	8.40	32.0
3.60	17.5	8.50	32.5
3.80	18.0	8.70	33.0
4.00	18.5	8.80	33.5
4.20	19.0	9.00	34.0
4.30	19.5	9.10	34.5
4.50	20.0	9.30	35.0
4.70	20.5	9.40	35.5
4.80	21.0	9.60	36.0
5.00	21.5	9.70	36.5
5.20	22.0	9.80	37.0
5.40	22.5	10.00	37.5
5.50	23.0	10.10	38.0
5.70	23.5	10.20	38.5
5.90	24.0	10.30	39.0
6.00	24.5	10.50	39.5
6.20	25.0	10.60	40.0
6.30	25.5	10.70	40.5
6.50	26.0	10.80	41.0
6.70	26.5	10.90	41.5
6.80	27.0		

1-1-17 Anterior Posterior Trunk Diameter (APTD) HANSMANN

Reference: Hansmann M. "Ultraschallbiometrie im II. und III. Trimester der Schwangerschaft" Gynäkologe 9 (1976) 144

NOTE: concerning DICOM-SR:
TTD Value is transferred as TAD value (Transverse Abdominal Diameter)
(because no TTD item present in DICOM standard)

APTD (cm)	GA (weeks)
2.25	14
2.58	15
2.85	16
3.11	17
3.46	18
3.75	19
4.00	20
4.34	21
4.65	22
4.90	23
5.15	24
5.48	25
5.80	26
6.15	27
6.39	28
6.70	29
7.01	30
7.25	31
7.62	32
7.93	33
8.15	34
8.40	35
8.75	36
9.02	37
9.30	38
9.53	39
9.68	40
9.84	41
9.91	42

1-1-18 APTD x TTD SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

$$AxT = APTD \times TTD$$

AxT (cm^2)	GA (w+d/d)		AxT (cm^2)	GA (w+d/d)	
	mean	± dec		mean	± dec
10	16w1d	8d	52	29w3d	13d
12	17w0d	8d	54	30w0d	13d
14	17w6d	8d	56	30w3d	13d
16	18w4d	8d	58	31w0d	14d
18	19w3d	8d	60	31w3d	14d
20	20w1d	8d	62	31w6d	14d
22	20w6d	9d	64	32w3d	15d
24	21w4d	9d	66	32w6d	15d
26	22w2d	9d	68	33w3d	15d
28	22w6d	9d	70	33w6d	16d
30	23w4d	9d	72	34w2d	16d
32	24w1d	10d	74	34w6d	17d
34	24w5d	10d	76	35w3d	17d
36	25w3d	10d	78	35w6d	17d
38	25w6d	10d	80	36w3d	18d
40	26w3d	11d	82	37w0d	18d
42	27w0d	11d	84	37w4d	18d
44	27w3d	11d	86	38w1d	18d
46	28w0d	12d	88	38w5d	19d
48	28w4d	12d	90	39w2d	19d
50	29w0d	12d			

1-1-19 APTD x TTD TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

$$AxT = APTD \times TTD$$

AxT (cm^2)	GA (w+d/d)		AxT (cm^2)	GA (w+d/d)	
	mean	± dec		mean	± dec
10	16w1d	8d	52	29w3d	13d
12	17w0d	8d	54	30w0d	13d
14	17w6d	8d	56	30w3d	13d
16	18w4d	8d	58	31w0d	14d
18	19w3d	8d	60	31w3d	14d
20	20w1d	8d	62	31w6d	14d
22	20w6d	9d	64	32w3d	15d
24	21w4d	9d	66	32w6d	15d
26	22w2d	9d	68	33w3d	15d
28	22w6d	9d	70	33w6d	16d
30	23w4d	9d	72	34w2d	16d
32	24w1d	10d	74	34w6d	17d
34	24w5d	10d	76	35w3d	17d
36	25w3d	10d	78	35w6d	17d
38	25w6d	10d	80	36w3d	18d
40	26w3d	11d	82	37w0d	18d
42	27w0d	11d	84	37w4d	18d
44	27w3d	11d	86	38w1d	18d
46	28w0d	12d	88	38w5d	19d
48	28w4d	12d	90	39w2d	19d
50	29w0d	12d			

1-1-20 Binocular Distance (BOD) JEANTY

Reference: Jeanty P., Cantraine F., Cousaert E., Romero R., Hobbins J.C. "The binocular distance: a new way to estimate fetal age." Journal of Ultrasound in Medicine; 1984; Jun; 3(6): 241-243

BOD (cm)	GA (weeks + days)			BOD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
1.50	7w1d	10w3d	13w6d	4.10	22w4d	25w6d	29w1d
1.60	7w5d	11w0d	14w3d	4.20	23w1d	26w4d	29w6d
1.70	8w2d	11w4d	15w0d	4.30	23w6d	27w1d	30w3d
1.80	8w6d	12w1d	15w4d	4.40	24w3d	27w5d	31w0d
1.90	9w4d	12w6d	16w1d	4.50	25w0d	28w2d	31w4d
2.00	10w1d	13w3d	16w5d	4.60	25w4d	28w6d	32w1d
2.10	10w5d	14w0d	17w2d	4.70	26w1d	29w4d	32w6d
2.20	11w2d	14w4d	17w6d	4.80	26w6d	30w1d	33w3d
2.30	11w6d	15w1d	18w4d	4.90	27w2d	30w5d	34w0d
2.40	12w4d	15w6d	19w1d	5.00	27w6d	31w2d	34w4d
2.50	13w1d	16w3d	19w5d	5.10	28w4d	31w6d	35w1d
2.60	13w5d	17w0d	20w2d	5.20	29w1d	32w4d	35w6d
2.70	14w2d	17w4d	20w6d	5.30	29w5d	33w0d	36w3d
2.80	14w6d	18w1d	21w4d	5.40	30w2d	33w4d	37w0d
2.90	15w4d	18w6d	22w1d	5.50	30w6d	34w1d	37w4d
3.00	16w1d	19w3d	22w5d	5.60	31w4d	34w6d	38w1d
3.10	16w4d	20w0d	23w2d	5.70	32w1d	35w3d	38w5d
3.20	17w1d	20w4d	23w6d	5.80	32w5d	36w0d	39w2d
3.30	17w6d	21w1d	24w4d	5.90	33w2d	36w4d	39w6d
3.40	18w3d	21w5d	25w1d	6.00	33w6d	37w1d	40w4d
3.50	19w0d	22w2d	25w5d	6.10	34w4d	37w6d	41w1d
3.60	19w4d	22w6d	26w2d	6.20	35w1d	38w3d	41w5d
3.70	20w1d	23w4d	26w6d	6.30	35w5d	39w0d	42w2d
3.80	20w6d	24w1d	27w3d	6.40	36w2d	39w4d	42w6d
3.90	21w3d	24w5d	28w0d	6.50	36w6d	40w1d	43w4d
4.00	22w0d	25w2d	28w4d				

1-1-21 Biparietal Diameter (BPD) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

BPD (cm)	GA		BPD (cm)	GA	
	w	± d		w	± d
1,6	11	4	6,8	27	12
2,0	12	7	7,2	28	12
2,4	13	7	7,5	29	12
2,8	14	7	7,6	30	14
3,1	15	7	8,0	31	16
3,6	16	7	8,1	32	16
3,9	17	10	8,4	33	21
4,2	18	10	8,6	34	21
4,5	19	10	8,8	35	21
4,7	20	10	9,0	36	21
4,9	21	10	9,2	37	24
5,2	22	10	9,3	38	24
5,7	23	10	9,5	39	28
6,0	24	10	9,6	40	28
6,4	25	10	9,8	41	28
6,7	26	12			

1-1-22 Biparietal Diameter (BPD) ASUM OLD

Reference: *ASUM STANDARD BPD CHART*
Reaffirmed MAY 1996
STANDARD GESTATION AGE ASSESSMENT USING BPD
Prepared by D. Robinson, L. de Crespigny, A. Speirs and W. Garrett
These figures are based on an Australian population. It is recommended that a multiparameter assessment of gestational age be used.
The wide normal range of BPD in late pregnancy must be appreciated. It is not expected that BPD be used to assess gestation late in pregnancy. The values from 33 weeks are intended to predict the growth in fetal head size from a known gestation.
Modified from de Crespigny L and Speirs A.L. A new look at Biparietal Diameter. Aust NZJ Obstet Gynaecol 1989, 29:26-29.

BPD (mm)	GA(weeks)		BPD (mm)	GA(weeks)		BPD (mm)	GA(weeks)	
	w d	±2 SD		w d	±2 SD		w d	±2 SD
20	12 0	4d	43	18 4	9d	66	26 1	14d
21	12 2	4d	44	18 6	9d	67	26 4	15d
22	12 4	4d	45	19 1	9d	68	26 6	15d
23	12 6	4d	46	19 3	10d	69	27 2	15d
24	13 1	5d	47	19 6	10d	70	27 4	15d
25	13 2	5d	48	20 1	10d	71	28 0	16d
26	13 4	5d	49	20 3	10d	72	28 3	16d
27	13 6	5d	50	20 5	11d	73	28 5	16d
28	14 1	5d	51	21 0	11d	74	29 1	16d
29	14 3	6d	52	21 2	11d	75	29 3	17d
30	14 5	6d	53	21 5	11d	76	29 6	17d
31	15 0	6d	54	22 0	12d	77	30 2	17d
32	15 2	6d	55	22 3	12d	78	30 4	17d
33	15 4	7d	56	22 5	12d	79	31 0	17d
34	15 6	7d	57	23 0	12d	80	31 3	18d
35	16 1	7d	58	23 3	13d	81	31 5	18d
36	16 3	7d	59	23 5	13d	82	32 1	18d
37	16 5	8d	60	24 1	13d	83	32 4	18d
38	17 0	8d	61	24 3	13d	84	33 0	19d
39	17 2	8d	62	24 5	13d			
40	17 4	8d	63	25 1	14d			
41	18 0	9d	64	25 3	14d			
42	18 2	9d	65	25 6	14d			

1-1-23 Biparietal Diameter (BPD) CAMPBELL

Reference: Campbell S., Warsof S.L., Little D., Cooper D.J.
"Routine Ultrasound Screening for the Prediction of Gestational Age"
Obstetrics & Gynecology; Vol. 65; No. 5; May 1985; pages 613-620

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD values are used as Input and GA as Output!

BPD (cm)	GA (weeks)	BPD (cm)	GA (weeks)
2.12	12	7.09	27
2.17	13	7.58	28
2.78	14	7.87	29
3.14	15	8.03	30
3.53	16	8.22	31
3.87	17	8.57	32
4.15	18	8.67	33
4.60	19	8.94	34
4.82	20	9.16	35
5.12	21	9.14	36
5.42	22	9.35	37
5.82	23	9.35	38
6.16	24	9.62	39
6.42	25	9.59	40
6.59	26		

1-1-24 Biparietal Diameter (BPD) CFEF

Reference: Crequat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynecol Obstet Fertil. Vol. 28 No. 2, 2000, pages 435-445

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD values are used as Input and GA as Output!

BPD (mm)	GA (Week)	BPD (mm)	GA (Week)
15,36	11	68,55	27
19,40	12	71,03	28
23,30	13	73,50	29
27,14	14	75,80	30
30,89	15	78,00	31
34,53	16	80,16	32
38,12	17	82,14	33
41,58	18	84,07	34
45,00	19	85,90	35
48,22	20	87,61	36
51,43	21	89,24	37
54,53	22	90,70	38
57,51	23	92,10	39
60,42	24	93,45	40
63,25	25	94,00	41
65,94	26		

1-1-25 Biparietal Diameter (BPD) CHITTY (outer - outer)

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

BPD (cm)	GA (weeks+days)			BPD (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
2.20	11w5d	12w4d	13w4d	6.00	21w4d	23w5d	25w6d
2.30	12w0d	12w6d	13w6d	6.10	21w6d	24w0d	26w2d
2.40	12w1d	13w1d	14w1d	6.20	22w1d	24w2d	26w5d
2.50	12w3d	13w3d	14w3d	6.30	22w4d	24w5d	27w0d
2.60	12w5d	13w4d	14w5d	6.40	22w6d	25w0d	27w3d
2.70	12w6d	13w6d	15w0d	6.50	23w1d	25w2d	27w6d
2.80	13w1d	14w1d	15w2d	6.60	23w3d	25w5d	28w2d
2.90	13w3d	14w3d	15w4d	6.70	23w5d	26w0d	28w4d
3.00	13w4d	14w5d	15w6d	6.80	24w0d	26w3d	29w0d
3.10	13w6d	15w0d	16w1d	6.90	24w2d	26w5d	29w3d
3.20	14w1d	15w2d	16w3d	7.00	24w4d	27w1d	29w6d
3.30	14w3d	15w4d	16w5d	7.10	25w0d	27w3d	30w2d
3.40	14w4d	15w5d	17w0d	7.20	25w2d	27w6d	30w4d
3.50	14w6d	16w0d	17w2d	7.30	25w4d	28w1d	31w0d
3.60	15w1d	16w2d	17w5d	7.40	25w6d	28w4d	31w3d
3.70	15w3d	16w4d	18w0d	7.50	26w2d	28w6d	31w6d
3.80	15w4d	16w6d	18w2d	7.60	26w4d	29w2d	32w2d
3.90	15w6d	17w1d	18w4d	7.70	26w6d	29w5d	32w5d
4.00	16w1d	17w3d	19w0d	7.80	27w1d	30w0d	33w1d
4.10	16w3d	17w5d	19w2d	7.90	27w4d	30w3d	33w4d
4.20	16w4d	18w0d	19w4d	8.00	27w6d	30w5d	34w0d
4.30	16w6d	18w2d	19w6d	8.10	28w1d	31w1d	34w3d
4.40	17w1d	18w4d	20w2d	8.20	28w3d	31w4d	34w6d
4.50	17w3d	19w0d	20w4d	8.30	28w6d	31w6d	35w2d
4.60	17w5d	19w2d	20w6d	8.40	29w1d	32w2d	35w6d
4.70	18w0d	19w4d	21w2d	8.50	29w4d	32w5d	36w2d
4.80	18w2d	19w6d	21w4d	8.60	29w6d	33w1d	36w5d
4.90	18w4d	20w1d	22w0d	8.70	30w1d	33w3d	37w1d
5.00	18w5d	20w3d	22w2d	8.80	30w4d	33w6d	37w4d
5.10	19w0d	20w5d	22w4d	8.90	30w6d	34w2d	38w1d
5.20	19w2d	21w1d	23w0d	9.00	31w1d	34w5d	38w4d
5.30	19w4d	21w3d	23w2d	9.10	31w4d	35w1d	39w0d
5.40	19w6d	21w5d	23w5d				
5.50	20w1d	22w0d	24w0d				
5.60	20w3d	22w2d	24w3d				
5.70	20w5d	22w5d	24w5d				
5.80	21w0d	23w0d	25w1d				
5.90	21w2d	23w2d	25w4d				

1-1-26 Biparietal Diameter (BPD) CHITTY (outer - inner)

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy". Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

BPD (cm)	GA (weeks+days)			BPD (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
2.10	11w6d	12w5d	13w5d	6.00	22w3d	24w4d	26w6d
2.20	12w1d	13w0d	14w0d	6.10	22w5d	24w6d	27w1d
2.30	12w3d	13w2d	14w2d	6.20	23w1d	25w2d	27w4d
2.40	12w4d	13w4d	14w4d	6.30	23w3d	25w4d	28w0d
2.50	12w6d	13w6d	14w6d	6.40	23w5d	26w0d	28w3d
2.60	13w1d	14w1d	15w1d	6.50	24w0d	26w2d	28w6d
2.70	13w3d	14w3d	15w3d	6.60	24w2d	26w5d	29w1d
2.80	13w4d	14w5d	15w5d	6.70	24w4d	27w0d	29w4d
2.90	13w6d	14w6d	16w0d	6.80	25w0d	27w3d	30w0d
3.00	14w1d	15w1d	16w2d	6.90	25w2d	27w5d	30w3d
3.10	14w3d	15w3d	16w5d	7.00	25w4d	28w1d	30w6d
3.20	14w4d	15w5d	17w0d	7.10	25w6d	28w3d	31w2d
3.30	14w6d	16w0d	17w2d	7.20	26w2d	28w6d	31w5d
3.40	15w1d	16w2d	17w4d	7.30	26w4d	29w2d	32w1d
3.50	15w3d	16w4d	17w6d	7.40	26w6d	29w4d	32w4d
3.60	15w5d	16w6d	18w2d	7.50	27w2d	30w0d	33w0d
3.70	15w6d	17w1d	18w4d	7.60	27w4d	30w2d	33w3d
3.80	16w1d	17w3d	18w6d	7.70	27w6d	30w5d	33w6d
3.90	16w3d	17w6d	19w2d	7.80	28w2d	31w1d	34w2d
4.00	16w5d	18w1d	19w4d	7.90	28w4d	31w4d	34w5d
4.10	17w0d	18w3d	19w6d	8.00	28w6d	31w6d	35w1d
4.20	17w2d	18w5d	20w2d	8.10	29w2d	32w2d	35w5d
4.30	17w4d	19w0d	20w4d	8.20	29w4d	32w5d	36w1d
4.40	17w6d	19w2d	20w6d	8.30	30w0d	33w1d	36w4d
4.50	18w1d	19w4d	21w2d	8.40	30w2d	33w3d	37w0d
4.60	18w3d	19w6d	21w4d	8.50	30w5d	33w6d	37w3d
4.70	18w5d	20w2d	22w0d	8.60	31w0d	34w2d	38w0d
4.80	19w0d	20w4d	22w2d	8.70	31w2d	34w5d	38w3d
4.90	19w2d	20w6d	22w5d	8.80	31w5d	35w1d	38w6d
5.00	19w4d	21w1d	23w0d	8.90	32w0d	35w4d	39w3d
5.10	19w6d	21w4d	23w3d				
5.20	20w1d	21w6d	23w5d				
5.30	20w3d	22w1d	24w1d				
5.40	20w5d	22w4d	24w4d				
5.50	21w0d	22w6d	24w6d				
5.60	21w2d	23w1d	25w2d				
5.70	21w4d	23w4d	25w4d				
5.80	21w6d	23w6d	26w0d				
5.90	22w1d	24w1d	26w3d				

1-1-27 Biparietal Diameter (BPD) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight" Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 6{,}895 + 2{,}63 \times BPD + 0{,}0088 \times BPD^3$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 2.6 cm
Max Range: 9.7 cm

Standard Deviation (±): 1SD = 1.50 weeks

BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)
2.60	13w6d	5.00	21w1d	7.40	29w6d
2.70	14w1d	5.10	21w4d	7.50	30w3d
2.80	14w4d	5.20	21w6d	7.60	30w6d
2.90	14w5d	5.30	22w1d	7.70	31w1d
3.00	15w0d	5.40	22w4d	7.80	31w4d
3.10	15w2d	5.50	22w6d	7.90	32w0d
3.20	15w4d	5.60	23w1d	8.00	32w4d
3.30	15w6d	5.70	23w4d	8.10	32w6d
3.40	16w1d	5.80	23w6d	8.20	33w2d
3.50	16w4d	5.90	24w1d	8.30	33w6d
3.60	16w6d	6.00	24w4d	8.40	34w1d
3.70	17w1d	6.10	25w0d	8.50	34w5d
3.80	17w3d	6.20	25w2d	8.60	35w1d
3.90	17w5d	6.30	25w5d	8.70	35w4d
4.00	18w0d	6.40	26w1d	8.80	36w1d
4.10	18w2d	6.50	26w3d	8.90	36w4d
4.20	18w4d	6.60	26w6d	9.00	37w0d
4.30	18w6d	6.70	27w1d	9.10	37w4d
4.40	19w1d	6.80	27w4d	9.20	38w0d
4.50	19w4d	6.90	28w0d	9.30	38w4d
4.60	19w6d	7.00	28w2d	9.40	38w6d
4.70	20w1d	7.10	28w5d	9.50	39w3d
4.80	20w4d	7.20	29w1d	9.60	39w6d
4.90	20w6d	7.30	29w4d	9.70	40w4d

1-1-28 Biparietal Diameter (BPD) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$GA = 9{,}54 + 1{,}482 \times BPD + 0{,}1676 \times BPD^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1,40 cm
Max Range: 10,30 cm

Standard Deviation:

GA (weeks)		±2SD
Low	High	(weeks)
12	18	1,19
18	24	1,73
24	30	2,18
30	36	3,08
36	42	3,20

BPD	GA (weeks)		BPD	GA (weeks)		BPD	GA (weeks)		BPD	GA (weeks)	
(mm)	mean	±2SD	(mm)	mean	±2SD	(mm)	mean	±2SD	(mm)	mean	±2SD
<14	n/a	——	36	17.0	± 1.2	59	24.1	± 2.2	82	33.0	± 3.1
14	11.9	± 1.2	37	17.3	± 1.2	60	24.5	± 2.2	83	33.4	± 3.1
15	12.1	± 1.2	38	17.6	± 1.2	61	24.8	± 2.2	84	33.8	± 3.1
16	12.3	± 1.2	39	17.9	± 1.2	62	25.2	± 2.2	85	34.2	± 3.1
17	12.5	± 1.2	40	18.1	± 1.7	63	25.5	± 2.2	86	34.7	± 3.1
18	12.8	± 1.2	41	18.4	± 1.7	64	25.9	± 2.2	87	35.1	± 3.1
19	13.0	± 1.2	42	18.7	± 1.7	65	26.3	± 2.2	88	35.6	± 3.1
20	13.2	± 1.2	43	19.0	± 1.7	66	26.6	± 2.2	89	36.0	± 3.2
21	13.4	± 1.2	44	19.3	± 1.7	67	27.0	± 2.2	90	36.5	± 3.2
22	13.6	± 1.2	45	19.6	± 1.7	68	27.4	± 2.2	91	36.9	± 3.2
23	13.8	± 1.2	46	19.9	± 1.7	69	27.7	± 2.2	92	37.4	± 3.2
24	14.1	± 1.2	47	20.2	± 1.7	70	28.1	± 2.2	93	37.8	± 3.2
25	14.3	± 1.2	48	20.5	± 1.7	71	28.5	± 2.2	94	38.3	± 3.2
26	14.5	± 1.2	49	20.8	± 1.7	72	28.9	± 2.2	95	38.7	± 3.2
27	14.8	± 1.2	50	21.1	± 1.7	73	29.3	± 2.2	96	39.2	± 3.2
28	15.0	± 1.2	51	21.5	± 1.7	74	29.7	± 2.2	97	39.7	± 3.2
29	15.2	± 1.2	52	21.8	± 1.7	75	30.1	± 3.1	98	40.2	± 3.2
30	15.5	± 1.2	53	22.1	± 1.7	76	30.5	± 3.1	99	40.6	± 3.2
31	15.7	± 1.2	54	22.4	± 1.7	77	30.9	± 3.1	100	41.1	± 3.2
32	16.0	± 1.2	55	22.8	± 1.7	78	31.3	± 3.1	101	41.6	± 3.2
33	16.3	± 1.2	56	23.1	± 1.7	79	31.7	± 3.1	102	42.1	± 3.2
34	16.5	± 1.2	57	23.4	± 1.7	80	32.1	± 3.1	103	42.6	± 3.2
35	16.8	± 1.2	58	23.8	± 1.7	81	32.5	± 3.1	>103	n/a	——

1-1-29 Biparietal Diameter (BPD) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986. p.440-441

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
2.90	12w2d	13w3d	14w3d	6.80	24w3d	25w6d	27w2d
3.00	12w5d	13w5d	14w5d	6.90	24w6d	26w1d	27w4d
3.10	12w6d	14w0d	15w1d	7.00	25w0d	26w3d	27w6d
3.20	13w2d	14w2d	15w3d	7.10	25w2d	26w5d	28w3d
3.30	13w3d	14w4d	15w6d	7.20	25w4d	27w1d	28w4d
3.40	13w5d	15w0d	16w2d	7.30	26w0d	27w3d	29w2d
3.50	14w1d	15w2d	16w3d	7.40	26w1d	27w6d	29w4d
3.60	14w3d	15w4d	16w6d	7.50	26w3d	28w1d	29w6d
3.70	14w6d	16w0d	17w1d	7.60	26w5d	28w4d	30w2d
3.80	15w0d	16w2d	17w4d	7.70	27w1d	28w6d	30w5d
3.90	15w3d	16w4d	17w6d	7.80	27w2d	29w2d	31w3d
4.00	15w5d	17w0d	18w1d	7.90	27w3d	29w5d	32w0d
4.10	16w0d	17w2d	18w4d	8.00	27w6d	30w0d	32w1d
4.20	16w3d	17w4d	18w6d	8.10	28w2d	30w3d	32w4d
4.30	16w4d	17w6d	19w1d	8.20	28w6d	31w0d	33w1d
4.40	16w6d	18w1d	19w3d	8.30	29w0d	31w2d	33w5d
4.50	17w2d	18w4d	19w6d	8.40	29w3d	31w6d	34w2d
4.60	17w4d	18w6d	20w1d	8.50	29w6d	32w2d	34w4d
4.70	17w6d	19w1d	20w4d	8.60	30w1d	32w5d	35w1d
4.80	18w0d	19w3d	20w6d	8.70	30w2d	33w2d	36w1d
4.90	18w1d	19w5d	21w1d	8.80	31w0d	33w5d	36w3d
5.00	18w4d	20w0d	21w1d	8.90	31w4d	34w2d	37w0d
5.10	19w0d	20w3d	21w6d	9.00	32w0d	34w5d	37w3d
5.20	19w2d	20w5d	22w1d	9.10	32w1d	35w1d	38w5d
5.30	19w3d	21w0d	22w4d	9.20	33w2d	35w6d	39w2d
5.40	20w0d	21w3d	22w6d	9.30	33w5d	36w5d	39w5d
5.50	20w2d	21w5d	23w0d	9.40	34w5d	37w3d	40w1d
5.60	20w5d	22w0d	23w2d	9.50	35w2d	38w3d	41w0d
5.70	21w0d	22w2d	23w4d	9.60	35w2d	38w6d	41w3d
5.80	21w3d	22w5d	23w6d	9.70	35w6d	39w0d	42w0d
5.90	21w4d	23w0d	24w3d	9.80	36w3d	39w2d	42w0d
6.00	21w6d	23w2d	24w4d	9.90	36w4d	39w3d	42w4d
6.10	22w1d	23w4d	25w0d	10.00	36w5d	39w4d	42w2d
6.20	22w4d	24w0d	25w3d	10.10	37w1d	39w5d	42w4d
6.30	22w6d	24w2d	25w4d	10.20	37w1d	39w6d	42w2d
6.40	23w1d	24w4d	26w0d	10.30	37w2d	40w0d	42w2d
6.50	23w4d	24w6d	26w2d	10.40	37w3d	40w1d	42w2d
6.60	23w6d	25w1d	26w5d	10.50	37w6d	40w2d	42w2d
6.70	24w1d	25w3d	27w1d				

1-1-30 Biparietal Diameter (BPD) HOBBINS

Reference: Document by E-Mail of Hobbins

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

$$GA = 10{,}623 - (0{,}20277 \times BPD) + (0{,}022278 \times BPD^2) - (0{,}00048221 \times BPD^3) + (0{,}501 \times 10^{-5} \times BPD^4) - (0{,}2 \times 10^{-7} \times BPD^5)$$

1-1-31 Biparietal Diameter (BPD) JEANTY

Reference: Jeanty P., Romero R. "Obstetrical Ultrasound" McGraw-Hill Book Company, pages 57-61, 1984.

BPD	GA (weeks + days)			BPD	GA (weeks + days)			BPD	GA (weeks + days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
1.00	6w4d	9w1d	11w6d	3.90	14w2d	17w0d	19w5d	6.80	23w5d	26w3d	29w0d
1.10	6w6d	9w4d	12w1d	4.00	14w4d	17w2d	19w6d	6.90	24w0d	26w5d	29w3d
1.20	7w0d	9w5d	12w3d	4.10	14w6d	17w4d	20w1d	7.00	24w3d	27w1d	29w6d
1.30	7w2d	10w0d	12w5d	4.20	15w1d	17w6d	20w4d	7.10	24w6d	27w4d	30w1d
1.40	7w4d	10w2d	12w6d	4.30	15w3d	18w1d	20w6d	7.20	25w1d	27w6d	30w4d
1.50	7w6d	10w4d	13w1d	4.40	15w5d	18w3d	21w1d	7.30	25w4d	28w2d	30w6d
1.60	8w1d	10w6d	13w3d	4.50	16w0d	18w5d	21w3d	7.40	26w0d	28w5d	31w2d
1.70	8w3d	11w1d	13w5d	4.60	16w2d	19w0d	21w5d	7.50	26w3d	29w1d	31w5d
1.80	8w4d	11w2d	14w0d	4.70	16w4d	19w2d	22w0d	7.60	26w6d	29w4d	32w1d
1.90	8w6d	11w4d	14w1d	4.80	16w6d	19w4d	22w2d	7.70	27w1d	29w6d	32w4d
2.00	9w1d	11w6d	14w4d	4.90	17w1d	19w6d	22w4d	7.80	27w4d	30w2d	33w0d
2.10	9w3d	12w1d	14w6d	5.00	17w4d	20w2d	22w6d	7.90	28w0d	30w5d	33w3d
2.20	9w5d	12w3d	15w0d	5.10	17w6d	20w4d	23w1d	8.00	28w4d	31w1d	33w6d
2.30	9w6d	12w4d	15w2d	5.20	18w1d	20w6d	23w4d	8.10	28w6d	31w4d	34w2d
2.40	10w1d	12w6d	15w4d	5.30	18w4d	21w1d	23w6d	8.20	29w2d	32w0d	34w5d
2.50	10w4d	13w1d	15w6d	5.40	18w6d	21w4d	24w1d	8.30	29w6d	32w4d	35w1d
2.60	10w5d	13w3d	16w1d	5.50	19w1d	21w6d	24w4d	8.40	30w1d	32w6d	35w4d
2.70	11w0d	13w5d	16w3d	5.60	19w4d	22w1d	24w6d	8.50	30w5d	33w3d	36w0d
2.80	11w2d	14w0d	16w4d	5.70	19w6d	22w4d	25w1d	8.60	31w1d	33w6d	36w4d
2.90	11w4d	14w1d	16w6d	5.80	20w1d	22w6d	25w4d	8.70	31w4d	34w2d	37w0d
3.00	11w6d	14w4d	17w1d	5.90	20w4d	23w1d	25w6d	8.80	32w1d	34w6d	37w3d
3.10	12w1d	14w6d	17w3d	6.00	20w6d	23w4d	26w1d	8.90	32w4d	35w2d	37w6d
3.20	12w2d	15w1d	17w5d	6.10	21w1d	23w6d	26w4d	9.00	33w0d	35w5d	38w3d
3.30	12w4d	15w2d	18w0d	6.20	21w4d	24w1d	26w6d	9.10	33w4d	36w1d	38w6d
3.40	12w6d	15w4d	18w2d	6.30	21w6d	24w4d	27w1d	9.20	34w0d	36w5d	39w3d
3.50	13w1d	15w6d	18w4d	6.40	22w1d	24w6d	27w4d	9.30	34w4d	37w1d	39w6d
3.60	13w4d	16w1d	18w6d	6.50	22w4d	25w2d	27w6d	9.40	35w0d	37w5d	40w3d
3.70	13w5d	16w3d	19w1d	6.60	22w6d	25w4d	28w2d	9.50	35w4d	38w2d	40w6d
3.80	14w0d	16w5d	19w3d	6.70	23w2d	26w0d	28w4d				

1-1-32 Biparietal Diameter (BPD) JOHNSEN

Reference: Johnsen,S.L., Rasmussen,S., Sollien,R., Kiserud,T.,"Fetal age assessment based on ultrasound head biometry and the effect of maternal and fetal factors", Acta Obstet Gynecol.Scand. Vol. 83 No. 8, 2004, pages 716-723.

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	10%	50%	90%		10%	50%	90%
1,4	9w6d	10w3d	10w6d	3,8	15w6d	16w5d	17w4d
1,5	10w1d	10w5d	11w2d	3,9	16w1d	17w0d	17w6d
1,6	10w3d	10w6d	11w3d	4,0	16w3d	17w2d	18w1d
1,7	10w4d	11w1d	11w5d	4,1	16w5d	17w4d	18w3d
1,8	10w6d	11w3d	12w0d	4,2	17w0d	17w6d	18w5d
1,9	11w1d	11w5d	12w2d	4,3	17w2d	18w1d	19w1d
2,0	11w2d	12w0d	12w4d	4,4	17w4d	18w3d	19w3d
2,1	11w4d	12w2d	12w6d	4,5	17w6d	18w5d	19w5d
2,2	11w6d	12w3d	13w1d	4,6	18w1d	19w0d	20w0d
2,3	12w1d	12w5d	13w3d	4,7	18w3d	19w3d	20w3d
2,4	12w2d	13w0d	13w5d	4,8	18w5d	19w5d	20w5d
2,5	12w4d	13w2d	14w0d	4,9	19w0d	20w0d	21w0d
2,6	12w6d	13w3d	14w1d	5,0	19w2d	20w2d	21w3d
2,7	13w0d	13w5d	14w3d	5,1	19w4d	20w4d	21w5d
2,8	13w2d	14w0d	14w5d	5,2	20w0d	21w0d	22w0d
2,9	13w4d	14w2d	15w0d	5,3	20w2d	21w2d	22w3d
3,0	13w6d	14w4d	15w2d	5,4	20w4d	21w4d	22w5d
3,1	14w0d	14w6d	15w4d	5,5	20w6d	22w0d	23w1d
3,2	14w2d	15w0d	15w6d	5,6	21w2d	22w2d	23w3d
3,3	14w4d	15w2d	16w1d	5,7	21w4d	22w5d	23w6d
3,4	14w6d	15w4d	16w3d	5,8	21w6d	23w0d	24w1d
3,5	15w1d	15w6d	16w5d	5,9	22w2d	23w3d	24w4d
3,6	15w2d	16w1d	17w0d	6,0	22w4d	23w5d	25w0d
3,7	15w4d	16w3d	17w2d				

1-1-33 Biparietal Diameter (BPD) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J.Med Ultrasonics Vol. 28 No.5 (2001)

BPD (cm)	GA (w+d/d)		BPD (cm)	GA (w+d/d)	
	mean	±1SD		mean	±1SD
1,30	10w1d	4	5,20	21w6d	7
1,40	10w3d	4	5,30	22w1d	8
1,50	10w5d	4	5,40	22w3d	8
1,60	11w0d	4	5,50	22w5d	8
1,70	11w2d	4	5,60	23w1d	8
1,80	11w4d	4	5,70	23w3d	8
1,90	11w6d	4	5,80	23w5d	8
2,00	12w1d	4	5,90	24w1d	8
2,10	12w3d	4	6,00	24w3d	9
2,20	12w6d	4	6,10	24w5d	9
2,30	13w1d	5	6,20	25w1d	9
2,40	13w3d	5	6,30	25w3d	9
2,50	13w5d	5	6,40	25w5d	9
2,60	14w0d	5	6,50	26w1d	9
2,70	14w2d	5	6,60	26w3d	10
2,80	14w4d	5	6,70	26w6d	10
2,90	14w6d	5	6,80	27w2d	10
3,00	15w1d	5	6,90	27w4d	10
3,10	15w3d	5	7,00	28w0d	10
3,20	15w5d	5	7,10	28w3d	10
3,30	16w0d	5	7,20	28w5d	11
3,40	16w2d	5	7,30	29w1d	11
3,50	16w4d	5	7,40	29w4d	11
3,60	16w6d	6	7,50	30w0d	11
3,70	17w1d	6	7,60	30w3d	11
3,80	17w4d	6	7,70	30w6d	12
3,90	17w6d	6	7,80	31w2d	12
4,00	18w1d	6	7,90	31w5d	12
4,10	18w3d	6	8,00	32w1d	12
4,20	18w5d	6	8,10	32w5d	12
4,30	19w0d	6	8,20	33w1d	13
4,40	19w2d	6	8,30	33w5d	13
4,50	19w4d	6	8,40	34w2d	13
4,60	20w0d	7	8,50	34w6d	13
4,70	20w2d	7	8,60	35w3d	14
4,80	20w4d	7	8,70	36w0d	14
4,90	20w6d	7	8,80	36w5d	14
5,00	21w1d	7	8,90	37w4d	14
5,10	21w3d	7	9,00	38w3d	15

1-1-34 Biparietal Diameter (BPD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

BPD (cm)	GA (w + d)	BPD (cm)	GA (w + d)	BPD (cm)	GA (w + d)
2,1	12w0d	4,8	19w2d	7,5	28w0d
2,2	12w2d	4,9	19w4d	7,6	28w3d
2,3	12w3d	5,0	19w6d	7,7	28w6d
2,4	12w5d	5,1	20w1d	7,8	29w1d
2,5	13w0d	5,2	20w3d	7,9	29w4d
2,6	13w2d	5,3	20w5d	8,0	30w0d
2,7	13w4d	5,4	21w0d	8,1	30w3d
2,8	13w5d	5,5	21w2d	8,2	30w6d
2,9	14w0d	5,6	21w4d	8,3	31w1d
3,0	14w2d	5,7	22w0d	8,4	31w4d
3,1	14w4d	5,8	22w2d	8,5	32w1d
3,2	14w6d	5,9	22w4d	8,6	32w4d
3,3	15w1d	6,0	22w6d	8,7	33w0d
3,4	15w3d	6,1	23w1d	8,8	33w3d
3,5	15w5d	6,2	23w4d	8,9	34w0d
3,6	16w0d	6,3	23w6d	9,0	34w4d
3,7	16w2d	6,4	24w1d	9,1	35w0d
3,8	16w4d	6,5	24w4d	9,2	35w4d
3,9	16w6d	6,6	24w6d	9,3	36w2d
4,0	17w0d	6,7	25w1d	9,4	36w6d
4,1	17w2d	6,8	25w4d	9,5	37w4d
4,2	17w4d	6,9	25w6d	9,6	38w2d
4,3	17w6d	7,0	26w2d	9,7	39w1d
4,4	18w1d	7,1	26w4d	9,8	39w6d
4,5	18w3d	7,2	27w0d	9.9	40w6d
4,6	18w5d	7,3	27w2d	10,0	41w5d
4,7	19w0d	7,4	27w5d		

1-1-35 Biparietal Diameter (BPD) KURTZ

Reference: Kurtz A.B., Wapner R.J., Kurtz R.J., Dershaw D., Rubin C.S., Cole-Beuglet C., Goldberg B.B, "Analysis of Biparietal Diameter as an Accurate Indicator of Gestational Age" J Clin Ultrasound 8:319-326; August 1980

Input Unit: cm
Output Unit: w (weeks)
Min Range: 20 mm
Max Range: 98 mm

BPD	GA (weeks)			BPD	GA (weeks)			BPD	GA (weeks)		
(mm)	5%	50%	95%	(mm)	5%	50%	95%	(mm)	5%	50%	95%
20	12,0	12,0	12,0	47	17.8	19,7	21,6	74	28,1	29,1	30,1
21	12,0	12,0	12,0	48	18,2	20,0	21,8	75	28,5	29,5	30,5
22	12,2	12,7	13,2	49	18,6	20,3	22,0	76	29,0	30,0	31,0
23	12, 4	13,0	13,6	50	19,0	20,6	22,2	77	29,2	30,3	31,4
24	12,6	13,2	13,8	51	19,3	20,9	22,5	78	29.6	30,8	32,0
25	12,9	13,5	14,1	52	19,5	21,2	22,9	79	29,9	31,2	32,5
26	13,1	13,7	14,3	53	19,8	21,5	23,2	80	30,2	31,6	33,0
27	13,4	14,0	14,6	54	20,1	21,9	23,7	81	30,7	32,1	33,5
28	13,6	14,3	15,0	55	20,4	22,2	24,0	82	31,2	32,6	34,0
29	13,9	14,55	15,2	56	20,7	22,5	24,3	83	31,5	33,0	34,5
30	14,1	14,8	15,5	57	21,1	22,8	24,5	84	31,9	33,5	35,1
31	14,3	15,1	15,9	58	21,5	23,2	24,9	85	32,3	34,0	35,7
32	14,5	15,3	16,1	59	21,9	23,5	25,1	86	32,8	34,5	36,2
33	14,7	15,6	16,5	60	22,3	23,9	25,5	87	33,4	35,0	36,6
34	15,0	15,9	16,8	61	22,6	24,2	25,8	88	33,9	35,5	37,1
35	15,2	16,2	17,2	62	23,1	24,6	26,1	89	34,6	36,1	37,6
36	15,4	16,4	17,4	63	23,4	24,9	26,4	90	35,1	36,6	38,1
37	15,6	16,7	17,8	64	23,8	25,3	26,8	91	35,9	37,2	38,5
38	15,9	17,0	18,1	65	24,1	25,6	27,1	92	36,7	37,8	38,9
39	16,1	17,3	18,5	66	24,5	26,0	27,5	93	37,3	38,3	39,3
40	16,4	17,6	18,8	67	25,0	26,4	27,8	94	37,9	39,0	40,1
41	16,5	17,9	19,3	68	25,3	26,7	28,1	95	38,5	39,7	40.9
42	16,6	18,2	19,8	69	25,8	27,1	28,4	96	39,1	40,3	41,5
43	16,8	18,5	20,2	70	26,3	27,5	28,7	97	39,9	41,0	42,1
44	16,9	18,8	20,7	71	26,7	27,9	29,1	98	40,5	41,8	43,1
45	17,0	19,1	21,2	72	27,2	28,3	29,4				
46	17,4	19,4	21,4	73	27,6	28,7	29,8				

1-1-36 Biparietal Diameter (BPD) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD values are used as Input and GA as Output!

BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)
3,0	49	32,5	106	49,8	145	67,2	184	83,3	223	92,6	262
4,0	51	33,0	107	49,4	144	67,6	185	83,7	224	92,8	263
5,0	53	33,4	108	50,6	147	68,0	186	84,0	225	93,0	264
6,0	55	33,8	109	51,0	148	68,5	187	84,3	226	93,2	265
7,0	57	34,2	110	51,5	149	69,0	188	84,7	227	93,4	266
8,0	59	34,6	111	52,0	150	69,5	189	85,0	228	93,6	267
9,0	61	35,0	112	52,5	151	70,0	190	85,3	229	93,8	268
10,0	63	35,5	113	53,0	152	70,4	191	85,5	230	94,0	269
11,0	66	36,0	114	53,4	153	70,8	192	85,8	231	94,2	270
12,0	68	36,5	115	53,8	154	71,2	193	86,0	232	94,4	271
13,0	70	37,0	116	54,2	155	71,6	194	86,3	233	94,6	272
14,0	72	37,4	117	54,6	156	72,0	195	86,6	234	94,7	273
15,0	74	37,8	118	55,0	157	72,5	196	86,8	235	94,8	274
16,0	77	38,2	119	55,5	158	73,0	197	87,0	236	94,9	275
17,0	79	38,6	120	56,0	159	73,5	198	87,3	237	95,0	276
18,0	81	39,0	121	56,5	160	74,0	199	87,5	238	95,1	277
19,0	83	39,5	122	57,0	161	74,4	200	87,8	239	95,2	278
19,6	84	40,0	123	57,5	162	74,8	201	88,0	240	95,3	279
20,3	85	40,5	124	58,0	163	75,2	202	88,3	241	95,4	280
20,9	86	41,0	125	58,4	164	75,6	203	88,5	242	95,5	281
21,5	87	41,4	126	58,8	165	76,0	204	88,8	243	95,6	282
22,0	88	41,8	127	59,2	166	76,5	205	89,0	244	95,7	283
22,6	89	42,2	128	59,6	167	77,0	206	89,2	245	95,8	284
23,2	90	42,6	129	60,0	168	77,5	207	89,4	246	95,9	285
23,9	91	43,0	130	60,5	169	78,0	208	89,6	247	96,0	286
24,5	92	43,5	131	61,0	170	78,4	209	89,8	248	96,1	287
25,0	93	44,0	132	61,5	171	78,8	210	90,0	249	96,2	288
26,0	94	44,5	133	62,0	172	79,2	211	90,2	250	96,3	289
26,5	95	45,0	134	62,4	173	79,6	212	90,4	251	96,4	291
27,0	96	45,4	135	62,8	174	80,0	213	90,6	252	96,5	292
28,0	97	45,8	136	63,2	175	80,3	214	90,8	253	96,6	293
28,5	98	46,2	137	63,6	176	80,7	215	91,0	254	96,7	294
29,0	99	46,6	138	64,0	177	81,0	216	91,2	255	96,8	295
29,5	100	47,0	139	64,5	178	81,3	217	91,4	256	96,85	296
30,0	101	47,5	140	65,0	179	81,7	218	91,6	257	96,90	297
30,5	102	48,0	141	65,5	180	82,0	219	91,8	258	96,93	298
31,0	103	48,5	142	66,0	181	82,3	220	92,0	259	96,96	299
31,5	104	49,0	143	66,4	182	82,7	221	92,2	260	97,00	300
32,0	105	49,4	144	66,8	183	83,0	222	92,4	261		

1-1-37 Biparietal Diameter (BPD) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Textbook and Atlas, 1991 Georg Thieme Verlag, pp.326

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
2.10	10w5d	12w1d	13w5d	4.90	18w1d	20w0d	21w6d	7.70	27w1d	29w3d	31w4d
2.20	10w6d	12w3d	13w6d	5.00	18w4d	20w3d	22w1d	7.80	27w4d	29w6d	32w0d
2.30	11w1d	12w5d	14w1d	5.10	18w6d	20w5d	22w4d	7.90	27w6d	30w1d	32w2d
2.40	11w4d	13w0d	14w4d	5.20	19w1d	21w0d	22w6d	8.00	28w2d	30w4d	32w5d
2.50	11w5d	13w1d	14w5d	5.30	19w3d	21w2d	23w1d	8.10	28w5d	30w6d	33w1d
2.60	12w0d	13w4d	15w0d	5.40	19w5d	21w4d	23w4d	8.20	29w1d	31w2d	33w4d
2.70	12w1d	13w6d	15w3d	5.50	20w0d	21w6d	23w6d	8.30	29w4d	31w5d	33w6d
2.80	12w4d	14w1d	15w5d	5.60	20w2d	22w1d	24w1d	8.40	29w6d	32w1d	34w2d
2.90	12w5d	14w2d	15w6d	5.70	20w4d	22w4d	24w3d	8.50	30w2d	32w4d	34w5d
3.00	13w0d	14w4d	16w1d	5.80	20w6d	22w6d	24w5d	8.60	30w5d	32w6d	35w1d
3.10	13w2d	14w6d	16w4d	5.90	21w1d	23w1d	25w1d	8.70	31w0d	33w2d	35w4d
3.20	13w4d	15w1d	16w6d	6.00	21w4d	23w4d	25w4d	8.80	31w4d	33w6d	36w1d
3.30	13w6d	15w3d	17w0d	6.10	21w6d	23w6d	25w6d	8.90	31w6d	34w1d	36w4d
3.40	14w0d	15w5d	17w3d	6.20	22w1d	24w1d	26w1d	9.00	32w2d	34w4d	36w6d
3.50	14w2d	16w0d	17w5d	6.30	22w4d	24w4d	26w4d	9.10	32w6d	35w1d	37w3d
3.60	14w4d	16w2d	18w0d	6.40	22w6d	24w6d	26w6d	9.20	33w1d	35w4d	37w6d
3.70	14w6d	16w4d	18w1d	6.50	23w1d	25w1d	27w1d	9.30	33w4d	35w6d	38w1d
3.80	15w1d	16w6d	18w4d	6.60	23w4d	25w4d	27w4d	9.40	34w0d	36w3d	38w6d
3.90	15w3d	17w1d	18w6d	6.70	23w6d	25w6d	27w6d	9.50	34w4d	36w6d	39w2d
4.00	15w5d	17w3d	19w1d	6.80	24w1d	26w1d	28w2d	9.60	34w6d	37w2d	39w5d
4.10	15w6d	17w5d	19w4d	6.90	24w3d	26w4d	28w4d	9.70	35w3d	37w6d	40w1d
4.20	16w1d	18w0d	19w6d	7.00	24w5d	26w6d	28w6d	9.80	36w6d	38w2d	40w5d
4.30	16w4d	18w2d	20w1d	7.10	25w1d	27w1d	29w2d	9.90	36w3d	38w6d	41w1d
4.40	16w6d	18w4d	20w3d	7.20	25w4d	27w4d	29w5d	10.00	36w6d	39w2d	41w6d
4.50	17w1d	18w6d	20w5d	7.30	25w6d	27w6d	30w0d	10.10	37w2d	39w6d	42w2d
4.60	17w3d	19w1d	21w0d	7.40	26w1d	28w2d	30w3d	10.20	37w6d	40w2d	42w6d
4.70	17w4d	19w3d	21w1d	7.50	26w4d	28w4d	30w5d				
4.80	17w6d	19w5d	21w4d	7.60	26w6d	29w0d	31w1d				

1-1-38 Biparietal Diameter (BPD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD (50% values) are used as Input and GA as Output!

BPD (cm)	GA (week)
Median	
3.10	14
3.40	15
3.70	16
4.00	17
4.30	18
4.60	19
4.90	20
5.20	21
5.60	22
5.90	23
6.20	24
6.60	25
6.90	26
7.20	27
7.50	28
7.80	29
8.10	30
8.30	31
8.60	32
8.80	33
9.00	34
9.20	35
9.40	36
9.50	37
9.60	38
9.70	39

1-1-39 Biparietal Diameter (BPD) OSAKA

Reference: Perinatal care Vol. 9 No. 5

BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)
1.33	10w0d	3.18	15w0d	4.90	20w1d	6.43	25w1d	7.78	30w1d	8.83	35w1d
1.38	10w1d	3.23	15w1d	4.94	20w2d	6.47	25w2d	7.81	30w2d	8.85	35w2d
1.44	10w2d	3.28	15w2d	4.99	20w3d	6.51	25w3d	7.85	30w3d	8.87	35w3d
1.50	10w3d	3.33	15w3d	5.03	20w4d	6.55	25w4d	7.88	30w4d	8.90	35w4d
1.55	10w4d	3.38	15w4d	5.08	20w5d	6.59	25w5d	7.92	30w5d	8.92	35w5d
1.61	10w5d	3.42	15w5d	5.12	20w6d	6.63	25w6d	7.95	30w6d	8.94	35w6d
1.66	10w6d	3.47	15w6d	5.17	21w0d	6.67	26w0d	7.98	31w0d	8.96	36w0d
1.72	11w0d	3.52	16w0d	5.21	21w1d	6.71	26w1d	8.02	31w1d	8.98	36w1d
1.77	11w1d	3.57	16w1d	5.26	21w2d	6.75	26w2d	8.05	31w2d	9.00	36w2d
1.83	11w2d	3.62	16w2d	5.30	21w3d	6.80	26w3d	8.08	31w3d	9.02	36w3d
1.88	11w3d	3.67	16w3d	5.35	21w4d	6.84	26w4d	8.12	31w4d	9.04	36w4d
1.93	11w4d	3.72	16w4d	5.39	21w5d	6.88	26w5d	8.15	31w5d	9.06	36w5d
1.99	11w5d	3.77	16w5d	5.44	21w6d	6.92	26w6d	8.18	31w6d	9.08	36w6d
2.04	11w6d	3.81	16w6d	5.48	22w0d	6.95	27w0d	8.21	32w0d	9.10	37w0d
2.09	12w0d	3.86	17w0d	5.52	22w1d	6.99	27w1d	8.24	32w1d	9.12	37w1d
2.15	12w1d	3.91	17w1d	5.57	22w2d	7.03	27w2d	8.27	32w2d	9.14	37w2d
2.20	12w2d	3.96	17w2d	5.61	22w3d	7.07	27w3d	8.31	32w3d	9.15	37w3d
2.25	12w3d	4.01	17w3d	5.66	22w4d	7.11	27w4d	8.34	32w4d	9.17	37w4d
2.31	12w4d	4.05	17w4d	5.70	22w5d	7.15	27w5d	8.37	32w5d	9.18	37w5d
2.36	12w5d	4.10	17w5d	5.74	22w6d	7.19	27w6d	8.40	32w6d	9.20	37w6d
2.41	12w6d	4.15	17w6d	5.79	23w0d	7.23	28w0d	8.43	33w0d	9.21	38w0d
2.46	13w0d	4.20	18w0d	5.83	23w1d	7.27	28w1d	8.46	33w1d	9.23	38w1d
2.52	13w1d	4.24	18w1d	5.87	23w2d	7.30	28w2d	8.48	33w2d	9.24	38w2d
2.57	13w2d	4.29	18w2d	5.92	23w3d	7.34	28w3d	8.51	33w3d	9.26	38w3d
2.62	13w3d	4.34	18w3d	5.96	23w4d	7.38	28w4d	8.54	33w4d	9.27	38w4d
2.67	13w4d	4.39	18w4d	6.00	23w5d	7.42	28w5d	8.57	33w5d	9.28	38w5d
2.72	13w5d	4.43	18w5d	6.05	23w6d	7.45	28w6d	8.60	33w6d	9.29	38w6d
2.77	13w6d	4.48	18w6d	6.09	24w0d	7.49	29w0d	8.62	34w0d	9.30	39w0d
2.82	14w0d	4.53	19w0d	6.13	24w1d	7.53	29w1d	8.65	34w1d	9.31	39w1d
2.87	14w1d	4.57	19w1d	6.17	24w2d	7.56	29w2d	8.68	34w2d	9.32	39w2d
2.93	14w2d	4.62	19w2d	6.22	24w3d	7.60	29w3d	8.70	34w3d	9.33	39w3d
2.98	14w3d	4.67	19w3d	6.26	24w4d	7.64	29w4d	8.73	34w4d	9.34	39w4d
3.03	14w4d	4.71	19w4d	6.30	24w5d	7.67	29w5d	8.75	34w5d	9.35	39w5d
3.08	14w5d	4.76	19w5d	6.34	24w6d	7.71	29w6d	8.78	34w6d	9.36	39w6d
3.13	14w6d	4.85	20w0d	6.39	25w0d	7.74	30w0d	8.80	35w0d	9.36	40w0d

1-1-40 Biparietal Diameter (BPD) REMPEN

Reference: Rempen, A. Chaoui, R. Kozlowski, P. Häusler, M. Terinde, R. Wisse "Standards zur Ultraschalluntersuchung in der Frühschwangerschaft"; publiziert in: Der Frauenarzt 42 (2001) 327 ff.

BPD (cm)	GA (weeks + days)		
	5%	50%	95%
0.30	6w1d	6w6d	7w3d
0.40	6w3d	7w1d	7w6d
0.50	6w5d	7w3d	8w1d
0.60	7w0d	7w5d	8w4d
0.70	7w2d	8w0d	8w6d
0.80	7w4d	8w2d	9w1d
0.90	7w6d	8w4d	9w3d
1.00	8w1d	8w6d	9w5d
1.10	8w2d	9w1d	10w1d
1.20	8w4d	9w3d	10w3d
1.30	8w6d	9w5d	10w5d
1.40	9w1d	10w0d	11w0d
1.50	9w3d	10w2d	11w2d
1.60	9w4d	10w4d	11w5d
1.70	9w6d	10w6d	12w0d
1.80	10w1d	11w1d	12w2d
1.90	10w3d	11w3d	12w4d
2.00	10w5d	11w5d	13w0d
2.10	11w0d	12w1d	13w2d
2.20	11w2d	12w3d	13w5d

1-1-41 Biparietal Diameter (BPD) SABBAGHA

Reference: *Sabbagha R.E., Barton B.A., Barton F.B., Kingas E., Orgill J., Turner J.H.*
"Sonar biparietal diameter II. Predictive of three fetal growth patterns leading to a closer assessment of gestational age and neonatal weight"
American Journal of Obstetrics and Gynecology; October 15; 1976; pp.485-490

Input Unit: cm
Output Unit: w (weeks)
Min Range: 3,50 cm
Max Range: 9,50 cm

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
3.50	15w2d	16w0d	17w2d	6.60	23w5d	26w0d	27w5d
3.60	15w2d	16w2d	18w0d	6.70	24w0d	26w2d	28w0d
3.70	16w0d	16w5d	19w0d	6.80	24w2d	26w5d	28w2d
3.80	16w0d	17w0d	19w0d	6.90	24w5d	27w0d	29w0d
3.90	16w0d	17w2d	19w2d	7.00	24w5d	27w2d	29w2d
4.00	16w0d	17w5d	19w2d	7.10	25w2d	27w5d	30w0d
4.10	16w0d	18w0d	19w2d	7.20	25w2d	27w5d	30w5d
4.20	16w2d	18w2d	19w5d	7.30	25w5d	28w0d	31w0d
4.30	16w5d	18w5d	20w0d	7.40	26w0d	28w2d	31w5d
4.40	17w0d	19w0d	20w2d	7.50	26w2d	28w5d	32w0d
4.50	17w2d	19w2d	20w5d	7.60	26w5d	29w0d	32w5d
4.60	17w5d	19w5d	21w0d	7.70	27w0d	29w5d	33w0d
4.70	18w0d	20w0d	21w2d	7.80	27w2d	30w0d	33w0d
4.80	18w2d	20w2d	21w2d	7.90	27w5d	30w2d	33w2d
4.90	18w5d	20w5d	21w5d	8.00	28w0d	30w5d	34w0d
5.00	19w0d	21w0d	22w0d	8.10	28w2d	31w0d	34w2d
5.10	19w2d	21w2d	22w2d	8.20	28w5d	31w2d	35w0d
5.20	19w5d	21w5d	22w5d	8.30	29w0d	32w0d	35w5d
5.30	20w0d	21w5d	23w0d	8.40	29w0d	32w2d	36w0d
5.40	20w2d	22w0d	23w5d	8.50	29w2d	33w0d	36w2d
5.50	20w5d	22w2d	24w0d	8.60	29w2d	33w2d	36w2d
5.60	21w0d	22w5d	24w0d	8.70	29w5d	34w0d	36w5d
5.70	21w2d	23w0d	24w2d	8.80	30w0d	34w2d	37w0d
5.80	21w2d	23w2d	24w5d	8.90	31w0d	35w2d	37w5d
5.90	21w5d	23w5d	25w0d	9.00	31w5d	35w5d	38w2d
6.00	21w5d	24w0d	25w2d	9.10	32w2d	36w2d	38w5d
6.10	22w0d	24w2d	25w5d	9.20	33w0d	36w2d	39w0d
6.20	22w2d	24w5d	26w0d	9.30	33w5d	36w5d	39w2d
6.30	22w5d	25w0d	26w2d	9.40	34w2d	37w0d	39w5d
6.40	23w2d	25w2d	26w5d	9.50	34w5d	37w2d	40w0d
6.50	23w5d	25w5d	27w2d				

1-1-42 Biparietal Diameter (BPD) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

BPD	GA (w+d/d)		BPD	GA (w+d/d)		BPD	GA (w+d/d)	
(cm	mean	±dec	(cm	mean	±dec	(cm	mean	±dec
1.30	10w1d	4d	4.00	18w1d	6d	6.70	26w6d	10d
1.40	10w3d	4d	4.10	18w3d	6d	6.80	27w2d	10d
1.50	10w5d	4d	4.20	18w5d	6d	6.90	27w4d	10d
1.60	11w0d	4d	4.30	19w0d	6d	7.00	28w0d	10d
1.70	11w2d	4d	4.40	19w2d	6d	7.10	28w3d	10d
1.80	11w4d	4d	4.50	19w4d	6d	7.20	28w5d	11d
1.90	11w6d	4d	4.60	20w0d	7d	7.30	29w1d	11d
2.00	12w1d	4d	4.70	20w2d	7d	7.40	29w4d	11d
2.10	12w3d	4d	4.80	20w4d	7d	7.50	30w0d	11d
2.20	12w6d	4d	4.90	20w6d	7d	7.60	30w3d	11d
2.30	13w1d	5d	5.00	21w1d	7d	7.70	30w6d	12d
2.40	13w3d	5d	5.10	21w3d	7d	7.80	31w2d	12d
2.50	13w5d	5d	5.20	21w6d	7d	7.90	31w5d	12d
2.60	14w0d	5d	5.30	22w1d	8d	8.00	32w1d	12d
2.70	14w2d	5d	5.40	22w3d	8d	8.10	32w5d	12d
2.80	14w4d	5d	5.50	22w5d	8d	8.20	33w1d	13d
2.90	14w6d	5d	5.60	23w1d	8d	8.30	33w5d	13d
3.00	15w1d	5d	5.70	23w3d	8d	8.40	34w2d	13d
3.10	15w3d	5d	5.80	23w5d	8d	8.50	34w6d	13d
3.20	15w5d	5d	5.90	24w1d	8d	8.60	35w3d	14d
3.30	16w0d	5d	6.00	24w3d	9d	8.70	36w0d	14d
3.40	16w2d	5d	6.10	24w5d	9d	8.80	36w5d	14d
3.50	16w4d	5d	6.20	25w1d	9d	8.90	37w4d	14d
3.60	16w6d	6d	6.30	25w3d	9d	9.00	38w3d	15d
3.70	17w1d	6d	6.40	25w5d	9d			
3.80	17w4d	6d	6.50	26w1d	9d			
3.90	17w6d	6d	6.60	26w3d	10d			

1-1-43 Biparietal Diameter (BPD) TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

BPD (mm)	GA (d/d)		BPD (mm)	GA (d/d)	
	Mean	±1SD		Mean	±1SD
20	85	6	56	162	6
21	87	6	57	164	6
22	89	6	58	167	6
23	92	6	59	169	6
24	94	6	60	171	6
25	96	6	61	174	7
26	98	6	62	176	7
27	100	6	63	179	7
28	102	6	64	181	7
29	102	6	65	183	7
30	106	5	66	186	7
31	108	5	67	188	7
32	110	5	68	191	7
33	112	5	69	194	7
34	114	5	70	196	7
35	116	5	71	199	8
36	118	5	72	201	8
37	120	5	73	204	8
38	123	5	74	207	8
39	125	5	75	210	8
40	127	5	76	213	8
41	129	5	77	216	8
42	131	5	78	218	8
43	133	5	79	221	8
44	135	5	80	225	8
45	138	6	81	228	8
46	140	6	82	231	8
47	142	6	83	234	9
48	144	6	84	238	9
49	146	6	85	241	9
50	148	6	86	245	9
51	151	6	87	249	9
52	153	6	88	253	9
53	154	6	89	258	9
54	157	6	90	262	9
55	160	6			

1-1-44 Clavicula (CLAV) YARKONI

Reference: *Yarkoni S., Schmidt W., Jeanty P., Reece A., Hobbins J.C.*
"Clavicular Measurement: A New Biometric Parameter for Fetal Evaluation"
Journal of Ultrasound in Medicine 4:467-470, September 1985.

$$GA = 3{,}717731 + 8{,}272778 \times Clav$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.10 cm
Max Range: 4.50 cm

Standard Deviation (±): 1SD = 2.684 weeks

Clav (cm)	GA (weeks+days)			Clav (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
1.10	8w3d	13w6d	17w2d	2.90	23w2d	28w5d	32w1d
1.20	9w1d	14w4d	18w1d	3.00	24w0d	29w4d	34w0d
1.30	10w0d	14w3d	19w6d	3.10	25w6d	29w2d	34w6d
1.40	11w6d	15w2d	20w5d	3.20	26w5d	30w1d	35w4d
1.50	12w5d	16w1d	21w4d	3.30	27w4d	31w0d	35w3d
1.60	12w3d	18w0d	21w3d	3.40	27w3d	32w6d	36w2d
1.70	13w2d	18w5d	22w2d	3.50	28w1d	33w5d	37w1d
1.80	14w1d	19w4d	23w0d	3.60	29w0d	33w3d	39w0d
1.90	16w0d	19w3d	24w6d	3.70	30w6d	34w2d	39w5d
2.00	16w6d	20w2d	25w5d	3.80	31w5d	35w1d	40w4d
2.10	17w4d	21w1d	26w4d	3.90	32w4d	37w0d	40w3d
2.20	17w3d	22w6d	26w2d	4.00	32w2d	37w6d	41w2d
2.30	18w2d	23w5d	27w1d	4.10	33w1d	38w4d	42w0d
2.40	19w1d	24w4d	28w0d	4.20	35w0d	38w3d	43w6d
2.50	21w0d	24w3d	29w6d	4.30	35w6d	39w2d	44w5d
2.60	21w5d	25w1d	30w5d	4.40	36w5d	40w1d	45w4d
2.70	22w4d	26w0d	30w3d	4.50	36w3d	41w6d	45w3d
2.80	22w3d	27w6d	31w2d				

1-1-45 Crown-Rump Length (CRL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

Input Unit: cm
Output Unit: weeks + days
Min Range: 0.1 cm
Max Range: 8.7 cm

CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)
0.1	5w2d	2.0	8w3d	5.2	11w4d
0.2	5w3d	2.1	8w4d	5.5	11w5d
0.3	5w4d	2.2	8w5d	5.6	11w6d
0.3	5w5d	2.2	8w6d	5.7	12w0d
0.4	5w6d	2.3	9w0d	5.8	12w1d
0.4	6w0d	2.4	9w1d	6.0	12w2d
0.5	6w1d	2.6	9w2d	6.1	12w3d
0.6	6w2d	2.7	9w3d	6.3	12w4d
0.7	6w3d	2.8	9w4d	6.4	12w5d
0.8	6w4d	2.9	9w5d	6.5	12w6d
0.9	6w5d	3.1	9w6d	6.8	13w0d
1.0	6w6d	3.4	10w0d	7.0	13w1d
1.1	7w0d	3.6	10w1d	7.2	13w2d
1.1	7w1d	3.7	10w2d	7.4	13w3d
1.2	7w2d	3.8	10w3d	7.6	13w4d
1.2	7w3d	3.9	10w4d	7.7	13w5d
1.3	7w4d	3.9	10w5d	8.0	13w6d
1.4	7w5d	4.0	10w6d	8.1	14w0d
1.5	7w6d	4.4	11w0d	8.4	14w1d
1.7	8w0d	4.5	11w1d	8.5	14w2d
1.8	8w1d	4.7	11w2d	8.6	14w3d
1.9	8w2d	4.8	11w3d	8.7	14w4d

1-1-46 Crown-Rump Length (CRL) ASUM - OLD

Reference: *http://www.asum.com.au/open/home.htm*
Date: December 2003

Input Unit: cm
Output Unit: weeks + days
Min Range: 2 mm
Max Range: 82 mm

CRL (mm)	GA (w+d)	CRL (mm)	GA (w+d)	CRL (mm)	GA (w+d)
2	6+0	25	9+1	58	12+2
3	6+1	26	9+2	60	12+3
4	6+2	27	9+3	62	12+4
5	6+3	29	9+4	64	12+5
6	6+4	30	9+5	66	12+6
7	6+5	31	9+6	68	13+0
8	6+6	33	10+0	70	13+1
9	7+0	34	10+1	72	13+2
10	7+1	36	10+2	74	13+3
11	7+2	37	10+3	76	13+4
12	7+3	38	10+4	78	13+5
13	7+4	40	10+5	80	13+6
14	7+5	41	10+6	82	14+0
15	7+6	43	11+0		
16	8+0	45	11+1		
17	8+1	46	11+2		
18	8+2	48	11+3		
19	8+3	50	11+4		
20	8+4	51	11+5		
22	8+5	53	11+6		
23	8+6	55	11+0		
24	9+0	57	12+1		

1-1-47 Crown-Rump Length (CRL) DAYA

Reference: Daya S.; „Accuracy of gestational age estimation by means of fetal crown-rump length measurement“ Am J Obstet Gynecol; March 1993; pages 903-908

CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
0.20	5w3d	6w1d	6w6d	2.90	9w0d	9w5d	10w3d	5.60	11w4d	12w1d	12w6d
0.30	5w4d	6w2d	6w6d	3.00	9w1d	9w6d	10w4d	5.70	11w4d	12w1d	12w6d
0.40	5w5d	6w3d	7w1d	3.10	9w2d	10w0d	10w4d	5.80	11w4d	12w2d	13w0d
0.50	5w6d	6w4d	7w2d	3.20	9w3d	10w1d	10w6d	5.90	11w4d	12w3d	13w1d
0.60	6w0d	6w5d	7w3d	3.30	9w4d	10w1d	10w6d	6.00	11w5d	12w3d	13w1d
0.70	6w1d	6w6d	7w4d	3.40	9w4d	10w2d	11w0d	6.10	11w6d	12w4d	13w1d
0.80	6w2d	7w0d	7w5d	3.50	9w5d	10w3d	11w1d	6.20	11w6d	12w4d	13w2d
0.90	6w4d	7w1d	7w6d	3.60	9w6d	10w4d	11w1d	6.30	11w6d	12w4d	13w2d
1.00	6w4d	7w2d	8w0d	3.70	9w6d	10w4d	11w2d	6.40	11w6d	12w5d	13w3d
1.10	6w6d	7w3d	8w1d	3.80	10w0d	10w5d	11w3d	6.50	12w0d	12w5d	13w3d
1.20	6w6d	7w4d	8w2d	3.90	10w1d	10w6d	11w4d	6.60	12w0d	12w6d	13w4d
1.30	7w0d	7w5d	8w3d	4.00	10w1d	10w6d	11w4d	6.70	12w1d	12w6d	13w4d
1.40	7w1d	7w6d	8w4d	4.10	10w2d	11w0d	11w5d	6.80	12w1d	12w6d	13w4d
1.50	7w2d	8w0d	8w5d	4.20	10w3d	11w1d	11w6d	6.90	12w1d	12w6d	13w4d
1.60	7w3d	8w1d	8w6d	4.30	10w4d	11w1d	11w6d	7.00	12w1d	13w0d	13w5d
1.70	7w4d	8w2d	9w0d	4.40	10w4d	11w1d	11w6d	7.10	12w2d	13w0d	13w5d
1.80	7w5d	8w3d	9w1d	4.50	10w4d	11w2d	12w0d	7.20	12w2d	13w1d	13w6d
1.90	7w6d	8w4d	9w1d	4.60	10w5d	11w3d	12w1d	7.30	12w2d	13w1d	13w6d
2.00	8w0d	8w5d	9w2d	4.70	10w6d	11w4d	12w1d	7.40	12w3d	13w1d	13w6d
2.10	8w1d	8w6d	9w4d	4.80	10w6d	11w4d	12w2d	7.50	12w3d	13w1d	13w6d
2.20	8w1d	8w6d	9w4d	4.90	11w0d	11w5d	12w3d	7.60	12w3d	13w1d	13w6d
2.30	8w2d	9w0d	9w5d	5.00	11w0d	11w5d	12w3d	7.70	12w4d	13w1d	14w0d
2.40	8w4d	9w1d	9w6d	5.10	11w1d	11w6d	12w4d	7.80	12w4d	13w2d	14w0d
2.50	8w4d	9w2d	10w0d	5.20	11w1d	11w6d	12w4d	7.90	12w4d	13w2d	14w0d
2.60	8w5d	9w3d	10w1d	5.30	11w1d	12w0d	12w5d	8.00	12w4d	13w2d	14w0d
2.70	8w6d	9w4d	10w1d	5.40	11w2d	12w0d	12w5d				
2.80	8w6d	9w4d	10w2d	5.50	11w3d	12w1d	12w6d				

1-1-48 Crown-Rump Length (CRL) HADLOCK

Reference: Hadlock F., Shah Y.P, Kanon D.J., Math B., Lindsey J.V., "Fetal Crown-Rump Length: Reevaluation of Relation to Menstrual Age (5-18 weeks) with High-Resolution Real-Time Ultrasound." Radiology, 182:501-505, 1992.

$$GA = e^{1,684969 + 0,315646 \times CRL - 0,049306 \times CRL^2 + 0,004057 \times CRL^3 - 0,000120456 \times CRL^4}$$

CRL	GA (weeks)			CRL	GA (weeks)			CRL	GA (weeks)			CRL	GA (weeks)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
0.20	5,24	5,70	6,16	3.20	9,29	10,10	10,91	6.20	11,59	12,60	13,61	9.20	13,89	15,10	16,31
0.30	5,43	5,90	6,37	3.30	9,38	10,20	11,02	6.30	11,68	12,70	13,72	9.30	13,98	15,20	16,42
0.40	5,61	6,10	6,59	3.40	9,48	10,30	11,12	6.40	11,78	12,80	13,82	9.40	14,08	15,30	16,52
0.50	5,70	6,20	6,70	3.50	9,57	10,40	11,23	6.50	11,78	12,80	13,82	9.50	14,08	15,30	16,52
0.60	5,89	6,40	6,91	3.60	9,66	10,50	11,34	6.60	11,87	12,90	13,93	9.60	14,17	15,40	16,63
0.70	6,07	6,60	7,13	3.70	9,75	10,60	11,45	6.70	11,96	13,00	14,04	9.70	14,26	15,50	16,74
0.80	6,16	6,70	7,24	3.80	9,84	10,70	11,56	6.80	12,05	13,10	14,15	9.80	14,35	15,60	16,85
0.90	6,35	6,90	7,45	3.90	9,94	10,80	11,66	6.90	12,05	13,10	14,15	9.90	14,44	15,70	16,96
1.00	6,53	7,10	7,67	4.00	10,03	10,90	11,77	7.00	12,14	13,20	14,26	10.00	14,63	15,90	17,17
1.10	6,62	7,20	7,78	4.10	10,12	11,00	11,88	7.10	12,24	13,30	14,36	10.10	14,72	16,00	17,28
1.20	6,81	7,40	7,99	4.20	10,21	11,10	11,99	7.20	12,33	13,40	14,47	10.20	14,81	16,10	17,39
1.30	6,90	7,50	8,10	4.30	10,30	11,20	12,10	7.30	12,33	13,40	14,47	10.30	14,90	16,20	17,50
1.40	7,08	7,70	8,32	4.40	10,30	11,20	12,10	7.40	12,42	13,50	14,58	10.40	15,00	16,30	17,60
1.50	7,27	7,90	8,53	4.50	10,40	11,30	12,20	7.50	12,51	13,60	14,69	10.50	15,09	16,40	17,71
1.60	7,36	8,00	8,64	4.60	10,49	11,40	12,31	7.60	12,60	13,70	14,80	10.60	15,18	16,50	17,82
1.70	7,45	8,10	8,75	4.70	10,58	11,50	12,42	7.70	12,70	13,80	14,90	10.70	15,27	16,60	17,93
1.80	7,64	8,30	8,96	4.80	10,67	11,60	12,53	7.80	12,70	13,80	14,90	10.80	15,36	16,70	18,04
1.90	7,73	8,40	9,07	4.90	10,76	11,70	12,64	7.90	12,79	13,90	15,01	10.90	15,46	16,80	18,14
2.00	7,91	8,60	9,29	5.00	10,76	11,70	12,64	8.00	12,88	14,00	15,12	11.00	15,55	16,90	18,25
2.10	8,00	8,70	9,40	5.10	10,86	11,80	12,74	8.10	12,97	14,10	15,23	11.10	15,64	17,00	18,36
2.20	8,19	8,90	9,61	5.20	10,95	11,90	12,85	8.20	13,06	14,20	15,34	11.20	15,73	17,10	18,47
2.30	8,28	9,00	9,72	5.30	11,04	12,00	12,96	8.30	13,06	14,20	15,34	11.30	15,82	17,20	18,58
2.40	8,37	9,10	9,83	5.40	11,04	12,00	12,96	8.40	13,16	14,30	15,44	11.40	15,92	17,30	18,68
2.50	8,46	9,20	9,94	5.50	11,13	12,10	13,07	8.50	13,25	14,40	15,55	11.50	16,01	17,40	18,79
2.60	8,65	9,40	10,15	5.60	11,22	12,20	13,18	8.60	13,34	14,50	15,66	11.60	16,10	17,50	18,90
2.70	8,74	9,50	10,26	5.70	11,32	12,30	13,28	8.70	13,43	14,60	15,77	11.70	16,19	17,60	19,01
2.80	8,83	9,60	10,37	5.80	11,32	12,30	13,28	8.80	13,52	14,70	15,88	11.80	16,28	17,70	19,12
2.90	8,92	9,70	10,48	5.90	11,41	12,40	13,39	8.90	13,62	14,80	15,98	11.90	16,38	17,80	19,22
3.00	9,11	9,90	10,69	6.00	11,50	12,50	13,50	9.00	13,71	14,90	16,09	12.00	16,47	17,90	19,33
3.10	9,20	10,00	10,80	6.10	11,59	12,60	13,61	9.10	13,80	15,00	16,20	12.10	16,56	18,00	19,44

1-1-49 Crown-Rump Length (CRL) HANSMANN

Reference: Hansmann, U.Voigt;H.Schuhmacher;P.Jeanty. "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986, p.439.

CRL (cm)	GA (weeks+days			CRL (cm)	GA (weeks+days		
	-2SD	Mean	+2SD		-2SD	Mean	+2SD
0.60	5w1d	6w1d	7w0d	5.20	11w0d	12w2d	13w4d
0.70	5w3d	6w2d	7w2d	5.40	11w0d	12w3d	13w5d
0.80	5w4d	6w4d	7w3d	5.60	11w1d	12w4d	13w6d
0.90	5w6d	6w6d	7w6d	5.80	11w2d	12w5d	14w0d
1.00	6w1d	7w0d	8w0d	6.00	11w3d	12w6d	14w1d
1.10	6w2d	7w2d	8w1d	6.30	11w4d	13w0d	14w3d
1.20	6w3d	7w3d	8w3d	6.60	11w5d	13w2d	14w5d
1.30	6w5d	7w4d	8w4d	7.00	12w0d	13w3d	15w0d
1.40	6w6d	7w6d	8w6d	7.30	12w1d	13w5d	15w1d
1.50	7w0d	8w0d	9w0d	7.60	12w2d	13w6d	15w3d
1.60	7w2d	8w2d	9w1d	8.00	12w4d	14w1d	15w5d
1.70	7w3d	8w3d	9w2d	8.30	12w5d	14w2d	16w0d
1.80	7w4d	8w4d	9w4d	8.60	12w6d	14w4d	16w2d
1.90	7w5d	8w5d	9w5d	9.00	13w1d	14w6d	16w4d
2.00	7w6d	8w6d	9w6d	9.30	13w3d	15w1d	16w6d
2.10	8w0d	9w0d	10w0d	9.60	13w4d	15w3d	17w1d
2.20	8w1d	9w1d	10w1d	10.00	13w6d	15w5d	17w3d
2.30	8w2d	9w2d	10w2d	10.30	14w1d	16w0d	17w6d
2.40	8w3d	9w3d	10w3d	10.60	14w3d	16w2d	18w1d
2.60	8w5d	9w5d	10w5d	11.00	14w5d	16w4d	18w4d
2.80	8w6d	10w0d	11w1d	11.30	15w0d	17w0d	19w0d
3.00	9w1d	10w2d	11w2d	11.60	15w2d	17w2d	19w2d
3.20	9w2d	10w3d	11w4d	12.00	15w4d	17w4d	19w4d
3.40	9w4d	10w5d	11w5d	12.30	16w0d	18w0d	20w0d
3.60	9w5d	10w6d	12w0d	12.60	16w2d	18w2d	20w3d
3.80	9w6d	11w1d	12w2d	13.00	16w5d	18w6d	20w6d
4.00	10w1d	11w2d	12w3d	13.30	17w0d	19w1d	21w2d
4.20	10w2d	11w3d	12w4d	13.60	17w3d	19w4d	21w6d
4.40	10w3d	11w4d	12w6d	14.00	17w6d	20w0d	22w2d
4.60	10w5d	11w6d	13w0d	14.30	18w1d	20w3d	22w5d
4.80	10w6d	12w0d	13w2d	14.60	18w4d	20w6d	23w1d
5.00	10w6d	12w1d	13w3d	15.00	19w0d	21w3d	23w5d

1-1-50 Crown-Rump Length (CRL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committe
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

CRL (cm)	GA (weeks+days		
	10%	50%	90%
1,30	7w3d	8w0d	9w0d
1,40	7w4d	8w1d	9w1d
1,50	7w5d	8w2d	9w1d
1,60	7w6d	8w3d	9w2d
1,70	8w0d	8w4d	9w3d
1,80	8w1d	8w5d	9w4d
1,90	8w2d	8w6d	9w5d
2,00	8w3d	9w0d	9w6d
2,10	8w4d	9w1d	10w0d
2,20	8w4d	9w2d	10w1d
2,30	8w5d	9w2d	10w1d
2,40	8w6d	9w3d	10w2d
2,50	9w0d	9w4d	10w3d
2,60	9w1d	9w5d	10w4d
2,70	9w2d	9w6d	10w5d
2,80	9w2d	10w0d	10w5d
2,90	9w3d	10w0d	10w6d
3,00	9w4d	10w1d	11w0d
3,10	9w5d	10w2d	11w0d
3,20	9w6d	10w3d	11w1d
3,30	9w6d	10w3d	11w2d
3,40	10w0d	10w4d	11w2d
3,50	10w1d	10w5d	11w3d
3,60	10w1d	10w5d	11w3d
3,70	10w2d	10w6d	11w4d
3,80	10w3d	11w0d	11w5d
3,90	10w3d	11w0d	11w5d
4,00	10w4d	11w1d	11w6d
4,10	10w5d	11w2d	11w6d
4,20	10w5d	11w2d	12w0d
4,30	10w6d	11w3d	12w0d

1-1-51 Crown-Rump Length (CRL) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: CRL and GA Values are taken from Fetal Growth Table; CRL values are used as Input and GA as Output!

CRL (cm)	GA (d)	CRL (cm)	GA (d)
7,0	44	35,0	72
7,5	45	36.5	73
8,0	46	38.0	74
8,5	47	39.5	75
9,0	48	41,0	76
9,5	49	42.5	77
10,0	50	44.0	78
11,0	51	45.5	79
12,0	52	47,0	80
13,0	53	48,0	81
14,0	54	49,0	82
15,0	55	50,5	83
16,0	56	52,0	84
17,0	57	54,0	85
18,0	58	56,0	86
19,0	59	58,0	87
20,0	60	60,0	88
21,0	61	62,0	89
22,0	62	64,0	90
23,0	63	66,0	91
24,0	64	68,0	92
25,0	65	70,0	93
27,0	66	72,0	94
28,0	67	74,0	95
29,0	68	76,0	96
30,5	69	78,0	97
32,0	70	80,0	98
33,5	71	83,0	99

1-1-52 Crown-Rump Length (CRL) NELSON

Reference: *Nelson L.H.,*
"Comparison of Methods for Determining Crown-Rump Measurement by Real-Time Ultrasound" Journal of clinical ultrasound 9: 67-70; February 1981

$$GA = \frac{51{,}008 + 6 \times CRL}{7}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.0 cm
Max Range: 8.0 cm

CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)
1.00	8w1d	4.60	11w1d
1.20	8w2d	4.80	11w3d
1.40	8w4d	5.00	11w4d
1.60	8w4d	5.20	11w5d
1.80	8w6d	5.40	11w6d
2.00	9w0d	5.60	12w1d
2.20	9w1d	5.80	12w2d
2.40	9w2d	6.00	12w3d
2.60	9w4d	6.20	12w4d
2.80	9w5d	6.40	12w6d
3.00	9w6d	6.60	12w6d
3.20	10w0d	6.80	13w1d
3.40	10w1d	7.00	13w2d
3.60	10w3d	7.20	13w4d
3.80	10w4d	7.40	13w4d
4.00	10w5d	7.60	13w6d
4.20	10w6d	7.80	14w0d
4.40	11w0d	8.00	14w1d

1-1-53 Crown-Rump Length (CRL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)
0.87	7w0d	3.00	10w0d
0.91	7w1d	3.15	10w1d
0.96	7w2d	3.31	10w2d
1.02	7w3d	3.47	10w3d
1.08	7w4d	3.63	10w4d
1.15	7w5d	3.79	10w5d
1.22	7w6d	3.95	10w6d
1.30	8w0d	4.12	11w0d
1.39	8w1d	4.28	11w1d
1.49	8w2d	4.45	11w2d
1.59	8w3d	4.62	11w3d
1.69	8w4d	4.79	11w4d
1.80	8w5d	4.96	11w5d
1.92	8w6d	5.13	11w6d
2.04	9w0d	5.30	12w0d
2.16	9w1d	5.48	12w1d
2.29	9w2d	5.65	12w2d
2.43	9w3d	5.82	12w3d
2.57	9w4d	5.99	12w4d
2.71	9w5d	6.16	12w5d
2.85	9w6d	6.32	12w6d

1-1-54 Crown-Rump Length (CRL) REMPEN

Reference: Rempen A., Chaoui R., Kozlowski P., Terinde R., Wisser J.,Häusler M.: "Standards zur Ultraschalluntersuchung in der Frühschwangerschaft".
publiziert in: Der Frauenarzt 42 (2001), 327 ff.

CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
0,10	-	-	-	3,10	8w6d	9w5d	10w3d
0,20	5w2d	6w0d	6w4d	3,20	9w0d	9w6d	10w4d
0,30	5w4d	6w1d	6w5d	3,30	9w1d	9w6d	10w5d
0,40	5w5d	6w2d	7w0d	3,40	9w1d	10w0d	10w6d
0,50	5w6d	6w3d	7w1d	3,50	9w2d	10w1d	11w0d
0,60	6w0d	6w4d	7w2d	3,60	9w3d	10w2d	11w0d
0,70	6w1d	6w5d	7w3d	3,70	9w4d	10w2d	11w1d
0,80	6w2d	6w6d	7w4d	3,80	9w4d	10w3d	11w2d
0,90	6w3d	7w0d	7w5d	3,90	9w5d	10w4d	11w3d
1,00	6w4d	7w1d	7w6d	4,00	9w6d	10w5d	11w4d
1,10	6w4d	7w2d	8w0d	4,10	10w0d	10w5d	11w4d
1,20	6w5d	7w3d	8w1d	4,20	10w0d	10w6d	11w5d
1,30	6w6d	7w4d	8w2d	4,30	10w1d	11w0d	11w6d
1,40	7w0d	7w5d	8w3d	4,40	10w2d	11w1d	12w0d
1,50	7w1d	7w6d	8w4d	4,50	10w2d	11w1d	12w0d
1,60	7w2d	8w0d	8w5d	4,60	10w3d	11w2d	12w1d
1,70	7w3d	8w0d	8w6d	4,70	10w4d	11w3d	12w2d
1,80	7w3d	8w1d	9w0d	4,80	10w5d	11w4d	12w3d
1,90	7w4d	8w2d	9w0d	4,90	10w5d	11w4d	12w3d
2,00	7w5d	8w3d	9w1d	5,00	10w6d	11w5d	12w4d
2,10	7w6d	8w4d	9w2d	5,10	11w0d	11w6d	12w5d
2,20	7w6d	8w5d	9w3d	5,20	11w0d	11w6d	12w6d
2,30	8w0d	8w5d	9w4d	5,30	11w1d	12w0d	12w6d
2,40	8w1d	8w6d	9w5d	5,40	11w2d	12w1d	13w0d
2,50	8w2d	9w0d	9w6d	5,50	11w2d	12w2d	13w1d
2,60	8w3d	9w1d	9w6d	5,60	11w3d	12w2d	13w2d
2,70	8w3d	9w2d	10w0d	5,70	11w4d	12w3d	13w3d
2,80	8w4d	9w2d	10w1d	5,80	11w5d	12w4d	13w3d
2,90	8w5d	9w3d	10w2d	5,90	11w5d	12w5d	13w4d
3,00	8w6d	9w4d	10w3d	6,00	11w6d	12w5d	13w5d

1-1-55 Crown-Rump Length (CRL) ROBINSON

Reference: Robinson H.P., Fleming J.E.E.,
"A critical evaluation of Sonar "Crown-Rump Length" measurements"
British Journal of Obstetrics and Gynecology; Volume 82:702-710, September 1975

$$GA = \frac{8{,}052 \times \sqrt{10 \times CRL} + 23{,}73}{7}$$

Input Unit:	cm
Output Unit:	w (weeks)
Min Range:	0,6 cm
Max Range:	8.5 cm

1-1-56 Crown-Rump Length (CRL) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

CRL (cm)	GA (w+d/d)	
	mean	±dec
0.50	6w3d	3d
1.00	7w3d	4d
1.50	8w1d	5d
2.00	8w6d	6d
2.50	9w4d	6d
3.00	10w2d	7d
3.50	10w6d	8d
4.00	11w3d	8d
4.50	11w6d	9d
5.00	12w2d	10d

1-1-57 Crown-Rump Length (CRL) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

CRL (mm)	GA (d/d)		CRL (mm)	GA (d/d)	
	mean	±1SD		mean	±1SD
13	55	8	32	73	7
14	56	9	33	74	7
15	57	10	34	74	7
16	58	8	35	75	7
17	59	9	36	76	7
18	60	10	37	77	7
19	61	8	38	78	7
20	62	9	39	78	7
21	63	7	40	79	7
22	64	7	41	80	7
23	65	7	42	81	7
24	66	7	43	81	7
25	67	7	44	82	7
26	68	7	45	83	7
27	68	7	46	84	7
28	69	7	47	84	7
29	70	7	48	85	7
30	71	7	49	86	7
31	72	7	50	86	7

1-1-58 Femur Length (FL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

FL (cm)	GA		FL (cm)	GA	
	w	± d		w	± d
0.8	11	7	5.0	27	14
1.0	12	7	5.4	28	14
1.1	13	7	5.5	29	18
1.5	14	7	5.8	30	18
1.7	15	7	5.9	31	18
2.2	16	7	6.2	32	21
2.5	17	7	6.5	33	21
2.8	18	10	6.6	34	21
3.0	19	10	6.7	35	21
3.2	20	10	6.9	36	21
3.4	21	14	7.2	37	21
3.7	22	14	7.3	38	21
4.3	23	14	7.5	39	21
4.5	24	14	7.6	40	21
4.8	25	14	7.7	41	21
4.9	26	14			

1-1-59 Femur Length (FL) ASUM - OLD

Input Unit: cm
Output Unit: Week
Min Range: 10 mm
Max Range: 79 mm

FL (mm)	GA (w)	FL (mm)	GA (w)	FL (mm)	GA (w)
10	12.8	34	20.3	58	30.0
11	13.1	35	20.7	59	30.5
12	13.4	36	21.0	60	30.9
13	13.6	37	21.4	61	31.4
14	13.9	38	21.8	62	31.9
15	14.2	39	22.1	63	32.3
16	14.5	40	22.5	64	32.8
17	14.8	41	22.9	65	33.3
18	15.1	42	23.3	66	33.8
19	15.4	43	23.7	67	34.2
20	15.7	44	24.1	68	34.7
21	16.0	45	24.5	69	35.2
22	16.3	46	24.9	70	35.7
23	16.6	47	25.3	71	36.2
24	16.9	48	25.7	72	36.7
25	17.2	49	26.1	73	37.2
26	17.6	50	26.5	74	37.7
27	17.9	51	27.0	75	38.3
28	18.2	52	27.4	76	38.8
29	18.6	53	27.8	77	39.3
30	18.9	54	28.2	78	39.8
31	19.2	55	28.7	79	40.4
32	19.6	56	29.1		
33	19.9	57	29.6		

The regression equation for this data is:
menstrual age = 10.38 + 0.2256 (femur length) + 0.001948 (femur length)$_{2.}$
The calculated variability (±2 SD) in predicting menstrual age from femur length is ±9.5 days (12-23 weeks) and ±22 days (23-40 weeks)

1-1-60 Femur Length (FL) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol.Obstet Fertil., Vol. 28 No. 2, 2000, pages 435-445

NOTE: FL and GA Values are taken from Fetal Growth Table; FL (50% values) are used as Input and GA as Output!

FL (mm)	GA (Week)
	11
6,33	12
9,88	13
13,33	14
16,66	15
19,95	16
23,12	17
26,23	18
29,25	19
32,23	20
35,05	21
37,87	22
40,50	23
43,16	24
45,69	25
48,17	26
50,53	27
52,80	28
54,94	29
57,13	30
59,15	31
61,11	32
63,00	33
64,76	34
66,47	35
68,13	36
69,63	37
71,11	38
72,48	39
73,79	40
74,00	41

1-1-61 Femur Length (FL) CHITTY

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
1.00	12w1d	13w0d	13w6d	3.90	20w5d	22w4d	24w3d
1.10	12w3d	13w2d	14w1d	4.00	21w1d	22w6d	24w6d
1.20	12w5d	13w4d	14w4d	4.10	21w3d	23w2d	25w2d
1.30	13w0d	13w6d	14w6d	4.20	21w6d	23w5d	25w5d
1.40	13w1d	14w1d	15w1d	4.30	22w1d	24w1d	26w1d
1.50	13w3d	14w3d	15w3d	4.40	22w4d	24w3d	26w4d
1.60	13w5d	14w5d	15w6d	4.50	22w6d	24w6d	27w1d
1.70	14w0d	15w0d	16w1d	4.60	23w2d	25w2d	27w4d
1.80	14w2d	15w2d	16w3d	4.70	23w4d	25w5d	28w0d
1.90	14w4d	15w5d	16w6d	4.80	24w0d	26w1d	28w3d
2.00	14w6d	16w0d	17w1d	4.90	24w3d	26w4d	29w0d
2.10	15w1d	16w2d	17w3d	5.00	24w5d	27w0d	29w3d
2.20	15w3d	16w4d	17w6d	5.10	25w1d	27w3d	30w0d
2.30	15w5d	16w6d	18w1d	5.20	25w4d	27w6d	30w3d
2.40	16w0d	17w2d	18w4d	5.30	26w0d	28w2d	31w0d
2.50	16w2d	17w4d	18w6d	5.40	26w2d	28w5d	31w3d
2.60	16w4d	17w6d	19w2d	5.50	26w5d	29w2d	32w0d
2.70	16w6d	18w2d	19w5d	5.60	27w1d	29w5d	32w3d
2.80	17w1d	18w4d	20w0d	5.70	27w4d	30w1d	33w0d
2.90	17w4d	18w6d	20w3d	5.80	28w0d	30w4d	33w4d
3.00	17w6d	19w2d	20w5d	5.90	28w3d	31w1d	34w1d
3.10	18w1d	19w4d	21w1d	6.00	28w6d	31w4d	34w4d
3.20	18w3d	20w0d	21w4d	6.10	29w2d	32w1d	35w1d
3.30	18w5d	20w2d	22w0d	6.20	29w5d	32w4d	35w5d
3.40	19w1d	20w5d	22w2d	6.30	30w1d	33w1d	36w2d
3.50	19w3d	21w0d	22w5d	6.40	30w4d	33w4d	36w6d
3.60	19w5d	21w3d	23w1d	6.50	31w0d	34w1d	37w3d
3.70	20w1d	21w5d	23w4d	6.60	31w3d	34w4d	38w0d
3.80	20w3d	22w1d	24w0d	6.70	32w0d	35w1d	38w5d

1-1-62 Femur Length (FL) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight"
Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 10{,}4 + 2{,}26 \times FL + 0{,}195 \times FL^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.20 cm
Max Range: 8.20 cm

Standard Deviation: 1.20 weeks

FL (cm)	GA (w+d)	FL (cm)	GA (w+d)
1.20	13w3d	4.80	25w5d
1.40	13w6d	5.00	26w4d
1.60	14w4d	5.20	27w3d
1.80	15w1d	5.40	28w1d
2.00	15w5d	5.60	29w1d
2.20	16w3d	5.80	30w0d
2.40	16w6d	6.00	30w6d
2.60	17w4d	6.20	31w6d
2.80	18w1d	6.40	32w6d
3.00	18w6d	6.60	33w6d
3.20	19w4d	6.80	34w5d
3.40	20w2d	7.00	35w5d
3.60	21w0d	7.20	36w5d
3.80	21w6d	7.40	37w5d
4.00	22w4d	7.60	38w6d
4.20	23w2d	7.80	39w6d
4.40	24w1d	8.00	40w6d
4.60	24w6d	8.20	41w6d

1-1-63 Femur Length (FL) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$GA = 10{,}35 + 2{,}46 \times FL + 0{,}17 \times FL^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 0.6 cm
Max Range: 8.2 cm

Standard Deviation:

GA (weeks		± 2SD
Low	High	(weeks)
12	18	1,38
18	24	1,80
24	30	2,08
30	36	2,96
36	42	3,12

1-1-64 Femur Length (FL) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

FL (cm)	GA (weeks)
1.00	13
1.20	14
1.60	15
1.80	16
2.20	17
2.50	18
2.80	19
3.10	20
3.40	21
3.60	22
3.90	23
4.10	24
4.40	25
4.70	26
4.90	27
5.10	28
5.40	29
5.60	30
5.90	31
6.10	32
6.30	33
6.50	34
6.70	35
6.90	36
7.10	37
7.30	38
7.40	39
7.50	40

1-1-65 Femur Length (FL) HOBBINS

Reference: Document by E-Mail of Hobbins

$$GA = 10{,}878 + (0{,}23115 \times FL) + (0{,}0020188 \times FL^2)$$

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

1-1-66 Femur Length (FL) HOHLER

Reference: Hohler C.W., Quetel T.A. "Fetal Femur Length: Equations for Computer Calculation of Gestational Age from Ultrasound Measurements" American Journal of Obstetrics and Gynecology, Vol. 143, No. 4: 479-481, June 15, 1982

$$GA = 9{,}18 + 2{,}67 \times FL + 0{,}16 \times FL^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.0 cm
Max Range: 8.0 cm

GA (weeks)	± 2SD (weeks)
<23	1.0
>23	2.8

FL	GA (w+d)		FL	GA (w+d)		FL	GA (w+d)	
(cm)	mean	± dec	(cm)	mean	± dec	(cm)	mean	± dec
1.00	12w0d	1w0d	3.40	20w1d	1w0d	5.80	30w0d	2w6d
1.10	12w2d	1w0d	3.50	20w4d	1w0d	5.90	30w4d	2w6d
1.20	12w4d	1w0d	3.60	20w6d	1w0d	6.00	31w0d	2w6d
1.30	12w6d	1w0d	3.70	21w2d	1w0d	6.10	31w4d	2w6d
1.40	13w1d	1w0d	3.80	21w5d	1w0d	6.20	31w6d	2w6d
1.50	13w4d	1w0d	3.90	22w0d	1w0d	6.30	32w3d	2w6d
1.60	13w6d	1w0d	4.00	22w3d	1w0d	6.40	32w6d	2w6d
1.70	14w1d	1w0d	4.10	22w6d	1w0d	6.50	33w2d	2w6d
1.80	14w4d	1w0d	4.20	23w1d	2w6d	6.60	33w6d	2w6d
1.90	14w6d	1w0d	4.30	23w4d	2w6d	6.70	34w2d	2w6d
2.00	15w1d	1w0d	4.40	24w0d	2w6d	6.80	34w6d	2w6d
2.10	15w4d	1w0d	4.50	24w4d	2w6d	6.90	35w2d	2w6d
2.20	15w6d	1w0d	4.60	24w6d	2w6d	7.00	35w6d	2w6d
2.30	16w1d	1w0d	4.70	25w2d	2w6d	7.10	36w2d	2w6d
2.40	16w4d	1w0d	4.80	25w5d	2w6d	7.20	36w6d	2w6d
2.50	16w6d	1w0d	4.90	26w1d	2w6d	7.30	37w2d	2w6d
2.60	17w1d	1w0d	5.00	26w4d	2w6d	7.40	37w6d	2w6d
2.70	17w4d	1w0d	5.10	27w0d	2w6d	7.50	38w2d	2w6d
2.80	17w6d	1w0d	5.20	27w3d	2w6d	7.60	38w6d	2w6d
2.90	18w2d	1w0d	5.30	27w6d	2w6d	7.70	39w2d	2w6d
3.00	18w4d	1w0d	5.40	28w2d	2w6d	7.80	39w6d	2w6d
3.10	19w0d	1w0d	5.50	28w5d	2w6d	7.90	40w2d	2w6d
3.20	19w3d	1w0d	5.60	29w1d	2w6d	8.00	40w6d	2w6d
3.30	19w5d	1w0d	5.70	29w4d	2w6d			

1-1-67 Femur Length (FL) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J. "Estimation of Gestational Age from Measurements of Fetal Long Bones" Journal of Ultrasound Medicine, 3: 75-79, February, 1984

$$GA = 9{,}54 + 2{,}977 \times FL + 0{,}10389 \times FL^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.00 cm
Max Range: 8.00 cm

Standard deviation (±): 1SD = 1.4 weeks

FL	GA (weeks+days)			FL	GA (weeks+days)			FL	GA (weeks+days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
1.00	10w3d	12w4d	14w6d	3.40	18w5d	20w6d	23w1d	5.80	28w1d	30w2d	32w4d
1.10	10w5d	12w6d	15w1d	3.50	19w0d	21w1d	23w3d	5.90	28w4d	30w5d	32w6d
1.20	11w1d	13w2d	15w4d	3.60	19w3d	21w4d	23w6d	6.00	28w6d	31w1d	33w2d
1.30	11w3d	13w4d	15w6d	3.70	19w6d	22w0d	24w1d	6.10	29w3d	31w4d	33w6d
1.40	11w5d	13w6d	16w1d	3.80	20w1d	22w3d	24w4d	6.20	29w6d	32w0d	34w1d
1.50	12w0d	14w1d	16w3d	3.90	20w4d	22w5d	24w6d	6.30	30w1d	32w3d	34w4d
1.60	12w3d	14w4d	16w6d	4.00	20w6d	23w1d	25w2d	6.40	30w5d	32w6d	35w1d
1.70	12w5d	14w6d	17w1d	4.10	21w2d	23w4d	25w5d	6.50	31w1d	33w2d	35w4d
1.80	13w0d	15w1d	17w3d	4.20	21w5d	23w6d	26w1d	6.60	31w4d	33w5d	35w6d
1.90	13w3d	15w4d	17w6d	4.30	22w1d	24w2d	26w4d	6.70	32w0d	34w1d	36w3d
2.00	13w5d	15w6d	18w1d	4.40	22w4d	24w5d	26w6d	6.80	32w3d	34w4d	36w6d
2.10	14w1d	16w2d	18w4d	4.50	22w6d	25w0d	27w1d	6.90	32w6d	35w0d	37w1d
2.20	14w3d	16w4d	18w6d	4.60	23w1d	25w3d	27w4d	7.00	33w2d	35w4d	37w5d
2.30	14w5d	16w6d	19w1d	4.70	23w4d	25w6d	28w0d	7.10	33w5d	35w6d	38w1d
2.40	15w1d	17w2d	19w4d	4.80	24w0d	26w1d	28w3d	7.20	34w1d	36w3d	38w4d
2.50	15w3d	17w4d	19w6d	4.90	24w3d	26w4d	28w6d	7.30	34w4d	36w6d	39w0d
2.60	15w6d	18w0d	20w1d	5.00	24w6d	27w0d	29w1d	7.40	35w1d	37w2d	39w4d
2.70	16w1d	18w2d	20w4d	5.10	25w1d	27w3d	29w4d	7.50	35w4d	37w5d	39w6d
2.80	16w4d	18w5d	20w6d	5.20	25w4d	27w6d	30w0d	7.60	36w0d	38w1d	40w3d
2.90	16w6d	19w0d	21w1d	5.30	26w0d	28w1d	30w3d	7.70	36w3d	38w4d	40w6d
3.00	17w1d	19w3d	21w4d	5.40	26w3d	28w4d	30w6d	7.80	36w6d	39w1d	41w2s
3.10	17w4d	19w6d	22w0d	5.50	26w6d	29w1d	31w2d	7.90	37w2d	39w4d	41w5d
3.20	17w6d	20w1d	22w2d	5.60	27w2d	29w4d	31w5d	8.00	37w6d	40w0d	42w1d
3.30	18w2d	20w4d	22w5d	5.70	27w5d	29w6d	32w1d				

1-1-68 Femur Length (FL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

FL (cm)	GA (weeks+days)		FL (cm)	GA (weeks+days)	
	mean	± 1SD		mean	± 1SD
2,00	16w1d	6	4,60	26w2d	10
2,10	16w3d	6	4,70	26w5d	10
2,20	16w6d	6	4,80	27w2d	10
2,30	17w1d	7	4,90	27w5d	10
2,40	17w3d	7	5,00	28w2d	10
2,50	17w6d	7	5,10	28w5d	10
2,60	18w1d	7	5,20	29w2d	11
2,70	18w3d	7	5,30	29w5d	11
2,80	18w6d	7	5,40	30w2d	11
2,90	19w1d	7	5,50	30w5d	11
3,00	19w4d	8	5,60	31w2d	11
3,10	20w0d	8	5,70	31w6d	11
3,20	20w2d	8	5,80	32w3d	11
3,30	20w5d	8	5,90	33w0d	12
3,40	21w1d	8	6,00	33w3d	12
3,50	21w3d	8	6,10	34w0d	12
3,60	21w6d	8	6,20	34w4d	12
3,70	22w2d	9	6,30	35w1d	12
3,80	22w5d	9	6,40	35w5d	12
3,90	23w1d	9	6,50	36w2d	12
4,0	23w4d	9	6,60	37w0d	12
4,10	24w0d	9	6,70	37w4d	13
4,20	24w3d	9	6,80	38w1d	13
4,30	24w6d	9	6,90	38w5d	13
4,40	25w3d	9	7,00	39w3d	13
4,50	25w6d	10			

1-1-69 Femur Length (FL) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: FL and GA Values are taken from Fetal Growth Table; FL values are used as Input and GA as Output!

GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)
		117	22,5	150	36,0	183	49,2	216	61,0	249	69,8	282	78,0
85	8,0	118	23,0	151	36,4	184	49,6	217	61,3	250	70,0	283	78,3
86	8,5	119	23,5	152	36,8	185	50,0	218	61,7	251	70,3	284	78,5
87	9,0	120	24,0	153	37,6	186	50,4	219	62,0	252	70,5	285	78,8
88	9,5	121	24,4	154	37,8	187	50,8	220	62,3	253	70,8	286	79,0
89	10,0	122	24,8	155	38,0	188	51,3	221	62,7	254	71,0	287	79,3
90	10,5	123	25,2	156	38,4	189	51,6	222	63,0	255	71,3	288	79,5
91	11,1	124	25,6	157	38,8	190	52,0	223	63,3	256	71,5	289	79,8
92	11,7	125	26,0	158	39,2	191	52,4	224	63,5	257	71,8	290	80,0
93	12,2	126	26,4	159	39,6	192	52,8	225	63,8	258	72,0	291	80,3
94	12,8	127	26,8	160	40,0	193	53,2	226	64,0	259	72,3	292	80,5
95	13,3	128	27,2	161	40,4	194	53,6	227	64,3	260	72,5	293	80,8
96	13,8	129	27,6	162	40,8	195	54,0	228	64,5	261	72,8	294	81,0
97	14,2	130	28,0	163	41,2	196	54,3	229	64,8	262	73,0	295	81,2
98	14,6	131	28,4	164	41,6	197	54,7	230	65,0	263	73,3	296	81,4
99	15,0	132	28,8	165	42,0	198	55,0	231	65,3	264	73,5	297	81,6
100	15,4	133	29,2	166	42,4	199	55,3	232	65,5	265	73,8	298	81,8
101	15,8	134	29,6	167	42,8	200	55,6	233	65,8	266	74,0	299	82,0
102	16,2	135	30,0	168	43,2	201	56,0	234	66,0	267	74,3	300	82,2
103	16,6	136	30,4	169	43,6	202	56,3	235	66,3	268	74,5		
104	17,0	137	30,8	170	44,0	203	56,7	236	66,5	269	74,8		
105	17,4	138	31,2	171	44,4	204	57,0	237	66,8	270	75,0		
106	17,8	139	31,6	172	44,8	205	57,3	238	67,0	271	75,3		
107	18,2	140	32,0	173	45,2	206	57,7	239	67,3	272	75,5		
108	18,6	141	32,4	174	45,6	207	58,0	240	67,5	273	75,8		
109	19,0	142	32,8	175	46,0	208	58,3	241	67,8	274	76,0		
110	19,4	143	33,2	176	46,4	209	58,7	242	68,0	275	76,3		
111	19,8	144	33,6	177	46,8	210	59,0	243	68,3	276	76,5		
112	20,2	145	34,0	178	47,2	211	59,3	244	68,5	277	76,8		
113	20,6	146	34,4	179	47,6	212	59,7	245	68,8	278	77,0		
114	21,0	147	34,8	180	48,0	213	60,0	246	69,0	279	77,3		
115	21,5	148	35,2	181	48,4	214	60,3	247	69,3	280	77,5		
116	22,00	149	35,6	182	48,8	215	60,7	248	69,7	281	77,8		

1-1-70 Femur Length (FL) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Textbook and Atlas, 1991 Georg Thieme Verlag, pp. 326

FL	GA (weeks+days)			FL	GA (weeks+days)			FL	GA (weeks+days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
1.00	11w1d	12w2d	13w4d	3.40	19w1d	20w6d	22w3d	5.80	28w1d	30w1d	32w1d
1.10	11w4d	12w5d	13w6d	3.50	19w4d	21w1d	22w6d	5.90	28w4d	30w4d	32w4d
1.20	11w6d	13w0d	14w1d	3.60	20w0d	21w4d	23w1d	6.00	29w0d	31w0d	33w0d
1.30	12w1d	13w2d	14w4d	3.70	20w2d	21w6d	23w4d	6.10	29w4d	31w4d	33w4d
1.40	12w3d	13w5d	15w0d	3.80	20w5d	22w2d	23w6d	6.20	29w6d	31w6d	33w6d
1.50	12w5d	14w0d	15w2d	3.90	21w0d	22w5d	24w3d	6.30	30w2d	32w2d	34w2d
1.60	13w1d	14w3d	15w5d	4.00	21w3d	23w1d	24w6d	6.40	30w6d	32w6d	34w6d
1.70	13w3d	14w5d	16w0d	4.10	21w5d	23w3d	25w1d	6.50	31w1d	33w1d	35w1d
1.80	13w6d	15w1d	16w3d	4.20	22w1d	23w6d	25w4d	6.60	31w4d	33w4d	35w4d
1.90	14w1d	15w3d	16w5d	4.30	22w4d	24w1d	25w6d	6.70	32w0d	34w1d	36w1d
2.00	14w4d	15w6d	17w1d	4.40	22w6d	24w4d	26w3d	6.80	32w3d	34w4d	36w4d
2.10	14w6d	16w1d	17w3d	4.50	23w1d	25w0d	26w6d	6.90	32w6d	35w0d	37w1d
2.20	15w1d	16w4d	17w6d	4.60	23w4d	25w3d	27w1d	7.00	33w2d	35w3d	37w4d
2.30	15w3d	16w6d	18w1d	4.70	24w0d	25w6d	27w4d	7.10	33w6d	35w6d	38w0d
2.40	15w6d	17w1d	18w4d	4.80	24w3d	26w1d	28w0d	7.20	34w1d	36w2d	38w3d
2.50	16w1d	17w4d	19w1d	4.90	24w5d	26w4d	28w2d	7.30	34w4d	36w6d	39w0d
2.60	16w3d	17w6d	19w3d	5.00	25w1d	26w6d	28w5d	7.40	35w1d	37w2d	39w4d
2.70	16w6d	18w2d	19w6d	5.10	25w4d	27w2d	29w1d	7.50	35w4d	37w5d	39w6d
2.80	17w1d	18w4d	20w1d	5.20	25w6d	27w5d	29w4d	7.60	36w0d	38w1d	40w3d
2.90	17w4d	19w0d	20w4d	5.30	26w1d	28w1d	30w0d	7.70	36w4d	38w5d	40w6d
3.00	17w6d	19w3d	20w6d	5.40	26w4d	28w4d	30w4d	7.80	37w0d	39w1d	41w3d
3.10	18w1d	19w5d	21w1d	5.50	27w0d	29w0d	31w0d	7.90	37w3d	39w4d	41w6d
3.20	18w4d	20w1d	21w4d	5.60	27w3d	29w3d	31w3d	8.00	37w6d	40w1d	42w2d
3.30	18w6d	20w4d	22w1d	5.70	27w6d	29w6d	31w6d				

1-1-71 Femur Length (FL) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: FL and GA Values are taken from Fetal Growth Table; FL (50% values) are used as Input and GA as Output!

FL (cm)	GA (week
Median	
1.70	14
1.90	15
2.20	16
2.40	17
2.70	18
3.00	19
3.20	20
3.50	21
3.80	22
4.10	23
4.30	24
4.60	25
4.80	26
5.10	27
5.30	28
5.60	29
5.80	30
6.00	31
6.20	32
6.40	33
6.60	34
6.80	35
6.90	36
7.10	37
7.20	38
7.30	39

1-1-72 Femur Length (FL) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

FL (cm)	GA (weeks + days)	FL (cm)	GA (weeks + days)
0,7	12w0d	4,3	24w1d
0,8	12w2d	4,4	24w4d
0,9	12w4d	4,5	25w0d
1,0	12w6d	4,6	25w2d
1,1	13w1d	4,7	25w5d
1,2	13w4d	4,8	26w1d
1,3	13w6d	4,9	26w4d
1,4	14w1d	5,0	27w0d
1,5	14w3d	5,1	27w3d
1,6	14w5d	5,2	27w6d
1,7	15w0d	5,3	28w2d
1,8	15w3d	5,4	28w5d
1,9	15w5d	5,5	29w2d
2,0	16w0d	5,6	29w5d
2,1	16w2d	5,7	30w1d
2,2	16w5d	5,8	30w4d
2,3	17w0d	5,9	31w1d
2,4	17w2d	6,0	31w4d
2,5	17w5d	6,1	32w1d
2,6	18w0d	6,2	32w4d
2,7	18w2d	6,3	33w1d
2,8	18w5d	6,4	33w4d
2,9	19w0d	6,5	34w1d
3,0	19w2d	6,6	34w5d
3,1	19w5d	6,7	35w2d
3,2	20w0d	6,8	35w6d
3,3	20w3d	6,9	36w3d
3,4	20w5d	7,0	37w0d
3,5	21w1d	7,1	37w4d
3,6	21w3d	7,2	38w2d
3,7	21w6d	7,3	38w6d
3,8	22w2d	7,4	39w4d
3,9	22w4d	7,5	40w2d
4,0	23w0d	7,6	41w0d
4,1	23w2d	7,7	41w5d
4,2	23w5d		

1-1-73 Femur Length (FL) O'BRIEN

Reference: O´Brien G.D., Queenan J.T. "Growth of the ultrasound fetal femur length during normal pregnancy. Part I." American Journal in Obstetrics and Gynecology; December 1981; 141(7); pp. 833-887

NOTE: FL and GA Values are taken from Fetal Growth Table; FL (50% values) are used as Input and GA as Output!

FL (mm Mean	GA (weeks)
16,6	14
19,9	15
22,0	16
25,2	17
29,6	18
32,4	19
34,8	20
37,5	21
40,9	22
43,5	23
46,4	24
48,0	25
51,1	26
53,0	27
54,4	28
57,3	29
58,7	30
61,5	31
62,8	32
64,9	33
65,7	34
67,7	35
69,5	36
70,8	37
71,8	38
74,2	39
75,4	40

1-1-74 Femur Length (FL) OSAKA

Reference: Prenatal care Val. 9 No. 5

FL (cm)	GA (w+d)	FL (cm)	GA (w+d)	FL (cm)	GA (w+d)	FL (cm)	GA (w+d)	FL (cm)	GA (w+d)
0.94	13w0d	2.59	18w3d	4.04	23w6d	5.28	29w2d	6.31	34w5d
0.98	13w1d	2.63	18w4d	4.08	24w0d	5.31	29w3d	6.34	34w6d
1.03	13w2d	2.67	18w5d	4.11	24w1d	5.34	29w4d	6.36	35w0d
1.07	13w3d	2.71	18w6d	4.15	24w2d	5.37	29w5d	6.39	35w1d
1.12	13w4d	2.75	19w0d	4.18	24w3d	5.40	29w6d	6.41	35w2d
1.17	13w5d	2.79	19w1d	4.22	24w4d	5.43	30w0d	6.43	35w3d
1.21	13w6d	2.83	19w2d	4.25	24w5d	5.46	30w1d	6.46	35w4d
1.26	14w0d	2.87	19w3d	4.28	24w6d	5.49	30w2d	6.48	35w5d
1.30	14w1d	2.91	19w4d	4.32	25w0d	5.52	30w3d	6.50	35w6d
1.35	14w2d	2.95	19w5d	4.35	25w1d	5.54	30w4d	6.53	36w0d
1.39	14w3d	2.99	19w6d	4.39	25w2d	5.57	30w5d	6.55	36w1d
1.44	14w4d	3.03	20w0d	4.42	25w3d	5.60	30w6d	6.57	36w2d
1.48	14w5d	3.07	20w1d	4.45	25w4d	5.63	31w0d	6.60	36w3d
1.53	14w6d	3.11	20w2d	4.49	25w5d	5.66	31w1d	6.62	36w4d
1.57	15w0d	3.15	20w3d	4.52	25w6d	5.69	31w2d	6.64	36w5d
1.61	15w1d	3.19	20w4d	4.56	26w0d	5.71	31w3d	6.66	36w6d
1.66	15w2d	3.23	20w5d	4.59	26w1d	5.74	31w4d	6.69	37w0d
1.70	15w3d	3.27	20w6d	4.62	26w2d	5.77	31w5d	6.71	37w1d
1.75	15w4d	3.30	21w0d	4.65	26w3d	5.80	31w6d	6.73	37w2d
1.79	15w5d	3.34	21w1d	4.69	26w4d	5.82	32w0d	6.75	37w3d
1.83	15w6d	3.38	21w2d	4.72	26w5d	5.85	32w1d	6.77	37w4d
1.88	16w0d	3.42	21w3d	4.75	26w6d	5.88	32w2d	6.79	37w5d
1.92	16w1d	3.46	21w4d	4.78	27w0d	5.90	32w3d	6.82	37w6d
1.96	16w2d	3.49	21w5d	4.82	27w1d	5.93	32w4d	6.84	38w0d
2.01	16w3d	3.53	21w6d	4.85	27w2d	5.96	32w5d	6.86	38w1d
2.05	16w4d	3.57	22w0d	4.88	27w3d	5.98	32w6d	6.88	38w2d
2.09	16w5d	3.61	22w1d	4.91	27w4d	6.01	33w0d	6.90	38w3d
2.13	16w6d	3.64	22w2d	4.94	27w5d	6.04	33w1d	6.92	38w4d
2.18	17w0d	3.68	22w3d	4.97	27w6d	6.06	33w2d	6.94	38w5d
2.22	17w1d	3.72	22w4d	5.01	28w0d	6.09	33w3d	6.96	38w6d
2.26	17w2d	3.75	22w5d	5.04	28w1d	6.11	33w4d	6.98	39w0d
2.30	17w3d	3.79	22w6d	5.07	28w2d	6.14	33w5d	7.00	39w1d
2.34	17w4d	3.83	23w0d	5.10	28w3d	6.16	33w6d	7.02	39w2d
2.39	17w5d	3.86	23w1d	5.13	28w4d	6.19	34w0d	7.04	39w3d
2.43	17w6d	3.90	23w2d	5.16	28w5d	6.21	34w1d	7.06	39w4d
2.47	18w0d	3.93	23w3d	5.19	28w6d	6.24	34w2d	7.08	39w5d
2.51	18w1d	3.97	23w4d	5.22	29w0d	6.26	34w3d	7.10	39w6d
2.55	18w2d	4.01	23w5d	5.25	29w1d	6.29	34w4d	7.12	40w0d

1-1-75 Femur Length (FL) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

FL	GA (w+d / d)		FL	GA (w+d / d)	
(cm)	mean	± dec	(cm)	mean	± dec
2.00	16w1d	6d	4.60	26w2d	10d
2.10	16w3d	6d	4.70	26w5d	10d
2.20	16w6d	6d	4.80	27w2d	10d
2.30	17w1d	7d	4.90	27w5d	10d
2.40	17w3d	7d	5.00	28w2d	10d
2.50	17w6d	7d	5.10	28w5d	10d
2.60	18w1d	7d	5.20	29w2d	11d
2.70	18w3d	7d	5.30	29w5d	11d
2.80	18w6d	7d	5.40	30w2d	11d
2.90	19w1d	7d	5.50	30w5d	11d
3.00	19w4d	8d	5.60	31w2d	11d
3.10	20w0d	8d	5.70	31w6d	11d
3.20	20w2d	8d	5.80	32w3d	11d
3.30	20w5d	8d	5.90	33w0d	12d
3.40	21w1d	8d	6.00	33w3d	12d
3.50	21w3d	8d	6.10	34w0d	12d
3.60	21w6d	8d	6.20	34w4d	12d
3.70	22w2d	9d	6.30	35w1d	12d
3.80	22w5d	9d	6.40	35w5d	12d
3.90	23w1d	9d	6.50	36w2d	12d
4.00	23w3d	9d	6.60	37w0d	12d
4.10	24w0d	9d	6.70	37w4d	13d
4.20	24w3d	9d	6.80	38w1d	13d
4.30	24w6d	9d	6.90	38w5d	13d
4.40	25w3d	9d	7.00	39w3d	13d
4.50	25w6d	10d			

1-1-76 Femur Length (FL) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

FL (mm)	GA (d / d)		FL (mm)	GA (d / d)	
	mean	± 1SD		mean	± 1SD
33	143	6	53	207	7
34	146	6	54	210	7
35	149	6	55	214	7
36	153	6	56	217	7
37	156	6	57	220	7
38	159	6	58	224	7
39	162	6	59	228	8
40	166	6	60	231	8
41	169	6	61	235	8
42	172	6	62	239	8
43	175	6	63	243	8
44	178	6	64	247	8
45	181	6	65	251	8
46	185	7	66	256	8
47	188	7	67	260	8
48	191	7	68	266	7
49	194	7	69	271	7
50	197	7	70	278	7
51	200	7	71	286	6
52	204	7			

1-1-77 Femur Length (FL) WARDA

Reference: Warda A.H., Deter R.L.; Rossavik I.K., Carpenter R.J., Hadlock F.P.
"Fetal Femur Length: A Critical Reevaluation of the Relationship to Menstrual Age"
Ultrasound in Obstetrics and Gynecology Vol. 66: 69-75, 1985

$$GA = e^{2,35301 + 0,231815 \times FL - 0,007804 \times FL^2}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.00 cm
Max Range: 8.00 cm

FL (cm)	GA (weeks + days)			FL (cm)	GA (weeks + days)		
	-1SD	Mean	+1SD		-1SD	Mean	+1SD
1.00	11w6d	13w1d	14w4d	4.60	23w3d	25w6d	28w5d
1.20	12w3d	13w5d	15w2d	4.80	24w1d	26w5d	29w4d
1.40	13w0d	14w2d	15w6d	5.00	24w6d	27w4d	30w4d
1.60	13w3d	15w0d	16w4d	5.20	25w5d	28w3d	31w4d
1.80	14w0d	15w4d	17w2d	5.40	26w3d	29w2d	32w3d
2.00	14w4d	16w1d	18w0d	5.60	27w1d	30w1d	33w3d
2.20	15w1d	16w6d	18w5d	5.80	28w0d	31w0d	34w3d
2.40	15w6d	17w4d	19w3d	6.00	28w6d	31w6d	35w3d
2.60	16w3d	18w2d	20w1d	6.20	29w4d	32w6d	36w2d
2.80	17w1d	19w0d	21w0d	6.40	30w3d	33w5d	37w2d
3.00	17w5d	19w5d	21w5d	6.60	31w1d	34w4d	38w2d
3.20	18w3d	20w3d	22w4d	6.80	32w0d	35w3d	39w2d
3.40	19w0d	21w1d	23w3d	7.00	32w6d	36w2d	40w2d
3.60	19w5d	21w6d	24w2d	7.20	33w4d	37w2d	41w2d
3.80	20w3d	22w5d	25w1d	7.40	34w3d	38w1d	42w2d
4.00	21w1d	23w3d	26w0d	7.60	35w1d	39w0d	43w2d
4.20	21w6d	24w2d	26w6d	7.80	36w0d	39w6d	44w2d
4.40	22w4d	25w1d	27w6d	8.00	36w5d	40w5d	45w1d

1-1-78 Fetal Trunk Area (FTA) OSAKA

Reference: Perinatal care Vol. 9 No. 5

FTA (cm^2)	GA (w+d)	FTA (cm^2)	GA (w+d)	FTA (cm^2)	GA (w+d)	FTA (cm^2)	GA (w+d)	FTA (cm^2)	GA (w+d)
5.60	14w0d	16.60	19w2d	31.70	24w4d	50.20	29w6d	70.10	35w1d
5.80	14w1d	16.90	19w3d	32.20	24w5d	50.80	30w0d	70.60	35w2d
6.00	14w2d	17.30	19w4d	32.60	24w6d	51.30	30w1d	71.10	35w3d
6.30	14w3d	17.60	19w5d	33.10	25w0d	51.80	30w2d	71.60	35w4d
6.50	14w4d	18.00	19w6d	33.60	25w1d	52.40	30w3d	72.20	35w5d
6.80	14w5d	18.40	20w0d	34.10	25w2d	52.90	30w4d	72.70	35w6d
7.10	14w6d	18.70	20w1d	34.50	25w3d	53.40	30w5d	73.20	36w0d
7.30	15w0d	19.10	20w2d	35.00	25w4d	54.00	30w6d	73.70	36w1d
7.60	15w1d	19.50	20w3d	35.50	25w5d	54.50	31w0d	74.20	36w2d
7.80	15w2d	19.90	20w4d	36.00	25w6d	55.00	31w1d	74.70	36w3d
8.10	15w3d	20.20	20w5d	36.50	26w0d	55.60	31w2d	75.20	36w4d
8.40	15w4d	20.60	20w6d	36.90	26w1d	56.10	31w3d	75.70	36w5d
8.70	15w5d	21.00	21w0d	37.40	26w2d	56.70	31w4d	76.20	36w6d
8.90	15w6d	21.40	21w1d	37.90	26w3d	57.20	31w5d	76.80	37w0d
9.20	16w0d	21.80	21w2d	38.40	26w4d	57.70	31w6d	77.30	37w1d
9.50	16w1d	22.20	21w3d	38.90	26w5d	58.30	32w0d	77.70	37w2d
9.80	16w2d	22.60	21w4d	39.40	26w6d	58.80	32w1d	78.20	37w3d
10.10	16w3d	23.00	21w5d	39.90	27w0d	59.40	32w2d	78.70	37w4d
10.40	16w4d	23.40	21w6d	40.40	27w1d	59.90	32w3d	79.20	37w5d
10.70	16w5d	23.80	22w0d	40.90	27w2d	60.40	32w4d	79.70	37w6d
11.00	16w6d	24.20	22w1d	41.40	27w3d	61.00	32w5d	80.20	38w0d
11.30	17w0d	24.70	22w2d	41.90	27w4d	61.50	32w6d	80.70	38w1d
11.60	17w1d	25.10	22w3d	42.40	27w5d	62.10	33w0d	81.10	38w2d
11.90	17w2d	25.50	22w4d	42.90	27w6d	62.60	33w1d	81.60	38w3d
12.20	17w3d	25.90	22w5d	43.40	28w0d	63.10	33w2d	82.10	38w4d
12.50	17w4d	26.40	22w6d	44.00	28w1d	63.70	33w3d	82.60	38w5d
12.80	17w5d	26.80	23w0d	44.50	28w2d	64.20	33w4d	83.00	38w6d
13.20	17w6d	27.20	23w1d	45.00	28w3d	64.70	33w5d	83.50	39w0d
13.50	18w0d	27.70	23w2d	45.50	28w4d	65.30	33w6d	83.90	39w1d
13.80	18w1d	28.10	23w3d	46.00	28w5d	65.80	34w0d	84.40	39w2d
14.10	18w2d	28.50	23w4d	46.60	28w6d	66.40	34w1d	84.80	39w3d
14.50	18w3d	29.00	23w5d	47.10	29w0d	66.90	34w2d	85.30	39w4d
14.80	18w4d	29.40	23w6d	47.60	29w1d	67.40	34w3d	85.70	39w5d
15.20	18w5d	29.90	24w0d	48.10	29w2d	67.90	34w4d	86.10	39w6d
15.50	18w6d	30.30	24w1d	48.70	29w3d	68.50	34w5d	86.60	40w0d
15.80	19w0d	30.80	24w2d	49.20	29w4d	69.00	34w6d		
16.20	19w1d	31.30	24w3d	49.70	29w5d	69.50	35w0d		

1-1-79 Fibula (FIB) JEANTY

Reference: Hansmann, Hackeloer, Staudach, Wittmann. "Ultrasound Diagnosis in Obstetrics and Gynecology." Springer-Verlag, New York, 1986, p.182.

NOTE: FIB and GA Values are taken from Fetal Growth Table; FIB (50% values) are used as Input and GA as Output!

FIB 50%	GA (weeks)
6	12
9	13
12	14
15	15
18	16
21	17
23	18
26	19
28	20
31	21
33	22
35	23
37	24
40	25
42	26
44	27
45	28
47	29
49	30
51	31
52	32
54	33
55	34
57	35
58	36
59	37
61	38
62	39
63	40

1-1-80 Gestational Sac (GS) HANSMANN

Reference: Hansmann M., Hackelöer BJ, Staudach A., "Ultraschalldiagnostik in Geburtshilfe und Gynäkologie" Springer- Verlag, 1986, pp.36

GS (cm)	GA (w+d)
0.70	4w6d
0.90	5w5d
1.00	6w0d
1.30	6w2d
1.50	6w5d
2.40	7w3d
2.80	8w2d
3.40	9w0d

1-1-81 Gestational Sac (GS) HELLMAN

Reference: Hellman L.M., Kobayashi M, Fillisti L., et al. "Growth and development of the human fetus prior to the 20th week of gestation". American Journal of Obstetrics and Gynecology; March 15; 1969; 789-800

$$GA = \frac{GS + 2{,}543}{0{,}702}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.66 cm
Max Range: 5.20 cm

GS (cm)	GA (w+d)
0.20	3w6d
0.40	4w1d
0.60	4w4d
0.80	4w6d
1.00	5w1d
1.20	5w2d
1.40	5w4d
1.60	5w6d
1.80	6w1d
2.00	6w3d
2.20	6w6d
2.40	7w1d
2.60	7w2d
2.80	7w4d
3.00	7w6d
3.20	8w1d
3.40	8w4d
3.60	8w6d
3.80	9w1d
4.00	9w2d
4.20	9w4d
4.40	9w6d
4.60	10w1d
4.80	10w4d
5.00	10w6d
5.20	11w1d

1-1-82 Gestational Sac (GS) HOLLÄNDER

Reference: Holländer H.J. "Die Ultraschalldiagnostik in der Schwangerschaft" Urban & Schwarzenberger, München 1972

$$GA = 1{,}384 \times GS + 4{,}452$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 0.80 cm
Max Range: 4.20 cm

GS (cm)	GA (w+d)	GS (cm)	GA (w+d)
0.80	5w4d	2.60	8w0d
0.90	5w5d	2.70	8w1d
1.00	5w6d	2.80	8w2d
1.10	6w0d	2.90	8w3d
1.20	6w1d	3.00	8w4d
1.30	6w2d	3.10	8w5d
1.40	6w3d	3.20	8w6d
1.50	6w4d	3.30	9w0d
1.60	6w5d	3.40	9w1d
1.70	6w6d	3.50	9w2d
1.80	7w0d	3.60	9w3d
1.90	7w1d	3.70	9w4d
2.00	7w2d	3.80	9w5d
2.10	7w3d	3.90	9w6d
2.20	7w3d	4.00	10w0d
2.30	7w4d	4.10	10w1d
2.40	7w5d	4.20	10w2d
2.50	7w6d		

1-1-83 Gestational Sac (GS) REMPEN

Reference: Rempen A. "Biometrie in der Frühgravidität (I. Trimenon)" Der Frauenarzt; 32,4 /1991

Deviation: 5% - 50% = 10 days, 50% - 95% = 10 days

GS (cm)	GA (w+d)		GS (cm)	GA (w+d)		GS (cm)	GA (w+d)	
	mean	± dev		mean	± dev		mean	± dev
0.20	4w6d	1w3d	2.60	7w4d	1w3d	5.00	10w5d	1w3d
0.30	5w0d	1w3d	2.70	7w5d	1w3d	5.10	10w6d	1w3d
0.40	5w1d	1w3d	2.80	7w6d	1w3d	5.20	11w0d	1w3d
0.50	5w2d	1w3d	2.90	8w0d	1w3d	5.30	11w1d	1w3d
0.60	5w2d	1w3d	3.00	8w1d	1w3d	5.40	11w2d	1w3d
0.70	5w3d	1w3d	3.10	8w2d	1w3d	5.50	11w3d	1w3d
0.80	5w4d	1w3d	3.20	8w3d	1w3d	5.60	11w4d	1w3d
0.90	5w5d	1w3d	3.30	8w3d	1w3d	5.70	11w5d	1w3d
1.00	5w5d	1w3d	3.40	8w4d	1w3d	5.80	11w6d	1w3d
1.10	5w6d	1w3d	3.50	8w5d	1w3d	5.90	12w0d	1w3d
1.20	6w0d	1w3d	3.60	8w6d	1w3d	6.00	12w1d	1w3d
1.30	6w1d	1w3d	3.70	9w0d	1w3d	6.10	12w2d	1w3d
1.40	6w2d	1w3d	3.80	9w1d	1w3d	6.20	12w3d	1w3d
1.50	6w2d	1w3d	3.90	9w2d	1w3d	6.30	12w4d	1w3d
1.60	6w3d	1w3d	4.00	9w3d	1w3d	6.40	12w5d	1w3d
1.70	6w4d	1w3d	4.10	9w4d	1w3d	6.50	12w6d	1w3d
1.80	6w5d	1w3d	4.20	9w5d	1w3d	6.60	13w0d	1w3d
1.90	6w6d	1w3d	4.30	9w6d	1w3d	6.70	13w1d	1w3d
2.00	6w6d	1w3d	4.40	9w6d	1w3d	6.80	13w2d	1w3d
2.10	7w0d	1w3d	4.50	10w0d	1w3d	6.90	13w3d	1w3d
2.20	7w1d	1w3d	4.60	10w1d	1w3d	7.00	13w4d	1w3d
2.30	7w2d	1w3d	4.70	10w2d	1w3d	7.10	13w5d	1w3d
2.40	7w3d	1w3d	4.80	10w3d	1w3d	7.20	14w0d	1w3d
2.50	7w4d	1w3d	4.90	10w4d	1w3d	7.30	14w1d	1w3d

1-1-84 Gestational Sac (GS) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

GS (mm)	GA (d /d)		GS (mm)	GA (d /d)	
	mean	±1SD		mean	±1SD
12	31	7	32	55	0
13	32	7	33	56	0
14	33	7	34	57	0
15	34	7	35	58	0
16	36	7	36	59	0
17	37	7	37	60	0
18	38	7	38	61	0
19	40	7	39	62	0
20	41	7	40	63	0
21	42	7	41	64	0
22	43	7	42	65	0
23	44	7	43	65	0
24	46	7	44	66	0
25	47	7	45	67	0
26	48	8	46	68	0
27	49	9	47	69	0
28	50	10	48	70	0
29	51	0	49	71	0
30	52	0	50	72	0
31	53	0			

1-1-85 Head Circumference (HC) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

HC (cm)	GA		HC (cm)	GA	
	w	± d		w	± d
5.9	11	7	25.0	27	18
7.0	12	7	26.3	28	18
8.4	13	7	26.9	29	21
9.6	14	10	27.4	30	21
10.8	15	10	28.4	31	21
12.8	16	10	28.8	32	24
14.1	17	10	30.0	33	24
15.1	18	14	30.5	34	28
16.0	19	14	31.0	35	28
17.0	20	14	31.7	36	28
17.6	21	14	32.1	37	28
18.8	22	14	32.8	38	28
21.0	23	14	33.6	39	28
22.0	24	14	34.0	40	28
23.1	25	14	34.4	41	28
23.8	26	14			

1-1-86 Head Circumference (HC) CFEF

Reference: Crequat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynecol.Obstet Fertil., Vol. 28 No. 2, 2000, pages 435-445

NOTE: HC and GA Values are taken from Fetal Growth Table; HC (50% values) are used as Input and GA as Output!

HC (mm)	GA (Week)
120,86	16
134,49	17
147,55	18
160,29	19
172,47	20
184,21	21
195,74	22
206,64	23
217,18	24
227,32	25
236,72	26
246,00	27
254,77	28
263,00	29
270,84	30
278,33	31
285,29	32
292,00	33
298,10	34
303,62	35
308,81	36
313,52	37
317,88	38
321,86	39
324,00	40

1-1-87 Head Circumference (HC) CHITTY

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy." Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

NOTE: HC measured (not derived from diameters)

HC	GA (weeks+days)			HC	GA (weeks+days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%
8.50	12w1d	12w6d	13w4d	21.00	21w2d	22w6d	24w4d
9.00	12w4d	13w2d	14w0d	21.50	21w5d	23w2d	25w0d
9.50	12w6d	13w5d	14w3d	22.00	22w0d	23w5d	25w4d
10.00	13w2d	14w0d	14w6d	22.50	22w3d	24w1d	26w0d
10.50	13w4d	14w3d	15w2d	23.00	22w6d	24w4d	26w3d
11.00	14w0d	14w6d	15w6d	23.50	23w1d	25w0d	27w0d
11.50	14w3d	15w2d	16w2d	24.00	23w4d	25w3d	27w3d
12.00	14w5d	15w5d	16w5d	24.50	24w0d	25w6d	28w0d
12.50	15w1d	16w1d	17w1d	25.00	24w3d	26w3d	28w3d
13.00	15w3d	16w3d	17w4d	25.50	24w6d	26w6d	29w0d
13.50	15w6d	16w6d	18w0d	26.00	25w2d	27w3d	29w4d
14.00	16w1d	17w2d	18w3d	26.50	25w5d	27w6d	30w1d
14.50	16w4d	17w5d	18w6d	27.00	26w2d	28w3d	30w5d
15.00	17w0d	18w1d	19w2d	27.50	26w5d	29w0d	31w2d
15.50	17w2d	18w3d	19w5d	28.00	27w2d	29w4d	32w0d
16.00	17w5d	18w6d	20w1d	28.50	27w5d	30w1d	32w4d
16.50	18w0d	19w2d	20w4d	29.00	28w2d	30w5d	33w2d
17.00	18w3d	19w5d	21w0d	29.50	28w6d	31w2d	34w0d
17.50	18w5d	20w0d	21w3d	30.00	29w3d	32w0d	34w5d
18.00	19w1d	20w3d	21w6d	30.50	30w0d	32w5d	35w3d
18.50	19w3d	20w6d	22w2d	31.00	30w5d	33w3d	36w2d
19.00	19w6d	21w2d	22w6d	31.50	31w2d	34w1d	37w1d
19.50	20w1d	21w5d	23w2d	32.00	32w0d	34w6d	38w0d
20.00	20w4d	22w0d	23w5d	32.50	32w5d	35w5d	38w6d
20.50	20w6d	22w3d	24w1d				

1-1-88 Head Circumference (HC) CHITTY (derived)

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

NOTE: HC derived from BPD/OFD

Input Unit: mm
Output Unit: weeks+/- days
Min Range: 80 mm
Max Range: 320 mm

HC (mm)	GA (weeks+days)			HC (mm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
80	11+3	12+4	13+5	205	21+3	22+5	24+2
85	11+6	12+6	14+1	210	21+5	23+1	24+5
90	12+2	13+2	14+4	215	22+1	23+4	25+1
95	12+4	13+5	15+0	220	22+4	24+0	25+5
100	13+0	14+1	15+3	225	22+6	24+3	26+1
105	13+3	14+4	15+5	230	23+2	24+6	26+5
110	13+6	15+0	16+1	235	23+5	25+3	27+1
115	14+2	15+3	16+4	240	24+1	25+6	27+5
120	14+5	15+6	17+0	245	24+3	26+2	28+2
125	15+1	16+2	17+3	250	24+6	26+5	28+6
130	15+4	16+4	17+6	255	25+2	27+2	29+3
135	15+6	17+0	18+2	260	25+5	27+5	30+0
140	16+2	17+3	18+5	265	26+1	28+2	30+4
145	16+5	17+6	19+1	270	26+4	28+6	31+2
150	17+1	18+2	19+3	275	27+0	29+3	32+0
155	17+4	18+5	19+6	280	27+3	30+0	32+4
160	17+6	19+1	20+2	285	27+6	30+4	33+3
165	18+2	19+3	20+5	290	28+3	31+1	34+1
170	18+5	19+6	21+1	295	28+6	31+5	35+0
175	19+1	20+2	21+4	300	29+3	32+3	35+6
180	19+3	20+5	22+0	305	30+0	33+1	36+5
185	19+6	21+1	22+3	310	30+3	33+6	37+4
190	20+2	21+4	22+6	315	31+0	34+4	38+4
195	20+4	22+0	23+2	320	31+5	35+3	39+4
200	21+0	22+2	23+5				

1-1-89 Head Circumference (HC) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight" Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 8{,}8 + 0{,}55 \times HC + 0{,}00028 \times HC^3$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 8.50 cm
Max Range: 36.00 cm

Standard Deviation (±): 1SD = 1.18 weeks

HC (cm)	GA (w+d)	HC (cm)	GA (w+d)
8.50	13w5d	22.50	24w3d
9.00	14w0d	23.00	24w6d
9.50	14w2d	23.50	25w3d
10.00	14w4d	24.00	25w6d
10.50	15w0d	24.50	26w3d
11.00	15w2d	25.00	26w6d
11.50	15w4d	25.50	27w4d
12.00	15w6d	26.00	28w0d
12.50	16w2d	26.50	28w1d
13.00	16w4d	27.00	29w1d
13.50	17w0d	27.50	29w6d
14.00	17w2d	28.00	30w2d
14.50	17w5d	28.50	31w0d
15.00	18w1d	29.00	31w4d
15.50	18w3d	29.50	32w1d
16.00	18w6d	30.00	32w6d
16.50	19w1d	30.50	33w4d
17.00	19w4d	31.00	34w1d
17.50	20w0d	31.50	34w6d
18.00	20w3d	32.00	35w4d
18.50	20w6d	32.50	36w2d
19.00	21w1d	33.00	37w0d
19.50	21w4d	33.50	37w5d
20.00	22w1d	34.00	38w4d
20.50	22w4d	34.50	39w1d
21.00	23w0d	35.00	40w0d
21.50	23w3d	35.50	40w6d
22.00	23w6d	36.00	41w4d

1-1-90 Head Circumference (HC) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$GA = 8,96 + 0,54 \times HC + 0,0003 \times HC^3$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 5.5 cm

Max Range: 35.7 cm

2SD (Standard Deviation):

GA (weeks)		± 2SD (weeks)
Low	High	
12	18	1,19
18	24	1.48
24	30	2,06
30	36	2,98
36	42	2,70

HC (mm)	Age (weeks)		HC (mm)	Age (weeks)		HC (mm)	Age (weeks)		HC (mm)	Age (weeks)	
	mean	± 2SD		mean	± 2SD		mean	± 2SD		mean	± 2SD
<55	n/a	——	135	17.0	± 1.2	215	23.6	± 1.5	290	31.9	± 3.0
55	12.0	± 1.2	140	17.3	± 1.2	219	23.9	± 1.5	295	32.6	± 3.0
60	12.3	± 1.2	145	17.7	± 1.2	220	24.0	± 2.1	300	33.3	± 3.0
65	12.6	± 1.2	149	18.0	± 1.2	225	24.5	± 2.1	305	33.9	± 3.0
70	12.8	± 1.2	150	18.1	± 1.5	230	25.0	± 2.1	310	34.6	± 3.0
75	13.1	± 1.2	155	18.4	± 1.5	235	25.5	± 2.1	315	35.3	± 3.0
80	13.4	± 1.2	160	18.8	± 1.5	240	26.1	± 2.1	319	35.9	± 3.0
85	13.7	± 1.2	165	19.2	± 1.5	245	26.6	± 2.1	320	36.1	± 2.7
90	14.0	± 1.2	170	19.6	± 1.5	250	27.1	± 2.1	325	36.8	± 2.7
95	14.3	± 1.2	175	20.0	± 1.5	255	27.7	± 2.1	330	37.6	± 2.7
100	14.7	± 1.2	180	20.4	± 1.5	260	28.3	± 2.1	335	38.3	± 2.7
105	15.0	± 1.2	185	20.8	± 1.5	265	28.9	± 2.1	340	39.1	± 2.7
110	15.3	± 1.2	190	21.3	± 1.5	270	29.4	± 2.1	345	39.9	± 2.7
115	15.6	± 1.2	195	21.7	± 1.5	274	29.9	± 2.1	350	40.7	± 2.7
120	16.0	± 1.2	200	22.2	± 1.5	275	30.0	± 3.0	355	41.6	± 2.7
125	16.3	± 1.2	205	22.6	± 1.5	280	30.7	± 3.0	360	42.4	± 2.7
130	16.6	± 1.2	210	23.1	± 1.5	285	31.3	± 3.0	>360	n/a	——

1-1-91 Head Circumference (HC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

HC (cm	GA (weeks)
10.60	14
11.50	15
12.70	16
14.00	17
15.20	18
16.40	19
17.60	20
19.00	21
20.30	22
21.50	23
22.60	24
24.00	25
25.10	26
26.30	27
27.40	28
28.40	29
29.30	30
30.30	31
31.10	32
31.80	33
32.50	34
33.20	35
33.70	36
34.00	37
34.40	38
34.70	39
34.90	40

1-1-92 Head Circumference (HC) JEANTY

Reference: *Jeanty P., Cousaert E., Hobbins J. C., Cantraine F., Tack B., Bracken M.; "A longitudinal study of fetal head biometry" American Journal of Perinatology; Volume1; Number 2; January 1984*

NOTE: HC and GA Values are taken from the Fetal Growth Table and converted to a Fetal Age Table (Growth table see: Section 1-2-82 on page 1-210)

HC (cm)	GA (weeks)
5.00	10
6.30	11
7.50	12
8.80	13
10.10	14
11.30	15
12.60	16
13.80	17
15.10	18
16.30	19
17.50	20
18.70	21
19.80	22
21.00	23
22.10	24
23.20	25
24.20	26
25.20	27
26.20	28
27.10	29
28.10	30
28.90	31
29.70	32
30.50	33
31.20	34
31.90	35
32.50	36
33.00	37
33.50	38
33.90	39
34.30	40

1-1-93 Head Circumference (HC) JOHNSEN

Reference: Johnsen,S.L., Rasmussen,S., Sollien,R., Kiserud,T.,"Fetal age assessment based on ultrasound head biometry and the effect of maternal and fetal factors", Acta Obstet Gynecol.Scand. Vol. 83 No. 8, 2004, pages 716-723.

	10th	50th	90th		10th	50th	90th
HC (cm)	week days	week days	week days	HC (cm)	week days	week days	week days
5,0	9w5d	10w2d	10w6d	13,6	16w1d	17w0d	17w6d
5,2	10w0d	10w3d	11w0d	13,8	16w3d	17w1d	18w0d
5,4	10w1d	10w4d	11w2d	14,0	16w4d	17w2d	18w1d
5,6	10w2d	10w6d	11w3d	14,2	16w5d	17w3d	18w2d
5,8	10w3d	11w0d	11w4d	14,4	16w6d	17w4d	18w3d
6,0	10w4d	11w1d	11w5d	14,6	17w0d	17w6d	18w5d
6,2	10w5d	11w2d	11w6d	14,8	17w1d	18w0d	18w6d
6,4	10w6d	11w3d	12w0d	15,0	17w2d	18w1d	19w0d
6,6	11w0d	11w4d	12w1d	15,2	17w3d	18w2d	19w1d
6,8	11w1d	11w5d	12w2d	15,4	17w4d	18w3d	19w2d
7,0	11w2d	11w6d	12w4d	15,6	17w5d	18w4d	19w3d
7,2	11w3d	12w0d	12w5d	15,8	18w0d	18w5d	19w5d
7,4	11w4d	12w1d	12w6d	16,0	18w1d	19w0d	19w6d
7,6	11w5d	12w2d	13w0d	16,2	18w2d	19w1d	20w0d
7,8	11w6d	12w3d	13w1d	16,4	18w3d	19w2d	20w1d
8,0	12w0d	12w4d	13w2d	16,6	18w4d	19w3d	20w2d
8,2	12w1d	12w5d	13w3d	16,8	18w5d	19w4d	20w3d
8,4	12w2d	13w0d	13w4d	17,0	18w6d	19w5d	20w5d
8,6	12w3d	13w1d	13w5d	17,2	19w0d	20w0d	20w6d
8,8	12w4d	13w2d	14w0d	17,4	19w2d	20w1d	21w0d
9,0	12w5d	13w3d	14w1d	17,6	19w3d	20w2d	21w1d
9,2	12w6d	13w4d	14w2d	17,8	19w4d	20w3d	21w3d
9,4	13w0d	13w5d	14w3d	18,0	19w5d	20w4d	21w4d
9,6	13w1d	13w6d	14w4d	18,2	19w6d	20w5d	21w5d
9,8	13w2d	14w0d	14w5d	18,4	20w0d	21w0d	21w6d
10,0	13w3d	14w1d	14w6d	18,6	20w2d	21w1d	22w0d
10,2	13w4d	14w2d	15w0d	18,8	20w3d	21w2d	22w2d
10,4	13w5d	14w3d	15w2d	19,0	20w4d	21w3d	22w3d
10,6	13w6d	14w4d	15w3d	19,2	20w5d	21w4d	22w4d
10,8	14w1d	14w6d	15w4d	19,4	20w6d	21w6d	22w5d
11,0	14w2d	15w0d	15w5d	19,6	21w0d	22w0d	23w0d
11,2	14w3d	15w1d	15w6d	19,8	21w2d	22w1d	23w1d
11,4	14w4d	15w2d	16w0d	20,0	21w3d	22w2d	23w2d
11,6	14w5d	15w3d	16w1d	20,2	21w4d	22w3d	23w3d
11,8	14w6d	15w4d	16w2d	20,4	21w5d	22w5d	23w4d
12,0	15w0d	15w5d	16w4d	20,6	21w6d	22w6d	23w6d
12,2	15w1d	15w6d	16w5d	20,8	22w1d	23w0d	24w0d
12,4	15w2d	16w0d	16w6d	21,0	22w2d	23w1d	24w1d
12,6	15w3d	16w1d	17w0d	21,2	22w3d	23w3d	24w3d
12,8	15w4d	16w3d	17w1d	21,4	22w4d	23w4d	24w4d

	10th	50th	90th		10th	50th	90th
HC (cm)	week days	week days	week days	HC (cm)	week days	week days	week days
13,0	15w5d	16w4d	17w2d	21,6	22w5d	23w5d	24w5d
13,2	15w6d	16w5d	17w3d	21,8	23w0d	23w6d	24w6d
13,4	16w0d	16w6d	17w5d	22,0	23w1d	24w1d	25w1d

1-1-94 Head Circumference (HC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)
7,2	12w0d	10,7	14w4d	14,2	17w1d	16,8	19w1d	20,3	22w1d	23,8	25w3d	27,3	29w1d	30,8	33w6d
7,3	12w1d	10,8	14w4d	14,3	17w2d	16,9	19w2d	20,4	22w2d	23,9	25w4d	27,4	29w2d	30,9	34w0d
7,4	12w1d	10,9	14w5d	14,4	17w3d	17,0	19w2d	20,5	22w2d	24,0	25w5d	27,5	29w3d	31,0	34w1d
7,5	12w1d	11,0	14w5d	14,5	17w3d	17,1	19w3d	20,6	22w3d	24,1	25w6d	27,6	29w4d	31,1	34w2d
7,6	12w2d	11,1	14w6d	14,6	17w4d	17,2	19w4d	20,7	22w3d	24,2	25w6d	27,7	29w4d	31,2	34w4d
7,7	12w2d	11,2	14w6d	14,7	17w4d	17,3	19w4d	20,8	22w4d	24,3	26w0d	27,8	29w5d	31,3	34w5d
7,8	12w3d	11,3	15w0d	14,8	17w5d	17,4	19w5d	20,9	22w5d	24,4	26w1d	27,9	29w6d	31,4	34w6d
7,9	12w3d	11,4	15w0d	14,9	17w5d	17,5	19w5d	21,0	22w5d	24,5	26w1d	28,0	30w0d	31,5	35w0d
8,0	12w4d	11,5	15w1d	15,0	17w6d	17,6	19w6d	21,1	22w6d	24,6	26w2d	28,1	30w1d	31,6	35w2d
8,1	12w4d	11,6	15w2d	15,1	17w6d	17,7	19w6d	21,2	23w0d	24,7	26w3d	28,2	30w2d	31,7	35w3d
8,2	12w5d	11,7	15w2d	14,3	17w2d	17,8	20w0d	21,3	23w0d	24,8	26w4d	28,3	30w2d	31,8	35w5d
8,3	12w5d	11,8	15w3d	14,4	17w3d	17,9	20w1d	21,4	23w1d	24,9	26w4d	28,4	30w3d	31,9	35w6d
8,4	12w5d	11,9	15w3d	14,5	17w3d	18,0	20w1d	21,5	23w2d	25,0	26w5d	28,5	30w4d	32,0	36w1d
8,5	12w6d	12,0	15w4d	14,6	17w4d	18,1	20w2d	21,6	23w2d	25,1	26w6d	28,6	30w5d	32,1	36w2d
8,6	12w6d	12,1	15w4d	14,7	17w4d	18,2	20w2d	21,7	23w3d	25,2	26w6d	28,7	30w6d	32,2	36w4d
8,7	13w0d	12,2	15w5d	14,8	17w5d	18,3	20w3d	21,8	23w4d	25,3	27w0d	28,8	31w0d	32,3	36w5d
8,8	13w0d	12,3	15w5d	14,9	17w5d	18,4	20w3d	21,9	23w4d	25,4	27w1d	28,9	31w1d	32,4	37w0d
8,9	13w1d	12,4	15w6d	15,0	17w6d	18,5	20w4d	22,0	23w5d	25,5	27w2d	29,0	31w1d	32,5	37w1d
9,0	13w1d	12,5	15w6d	15,1	17w6d	18,6	20w5d	22,1	23w6d	25,6	27w2d	29,1	31w2d	32,6	37w3d
9,1	13w2d	12,6	16w0d	15,2	18w0d	18,7	20w5d	22,2	23w6d	25,7	27w3d	29,2	31w3d	32,7	37w5d
9,2	13w2d	12,7	16w0d	15,3	18w0d	18,8	20w6d	22,3	24w0d	25,8	27w4d	29,3	31w4d	32,8	38w0d
9,3	13w3d	12,8	16w1d	15,4	18w1d	18,9	20w6d	22,4	24w1d	25,9	27w5d	29,4	31w5d	32,9	38w1d
9,4	13w4d	12,9	16w2d	15,5	18w1d	19,0	21w0d	22,5	24w1d	26,0	27w5d	29,5	31w6d	33,0	38w3d
9,5	13w4d	13,0	16w2d	15,6	18w2d	19,1	21w1d	22,6	24w2d	26,1	27w6d	29,6	32w0d	33,1	38w5d
9,6	13w5d	13,1	16w3d	15,7	18w2d	19,2	21w1d	22,7	24w3d	26,2	28w0d	29,7	32w1d	33,2	39w0d
9,7	13w5d	13,2	16w3d	15,8	18w3d	19,3	21w2d	22,8	24w3d	26,3	28w1d	29,8	32w2d	33,3	39w2d
9,8	13w6d	13,3	16w4d	15,9	18w4d	19,4	21w2d	22,9	24w4d	26,4	28w1d	29,9	32w3d	33,4	39w4d
9,9	13w6d	13,4	16w4d	16,0	18w4d	19,5	21w3d	23,0	24w5d	26,5	28w2d	30,0	32w4d	33,5	39w6d
10,0	14w0d	13,5	16w5d	16,1	18w5d	19,6	21w4d	23,1	24w5d	26,6	28w3d	30,1	32w5d	33,6	40w1d
10,1	14w0d	13,6	16w5d	16,2	18w5d	19,7	21w4d	23,2	24w6d	26,7	28w4d	30,2	32w6d	33,7	40w4d
10,2	14w1d	13,7	16w6d	16,3	18w6d	19,8	21w5d	23,3	25w0d	26,8	28w4d	30,3	33w0d	33,8	40w6d
10,3	14w1d	13,8	16w6d	16,4	18w6d	19,9	21w5d	23,4	25w1d	26,9	28w5d	30,4	33w1d		
10,4	14w2d	13,9	17w0d	16,5	19w0d	20,0	21w6d	23,5	25w1d	27,0	28w6d	30,5	33w2d		
10,5	14w3d	14,0	17w0d	16,6	19w0d	20,1	22w0d	23,6	25w2d	27,1	29w0d	30,6	33w3d		
10,6	14w3d	14,1	17w1d	16,7	19w1d	20,2	22w0d	23,7	25w3d	27,2	29w0d	30,7	33w5d		

1-1-95 Head Circumference (HC) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Text book and Atlas, 1991 Georg Thieme Verlag, pp. 326

HC	GA (weeks+days)			HC	GA (weeks+days)			HC	GA (weeks+days)			HC	GA (weeks+days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
7.20	11w0d	12w1d	13w1d	14.60	15w6d	17w2d	18w5d	22.00	21w4d	23w2d	25w0d	29.40	28w6d	30w5d	32w4d
7.40	11w1d	12w2d	13w4d	14.80	16w0d	17w4d	19w0d	22.20	21w6d	23w4d	25w1d	29.60	29w0d	30w6d	32w6d
7.60	11w1d	12w3d	13w4d	15.00	16w1d	17w4d	19w1d	22.40	21w6d	23w4d	25w2d	29.80	29w1d	31w1d	33w0d
7.80	11w2d	12w4d	13w5d	15.20	16w2d	17w6d	19w2d	22.60	22w1d	23w6d	25w4d	30.00	29w3d	31w3d	33w3d
8.00	11w4d	12w5d	13w6d	15.40	16w3d	17w6d	19w3d	22.80	22w1d	24w0d	25w6d	30.20	29w4d	31w4d	33w4d
8.20	11w4d	12w6d	14w0d	15.60	16w4d	18w1d	19w4d	23.00	22w3d	24w1d	26w0d	30.40	29w6d	31w6d	33w6d
8.40	11w5d	12w6d	14w1d	15.80	16w5d	18w1d	19w5d	23.20	22w4d	24w3d	26w1d	30.60	30w1d	32w1d	34w1d
8.60	11w6d	13w1d	14w2d	16.00	16w6d	18w3d	19w6d	23.40	22w5d	24w4d	26w2d	30.80	30w2d	32w2d	34w2d
8.80	12w0d	13w1d	14w3d	16.20	17w0d	18w4d	20w0d	23.60	22w6d	24w5d	26w4d	31.00	30w4d	32w4d	34w4d
9.00	12w1d	13w2d	14w4d	16.40	17w1d	18w5d	20w1d	23.80	23w1d	24w6d	26w5d	31.20	30w6d	32w6d	34w6d
9.20	12w2d	13w4d	14w5d	16.60	17w2d	18w6d	20w2d	24.00	23w2d	25w1d	26w6d	31.40	31w1d	33w1d	35w1d
9.40	12w3d	13w4d	14w6d	16.80	17w4d	19w0d	20w4d	24.20	23w4d	25w2d	27w1d	31.60	31w3d	33w3d	35w3d
9.60	12w4d	13w5d	14w6d	17.00	17w4d	19w1d	20w4d	24.40	23w5d	25w4d	27w2d	31.80	31w4d	33w4d	35w4d
9.80	12w5d	13w6d	15w1d	17.20	17w6d	19w2d	20w6d	24.60	23w6d	25w5d	27w4d	32.00	31w6d	33w6d	36w0d
10.00	12w6d	14w0d	15w1d	17.40	17w6d	19w3d	20w6d	24.80	24w1d	25w6d	27w5d	32.20	32w0d	34w1d	36w1d
10.20	12w6d	14w1d	15w4d	17.60	18w0d	19w4d	21w1d	25.00	24w1d	26w0d	27w6d	32.40	32w2d	34w3d	36w4d
10.40	13w0d	14w2d	15w4d	17.80	18w1d	19w6d	21w3d	25.20	24w3d	26w1d	28w0d	32.60	32w4d	34w5d	36w6d
10.60	13w1d	14w3d	15w5d	18.00	18w2d	19w6d	21w4d	25.40	24w4d	26w3d	28w1d	32.80	32w6d	34w6d	37w0d
10.80	13w2d	14w4d	15w6d	18.20	18w4d	20w1d	21w5d	25.60	24w6d	26w4d	28w3d	33.00	33w1d	35w1d	37w2d
11.00	13w3d	14w5d	16w0d	18.40	18w4d	20w1d	21w6d	25.80	25w0d	26w6d	28w4d	33.20	33w2d	35w4d	37w5d
11.20	13w4d	14w6d	16w1d	18.60	18w6d	20w3d	22w0d	26.00	25w1d	27w0d	28w6d	33.40	33w4d	35w6d	38w0d
11.40	13w5d	15w0d	16w2d	18.80	19w0d	20w4d	22w1d	26.20	25w3d	27w1d	29w0d	33.60	33w6d	36w1d	38w2d
11.60	13w6d	15w1d	16w3d	19.00	19w1d	20w5d	22w2d	26.40	25w4d	27w3d	29w1d	33.80	34w1d	36w3d	38w4d
11.80	14w0d	15w2d	16w4d	19.20	19w2d	20w6d	22w4d	26.60	25w6d	27w4d	29w3d	34.00	34w3d	36w4d	38w6d
12.00	14w1d	15w3d	16w5d	19.40	19w4d	21w1d	22w5d	26.80	26w0d	27w6d	29w4d	34.20	34w5d	36w6d	39w1d
12.20	14w1d	15w4d	17w0d	19.60	19w4d	21w1d	22w6d	27.00	26w1d	28w1d	30w0d	34.40	35w0d	37w1d	39w3d
12.40	14w2d	15w5d	17w1d	19.80	19w5d	21w3d	23w0d	27.20	26w3d	28w2d	30w1d	34.60	35w2d	37w4d	39w5d
12.60	14w3d	15w6d	17w1d	20.00	19w6d	21w4d	23w2d	27.40	26w4d	28w4d	30w3d	34.80	35w4d	37w6d	40w1d
12.80	14w4d	16w0d	17w3d	20.20	20w0d	21w5d	23w3d	27.60	26w6d	28w5d	30w4d	35.00	35w6d	38w1d	40w4d
13.00	14w5d	16w1d	17w4d	20.40	20w1d	21w6d	23w4d	27.80	27w0d	28w6d	30w6d	35.20	36w1d	38w4d	40w6d
13.20	14w6d	16w2d	17w5d	20.60	20w3d	22w1d	23w6d	28.00	27w1d	29w1d	31w0d	35.40	36w4d	38w6d	41w1d
13.40	15w0d	16w3d	17w6d	20.80	20w4d	22w1d	23w6d	28.20	27w3d	29w2d	31w1d	35.60	36w6d	39w1d	41w3d
13.60	15w1d	16w4d	18w0d	21.00	20w5d	22w3d	24w1d	28.40	27w5d	29w4d	31w4d	35.80	37w1d	39w4d	41w6d
13.80	15w2d	16w5d	18w1d	21.20	20w6d	22w4d	24w2d	28.60	27w6d	29w6d	31w5d	36.00	37w4d	39w6d	42w1d
14.00	15w4d	16w6d	18w2d	21.40	21w0d	22w5d	24w3d	28.80	28w1d	30w0d	31w6d	36.20	37w6d	40w1d	42w3d
14.20	15w4d	17w0d	18w3d	21.60	21w1d	22w6d	24w4d	29.00	28w2d	30w1d	32w1d	36.40	38w1d	40w4d	42w6d
14.40	15w6d	17w1d	18w4d	21.80	21w3d	23w1d	24w6d	29.20	28w4d	30w4d	32w3d				

1-1-96 Head Circumference (HC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: HC and GA Values are taken from Fetal Growth Table; HC (50% values) are used as Input and GA as Output!

HC (cm	GA (Week)
Median	
11.00	14
12.00	15
13.00	16
14.10	17
15.20	18
16.30	19
17.50	20
18.70	21
19.80	22
21.00	23
22.20	24
23.40	25
24.50	26
25.60	27
26.70	28
27.70	29
28.70	30
29.60	31
30.40	32
31.10	33
31.70	34
32.30	35
32.70	36
33.00	37
33.20	38
33.30	39

1-1-97 Humerus Length (HL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

HL (cm)	GA		HL (cm)	GA	
	w	± d		w	± d
0.8	11	7	4.7	27	14
0.9	12	7	5.0	28	18
1.1	13	7	5.1	29	18
1.4	14	7	5.2	30	21
1.7	15	7	5.4	31	21
2.1	16	7	5.6	32	21
2.5	17	10	5.7	33	21
2.7	18	10	5.9	34	21
2.9	19	14	6.0	35	21
3.1	20	14	6.2	36	21
3.2	21	14	6.3	37	28
3.5	22	14	6.4	38	28
3.8	23	14	6.5	39	28
4.0	24	14	6.6	40	28
4.3	25	14	6.8	41	28
4.4	26	14			

1-1-98 Humerus Length (HL) HOBBINS

Reference: Docoment by E-Mail of Hobbins

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

$$GA = 10{,}216 + (0{,}23839 \times HL) + (0{,}0031359 \times HL^2)$$

1-1-99 Humerus Length (HL) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J., "Estimation of Gestational Age from Measurements of Fetal Long Bones." J Ultrasound Med 3:75-79, 1984

HL (cm)	GA (weeks + days)			HL (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
1.00	9w6d	12w4d	15w2d	4.00	21w4d	24w2d	27w1d
1.10	10w1d	12w6d	15w4d	4.10	22w0d	24w6d	27w4d
1.20	10w3d	13w1d	15w6d	4.20	22w4d	25w2d	28w0d
1.30	10w6d	13w4d	16w1d	4.30	23w0d	25w5d	28w4d
1.40	11w1d	13w6d	16w4d	4.40	23w4d	26w1d	29w0d
1.50	11w3d	14w1d	16w6d	4.50	24w0d	26w5d	29w4d
1.60	11w6d	14w4d	17w2d	4.60	24w4d	27w1d	30w0d
1.70	12w1d	14w6d	17w4d	4.70	25w0d	27w5d	30w4d
1.80	12w4d	15w1d	18w0d	4.80	25w4d	28w1d	31w0d
1.90	12w6d	15w4d	18w2d	4.90	26w0d	28w6d	31w4d
2.00	13w1d	15w6d	18w5d	5.00	26w4d	29w2d	32w0d
2.10	13w4d	16w2d	19w1d	5.10	27w1d	29w6d	32w4d
2.20	13w6d	16w5d	19w3d	5.20	27w4d	30w2d	33w1d
2.30	14w2d	17w1d	19w6d	5.30	28w1d	30w6d	33w4d
2.40	14w5d	17w3d	20w1d	5.40	28w5d	31w3d	34w1d
2.50	15w1d	17w6d	20w4d	5.50	29w1d	32w0d	34w5d
2.60	15w4d	18w1d	21w0d	5.60	29w6d	32w4d	35w2d
2.70	15w6d	18w4d	21w3d	5.70	30w2d	33w1d	35w6d
2.80	16w2d	19w0d	21w6d	5.80	20w6d	33w4d	36w3d
2.90	16w5d	19w3d	22w1d	5.90	31w3d	34w1d	36w6d
3.00	17w1d	19w6d	22w4d	6.00	32w0d	34w6d	37w4d
3.10	17w4d	20w2d	23w0d	6.10	32w4d	35w2d	38w1d
3.20	18w0d	20w5d	23w4d	6.20	33w1d	35w6d	38w5d
3.30	18w3d	21w1d	23w6d	6.30	33w6d	36w4d	39w2d
3.40	18w6d	21w4d	24w2d	6.40	34w3d	37w1d	39w6d
3.50	19w2d	22w0d	24w6d	6.50	35w0d	37w5d	40w4d
3.60	19w5d	22w4d	25w1d	6.60	35w4d	38w2d	41w1d
3.70	20w1d	22w6d	25w5d	6.70	36w1d	38w6d	41w5d
3.80	20w4d	23w3d	26w1d	6.80	36w6d	39w4d	42w2d
3.90	21w1d	23w6d	26w4d	6.90	37w3d	40w1d	42w6d

1-1-100 Humerus Length (HL) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: HL and GA Values are taken from Fetal Growth Table; HL (50% values) are used as Input and GA as Output!

HL (cm) 50%	GA (weeks)	HL (cm) 50%	GA (weeks)
0.80	12.5	4.70	27.5
1.00	13.0	4.80	28.0
1.20	13.5	4.90	28.5
1.30	14.0	5.00	29.0
1.50	14.5	5.10	29.5
1.70	15.0	5.20	30.0
1.80	15.5	5.30	30.5
2.00	16.0	5.40	31.0
2.10	16.5	5.50	31.5
2.30	17.0	5.50	32.0
2.40	17.5	5.60	32.5
2.60	18.0	5.70	33.0
2.70	18.5	5.80	33.5
2.80	19.0	5.90	34.0
3.00	19.5	5.90	34.5
3.10	20.0	6.00	35.0
3.20	20.5	6.10	35.5
3.30	21.0	6.10	36.0
3.50	21.5	6.20	36.5
3.60	22.0	6.30	37.0
3.70	22.5	6.30	37.5
3.80	23.0	6.40	38.0
3.90	23.5	6.40	38.5
4.00	24.0	6.50	39.0
4.10	24.5	6.50	39.5
4.20	25.0	6.60	40.0
4.30	25.5	6.60	40.5
4.50	26.0	6.60	41.0
4.60	26.5	6.70	41.5
4.70	27.0		

1-1-101 Humerus Length (HL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

HL (cm)	GA (w+d)	HL (cm)	GA (w+d)	HL (cm)	GA (w+d)	HL (cm)	GA (w+d)	HL (cm)	GA (w+d)
1.01	13w0d	2.52	18w3d	3.79	23w6d	4.83	29w2d	5.62	34w5d
1.05	13w1d	2.56	18w4d	3.82	24w0d	4.85	29w3d	5.64	34w6d
1.09	13w2d	2.59	18w5d	3.85	24w1d	4.87	29w4d	5.65	35w0d
1.14	13w3d	2.63	18w6d	3.88	24w2d	4.90	29w5d	5.67	35w1d
1.18	13w4d	2.67	19w0d	3.91	24w3d	4.92	29w6d	5.69	35w2d
1.22	13w5d	2.70	19w1d	3.94	24w4d	4.94	30w0d	5.71	35w3d
1.26	13w6d	2.74	19w2d	3.97	24w5d	4.97	30w1d	5.72	35w4d
1.31	14w0d	2.77	19w3d	4.00	24w6d	4.99	30w2d	5.74	35w5d
1.35	14w1d	2.81	19w4d	4.03	25w0d	5.01	30w3d	5.76	35w6d
1.39	14w2d	2.84	19w5d	4.06	25w1d	5.04	30w4d	5.77	36w0d
1.43	14w3d	2.88	19w6d	4.09	25w2d	5.06	30w5d	5.79	36w1d
1.47	14w4d	2.91	20w0d	4.12	25w3d	5.08	30w6d	5.80	36w2d
1.51	14w5d	2.95	20w1d	4.14	25w4d	5.10	31w0d	5.82	36w3d
1.55	14w6d	2.98	20w2d	4.17	25w5d	5.12	31w1d	5.84	36w4d
1.59	15w0d	3.02	20w3d	4.20	25w6d	5.15	31w2d	5.85	36w5d
1.63	15w1d	3.05	20w4d	4.23	26w0d	5.17	31w3d	5.87	36w6d
1.67	15w2d	3.09	20w5d	4.26	26w1d	5.19	31w4d	5.88	37w0d
1.71	15w3d	3.12	20w6d	4.28	26w2d	5.21	31w5d	5.90	37w1d
1.75	15w4d	3.15	21w0d	4.31	26w3d	5.23	31w6d	5.91	37w2d
1.79	15w5d	3.19	21w1d	4.34	26w4d	5.25	32w0d	5.93	37w3d
1.83	15w6d	3.22	21w2d	4.37	26w5d	5.27	32w1d	5.94	37w4d
1.87	16w0d	3.25	21w3d	4.39	26w6d	5.29	32w2d	5.95	37w5d
1.91	16w1d	3.29	21w4d	4.42	27w0d	5.31	32w3d	5.97	37w6d
1.95	16w2d	3.32	21w5d	4.45	27w1d	5.33	32w4d	5.98	38w0d
1.99	16w3d	3.35	21w6d	4.47	27w2d	5.35	32w5d	6.00	38w1d
2.03	16w4d	3.38	22w0d	4.50	27w3d	5.37	32w6d	6.01	38w2d
2.07	16w5d	3.42	22w1d	4.53	27w4d	5.39	33w0d	6.02	38w3d
2.11	16w6d	3.45	22w2d	4.55	27w5d	5.41	33w1d	6.04	38w4d
2.15	17w0d	3.48	22w3d	4.58	27w6d	5.43	33w2d	6.05	38w5d
2.18	17w1d	3.51	22w4d	4.60	28w0d	5.45	33w3d	6.06	38w6d
2.22	17w2d	3.54	22w5d	4.63	28w1d	5.47	33w4d	6.08	39w0d
2.26	17w3d	3.58	22w6d	4.65	28w2d	5.49	33w5d	6.09	39w1d
2.30	17w4d	3.61	23w0d	4.68	28w3d	5.51	33w6d	6.10	39w2d
2.34	17w5d	3.64	23w1d	4.70	28w4d	5.53	34w0d	6.11	39w3d
2.37	17w6d	3.67	23w2d	4.73	28w5d	5.55	34w1d	6.13	39w4d
2.41	18w0d	3.70	23w3d	4.75	28w6d	5.57	34w2d	6.14	39w5d
2.45	18w1d	3.73	23w4d	4.78	29w0d	5.58	34w3d	6.15	39w6d
2.48	18w2d	3.76	23w5d	4.80	29w1d	5.60	34w4d	6.16	40w0d

1-1-102 Length of Vertebra (LV) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

LV (mm)	GA (d)		LV (mm)	GA (d)	
	mean	±1SD		mean	±1SD
44	154	5	66	213	10
45	157	5	67	217	10
46	159	5	68	220	10
47	161	5	69	224	10
48	163	5	70	227	11
49	166	6	71	231	11
50	168	6	72	234	11
51	171	6	73	238	11
52	173	6	74	241	11
53	176	7	75	245	11
54	178	7	76	249	11
55	181	7	77	252	11
56	183	8	78	256	11
57	186	8	79	260	10
58	189	8	80	264	10
59	192	8	81	267	10
60	195	9	82	271	10
61	198	9	83	275	10
62	201	9	84	278	10
63	204	9	85	282	10
64	207	10	86	285	10
65	210	10			

1-1-103 Middle Abdominal Diameter (MAD) EIK-NES

Reference: Eik-Nes SH, Jorgensen NP, Grottum P, Lokvik B "Normal range curves for the intrauterine growth of the fetal abdominal diameters" Submitted JCU

$$MAD = \frac{TAD + APAD}{2}$$

NOTE: If both distance measurements (TAD and APAD) are performed, the MAD is calculated.

MAD (cm)	GA (w+d)	MAD (cm)	GA (w+d)	MAD (cm)	GA (w+d)
3.60	16w0d	6.10	24w5d	8.60	31w5d
3.70	16w3d	6.20	25w0d	8.70	32w0d
3.80	16w6d	6.30	25w2d	8.80	32w2d
3.90	17w3d	6.40	25w4d	8.90	32w4d
4.00	17w6d	6.50	25w6d	9.00	32w6d
4.10	18w2d	6.60	26w1d	9.10	33w1d
4.20	18w4d	6.70	26w3d	9.20	33w4d
4.30	19w0d	6.80	26w5d	9.30	33w6d
4.40	19w3d	6.90	27w0d	9.40	34w1d
4.50	19w5d	7.00	27w2d	9.50	34w3d
4.60	20w1d	7.10	27w3d	9.60	34w6d
4.70	20w3d	7.20	27w5d	9.70	35w1d
4.80	20w5d	7.30	28w0d	9.80	35w3d
4.90	21w1d	7.40	28w2d	9.90	35w6d
5.00	21w3d	7.50	28w4d	10.00	36w1d
5.10	21w5d	7.60	28w6d	10.10	36w4d
5.20	22w0d	7.70	29w1d	10.20	37w0d
5.30	22w2d	7.80	29w3d	10.30	37w3d
5.40	22w5d	7.90	29w5d	10.40	37w6d
5.50	23w0d	8.00	30w0d	10.50	38w2d
5.60	23w2d	8.10	30w2d	10.60	38w5d
5.70	23w4d	8.20	30w4d	10.70	39w1d
5.80	23w6d	8.30	30w6d	10.80	39w5d
5.90	24w1d	8.40	31w1d		
6.00	24w3d	8.50	31w3d		

1-1-104 Abdominal Diameter (MAD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

AD (cm)	GA (w + d)	AD (cm)	GA (w + d)	AD (cm)	GA (w + d)
1,8	12w0d	5,4	22w0d	9,0	33w1d
1,9	12w2d	5,5	22w2d	9,1	33w4d
2,0	12w4d	5,6	22w4d	9,2	33w6d
2,1	12w5d	5,7	22w6d	9,3	34w2d
2,2	13w0d	5,8	23w1d	9,4	34w4d
2,3	13w2d	5,9	23w3d	9,5	35w0d
2,4	13w4d	6,0	23w5d	9,6	35w2d
2,5	13w6d	6,1	24w0d	9,7	35w5d
2,6	14w1d	6,2	24w2d	9,8	36w0d
2,7	14w3d	6,3	24w4d	9,9	36w3d
2,8	14w5d	6,4	25w0d	10,0	36w5d
2,9	15w0d	6,5	25w2d	10,1	37w1d
3,0	15w1d	6,6	25w4d	10,2	37w3d
3,1	15w3d	6,7	25w6d	10,3	37w6d
3,2	15w5d	6,8	26w1d	10,4	38w2d
3,3	16w0d	6,9	26w3d	10,5	38w4d
3,4	16w2d	7,0	26w5d	10,6	39w0d
3,5	16w4d	7,1	27w0d	10,7	39w3d
3,6	16w6d	7,2	27w3d	10,8	39w6d
3,7	17w1d	7,3	27w5d	10,9	40w1d
3,8	17w3d	7,4	28w0d	11,0	40w4d
3,9	17w5d	7,5	28w2d	11,1	41w0d
4,0	18w0d	7,6	28w4d	11,2	41w3d
4,1	18w2d	7,7	29w0d	11,3	41w6d
4,2	18w4d	7,8	29w2d		
4,3	18w6d	7,9	29w4d		
4,4	19w1d	8,0	29w6d		
4,5	19w3d	8,1	30w2d		
4,6	19w5d	8,2	30w4d		
4,7	20w0d	8,3	30w6d		
4,8	20w2d	8,4	31w1d		
4,9	20w4d	8,5	31w4d		
5,0	20w6d	8,6	31w6d		
5,1	21w1d	8,7	32w1d		
5,2	21w3d	8,8	32w4d		
5,3	21w5d	8,9	32w6d		

1-1-105 Occipital Frontal Diameter (OFD) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

OFD	GA		OFD	GA	
(cm)	w	± d	(cm)	w	± d
2,1	11	5	8,6	27	10
2,4	12	5	9,5	28	10
2,9	13	5	9,7	29	10
3,4	14	5	9,8	30	14
3,8	15	5	10,1	31	14
4,6	16	5	10,2	32	14
5,0	17	5	10,7	33	14
5,4	18	7	10,8	34	18
5,7	19	7	10,9	35	18
6,1	20	7	11,2	36	21
6,3	21	7	11,3	37	21
6,8	22	7	11,6	38	21
7,6	23	7	11,9	39	21
7,9	24	10	12,0	40	21
8,2	25	10	12,2	41	21
8,4	26	10			

1-1-106 Occipital Frontal Diameter (OFD) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101 No. 1, 1994, pages 35-43.

NOTE: OFD and GA Values are taken from Fetal Growth Table; OFD (50% values) are used as Input and GA as Output!

OFD (cm)	GA (Week)
Median	
2.62	12
2.97	13
3.58	14
3.86	15
4.39	16
4.72	17
5.29	18
5.81	19
6.10	20
6.66	21
6.88	22
7.32	23
7.90	24
8.22	25
8.68	26
9.08	27
9.48	28
9.96	29
10.16	30
10.55	31
10.68	32
10.98	33
11.09	34
11.24	35
11.72	36
11.67	37
11.74	38
11.80	39
12.07	40
12.41	41
12.06	42

1-1-107 Occipital Frontal Diameter (OFD) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p. 431

OFD (cm)	GA (weeks)
3.10	14
3.80	15
4.10	16
4.60	17
5.00	18
5.40	19
5.80	20
6.30	21
6.70	22
7.20	23
7.60	24
8.00	25
8.40	26
8.80	27
9.10	28
9.50	29
9.80	30
10.00	31
10.30	32
10.50	33
10.70	34
10.90	35
11.10	36
11.20	37
11.30	38
11.40	39
11.50	40

1-1-108 Occipital Frontal Diameter (OFD) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J.C., Tack B., Bracken M., Cantraine F
"A longitudinal study of fetal head biometry"
American Journal of Perinatology; Volume 1; Number 2; January 1984

OFD (cm)	GA (weeks)	OFD (cm)	GA (weeks)
1.40	10	8.00	26
1.80	11	8.30	27
2.30	12	8.70	28
2.70	13	9.00	29
3.10	14	9.30	30
3.60	15	9.60	31
4.00	16	9.90	32
4.40	17	10.20	33
4.80	18	10.40	34
5.30	19	10.60	35
5.70	20	10.90	36
6.10	21	11.10	37
6.50	22	11.20	38
6.90	23	11.40	39
7.20	24	11.50	40
7.60	25		

1-1-109 Occipital Frontal Diameter (OFD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

OFD (cm)	GA (weeks)	OFD (cm)	GA (weeks)	OFD (cm)	GA (weeks)
2,4	12w0d	6,0	19w3d	9,6	29w3d
2,5	12w1d	6,1	19w5d	9,7	29w6d
2,6	12w2d	6,2	20w0d	9,8	30w1d
2,7	12w3d	6,3	20w1d	9,9	30w4d
2,8	12w4d	6,4	20w3d	10,0	30w6d
2,9	12w6d	6,5	20w5d	10,1	31w2d
3,0	13w0d	6,6	20w6d	10,2	31w5d
3,1	13w1d	6,7	21w1d	10,3	32w1d
3,2	13w3d	6,8	21w3d	10,4	32w4d
3,3	13w4d	6,9	21w4d	10,5	33w0d
3,4	13w6d	7,0	21w6d	10,6	33w3d
3,5	14w1d	7,1	22w1d	10,7	34w0d
3,6	14w2d	7,2	22w3d	10,8	34w4d
3,7	14w4d	7,3	22w5d	10,9	35w1d
3,8	14w5d	7,4	23w0d	11,0	35w6d
3,9	15w0d	7,5	23w2d	11,1	36w4d
4,0	15w1d	7,6	23w3d	11,2	37w2d
4,1	15w3d	7,7	23w5d	11,3	38w1d
4,2	15w4d	7,8	24w0d	11,4	39w0d
4,3	15w6d	7,9	24w2d	11,5	39w6d
4,4	16w0d	8,0	24w4d	11,6	40w6d
4,5	16w2d	8,1	24w6d		
4,6	16w3d	8,2	25w1d		
4,7	16w5d	8,3	25w3d		
4,8	16w6d	8,4	25w5d		
4,9	17w1d	8,5	26w0d		
5,0	17w2d	8,6	26w2d		
5,1	17w4d	8,7	26w5d		
5,2	17w5d	8,8	27w0d		
5,3	18w0d	8,9	27w2d		
5,4	18w1d	9,0	27w4d		
5,5	18w3d	9,1	27w6d		
5,6	18w4d	9,2	28w1d		
5,7	18w6d	9,3	28w3d		
5,8	19w0d	9,4	28w6d		
5,9	19w2d	9,5	29w1d		

1-1-110 Occipital Frontal Diameter (OFD) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: OFD and GA Values are taken from Fetal Growth Table; OFD (50% values) are used as Input and GA as Output!

OFD (cm) 50%	GA (weeks)	OFD (cm) 50%	GA (weeks)
3.00	12.5	9.00	27.5
3.20	13.0	9.10	28.0
3.40	13.5	9.30	28.5
3.50	14.0	9.40	29.0
3.70	14.5	9.60	29.5
3.90	15.0	9.70	30.0
4.10	15.5	9.90	30.5
4.30	16.0	10.00	31.0
4.50	16.5	10.10	31.5
4.70	17.0	10.20	32.0
5.00	17.5	10.40	32.5
5.20	18.0	10.50	33.0
5.40	18.5	10.60	33.5
5.60	19.0	10.70	34.0
5.80	19.5	10.80	34.5
6.00	20.0	10.90	35.0
6.30	20.5	11.00	35.5
6.50	21.0	11.00	36.0
6.70	21.5	11.10	36.5
6.90	22.0	11.20	37.0
7.10	22.5	11.20	37.5
7.30	23.0	11.30	38.0
7.50	23.5	11.30	38.5
7.70	24.0	11.40	39.0
7.90	24.5	11.40	39.5
8.10	25.0	11.40	40.0
8.20	25.5	11.40	40.5
8.40	26.0	11.50	41.0
8.60	26.5	11.50	41.5
8.80	27.0		

1-1-111 Occipital Frontal Diameter (OFD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: OFD and GA Values are taken from Fetal Growth Table; OFD (50% values) are used as Input and GA as Output!

OFD (cm)	GA (weeks)
3.90	14
4.20	15
4.60	16
5.00	17
5.40	18
5.80	19
6.20	20
6.70	21
7.10	22
7.50	23
7.90	24
8.30	25
8.70	26
9.10	27
9.50	28
9.80	29
10.20	30
10.50	31
10.70	32
11.00	33
11.20	34
11.30	35
11.50	36
11.60	37
11.60	38
11.60	39

1-1-112 Radius (RAD) JEANTY

NOTE: Radius and GA Values are taken from Fetal Growth Table; Radius (50% values) are used as Input and GA as Output! (Growth table see: Section 1-2-108 on page 1-238)

Radius (mm)	GA (weeks)	Radius (mm)	GA (weeks)
5	11	37	26
7	12	39	27
10	13	40	28
13	14	42	29
15	15	43	30
18	16	44	31
20	17	45	32
22	18	46	33
24	19	47	34
27	20	48	35
29	21	48	36
31	22	49	37
32	23	49	38
34	24	50	39
36	25	50	40

1-1-113 Radius (RAD) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: Radius and GA Values are taken from Fetal Growth Table; Radius (50% values) are used as Input and GA as Output!

GA (weeks)	Radius(cm)	GA (weeks	Radius(cm)
12.5	0.40	27.5	3.90
13.0	0.60	28.0	4.00
13.5	0.80	28.5	4.10
14.0	1.00	29.0	4.20
14.5	1.10	29.5	4.20
15.0	1.30	30.0	4.30
15.5	1.40	30.5	4.40
16.0	1.60	31.0	4.40
16.5	1.70	31.5	4.50
17.0	1.80	32.0	4.60
17.5	2.00	32.5	4.60
18.0	2.10	33.0	4.70
18.5	2.20	33.5	4.80
19.0	2.30	34.0	4.80
19.5	2.40	34.5	4.90
20.0	2.50	35.0	4.90
20.5	2.60	35.5	5.00
21.0	2.80	36.0	5.00
21.5	2.90	36.5	5.10
22.0	3.00	37.0	5.10
22.5	3.10	37.5	5.20
23.0	3.20	38.0	5.20
23.5	3.20	38.5	5.20
24.0	3.30	39.0	5.30
24.5	3.40	39.5	5.30
25.0	3.50	40.0	5.30
25.5	3.60	40.5	5.40
26.0	3.70	41.0	5.40
26.5	3.80	41.5	5.40
27.0	3.90		

1-1-114 Tibia (TIB) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J., "Estimation of Gestational Age from Measurements of Fetal Long Bones." J Ultrasound Med 3:75-79, 1984

Tibia (cm)	GA (weeks + days)			Tibia (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
1.00	10w4d	13w3d	16w2d	4.00	22w3d	25w2d	28w1d
1.10	10w6d	13w5d	16w4d	4.10	22w6d	25w5d	28w4d
1.20	11w1d	14w1d	17w0d	4.20	23w2d	26w1d	29w1d
1.30	11w4d	14w3d	17w2d	4.30	23w5d	26w4d	29w4d
1.40	11w6d	14w6d	17w5d	4.40	24w1d	27w1d	30w0d
1.50	12w1d	15w1d	18w0d	4.50	24w4d	27w4d	30w4d
1.60	12w4d	15w4d	18w3d	4.60	25w1d	28w0d	30w6d
1.70	13w0d	15w6d	18w6d	4.70	25w4d	28w4d	31w3d
1.80	13w2d	16w1d	19w1d	4.80	26w1d	29w0d	31w6d
1.90	13w5d	16w4d	19w4d	4.90	26w4d	29w3d	32w2d
2.00	14w1d	17w0d	19w6d	5.00	27w0d	29w6d	32w6d
2.10	14w4d	17w3d	20w2d	5.10	27w4d	30w3d	33w2d
2.20	14w6d	17w6d	20w5d	5.20	28w0d	30w6d	33w6d
2.30	15w1d	18w1d	21w1d	5.30	28w4d	31w3d	34w2d
2.40	15w4d	18w4d	21w3d	5.40	29w0d	31w6d	34w6d
2.50	16w0d	18w6d	21w6d	5.50	29w4d	32w3d	35w2d
2.60	16w3d	19w2d	22w1d	5.60	30w0d	32w6d	35w6d
2.70	16w6d	19w5d	22w4d	5.70	30w4d	33w3d	36w2d
2.80	17w1d	20w1d	23w0d	5.80	31w0d	33w6d	36w6d
2.90	17w4d	20w4d	23w4d	5.90	31w4d	34w3d	37w2d
3.00	18w1d	21w0d	23w6d	6.00	32w0d	34w6d	37w6d
3.10	18w4d	21w3d	24w2d	6.10	32w4d	35w3d	38w2d
3.20	18w6d	21w6d	24w5d	6.20	33w0d	35w6d	38w6d
3.30	19w2d	22w1d	25w1d	6.30	33w4d	36w4d	39w3d
3.40	19w5d	22w4d	25w4d	6.40	34w1d	37w0d	39w6d
3.50	20w1d	23w1d	26w0d	6.50	34w4d	37w4d	40w3d
3.60	20w4d	23w4d	26w3d	6.60	35w1d	38w0d	41w0d
3.70	21w0d	23w6d	26w6d	6.70	35w5d	38w4d	41w4d
3.80	21w4d	24w3d	27w2d	6.80	36w1d	39w1d	42w0d
3.90	21w6d	24w6d	27w5d	6.90	36w6d	39w5d	42w4d

1-1-115 Tibia (TIB) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: Tibia and GA Values are taken from Fetal Growth Table; Tibia (50% values) are used as Input and GA as Output!

Tibia (cm) 50%	GA (weeks)	Tibia (cm) 50%	GA (weeks)
0.70	12.5	4.60	27.5
0.90	13.0	4.70	28.0
1.00	13.5	4.80	28.5
1.20	14.0	4.90	29.0
1.40	14.5	5.00	29.5
1.50	15.0	5.10	30.0
1.70	15.5	5.10	30.5
1.80	16.0	5.20	31.0
2.00	16.5	5.30	31.5
2.10	17.0	5.40	32.0
2.20	17.5	5.50	32.5
2.40	18.0	5.60	33.0
2.50	18.5	5.60	33.5
2.60	19.0	5.70	34.0
2.80	19.5	5.80	34.5
2.90	20.0	5.90	35.0
3.00	20.5	5.90	35.5
3.10	21.0	6.00	36.0
3.30	21.5	6.10	36.5
3.40	22.0	6.20	37.0
3.50	22.5	6.20	37.5
3.60	23.0	6.30	38.0
3.70	23.5	6.30	38.5
3.80	24.0	6.40	39.0
4.00	24.5	6.40	39.5
4.10	25.0	6.50	40.0
4.20	25.5	6.50	40.5
4.30	26.0	6.60	41.0
4.40	26.5	6.60	41.5
4.50	27.0		

1-1-116 Transverse Abdominal Diameter (TAD) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

NOTE: TAD and GA Values are taken from Fetal Growth Table; TAD (50% values) are used as Input and GA as Output!

TAD (mm)	GA (Week)
13,50	11
17,00	12
20,56	13
24,00	14
27,69	15
31,21	16
34,70	17
38,31	18
41,69	19
45,21	20
48,34	21
51,57	22
54,72	23
57,88	24
61,00	25
64,00	26
67,11	27
70,27	28
73,27	29
76,17	30
79,25	31
82,10	32
84,78	33
87,55	34
90,00	35
92,36	36
94,81	37
97,00	38
99,33	39
101,64	40
103,00	41

1-1-117 Transverse Abdominal Diameter (TAD) MERZ

NOTE: TAD and GA Values are taken from Fetal Growth Table; TAD (50% values) are used as Input and GA as Output! (Growth table see: Section 1-2-111 on page 1-241)

NOTE: Values are copied from growth table.

TAD (cm) 50%	GA (weeks)	TAD (cm) 50%	GA (weeks)
2.00	12.5	7.10	27.5
2.20	13.0	7.30	28.0
2.40	13.5	7.50	28.5
2.50	14.0	7.60	29.0
2.70	14.5	7.80	29.5
2.90	15.0	7.90	30.0
3.10	15.5	8.10	30.5
3.20	16.0	8.20	31.0
3.40	16.5	8.40	31.5
3.60	17.0	8.50	32.0
3.80	17.5	8.70	32.5
3.90	18.0	8.80	33.0
4.10	18.5	9.00	33.5
4.30	19.0	9.10	34.0
4.40	19.5	9.30	34.5
4.60	20.0	9.40	35.0
4.80	20.5	9.60	35.5
5.00	21.0	9.70	36.0
5.10	21.5	9.80	36.5
5.30	22.0	10.00	37.0
5.50	22.5	10.10	37.5
5.60	23.0	10.20	38.0
5.80	23.5	10.40	38.5
6.00	24.0	10.50	39.0
6.10	24.5	10.60	39.5
6.30	25.0	10.70	40.0
6.50	25.5	10.80	40.5
6.60	26.0	10.90	41.0
6.80	26.5	11.00	41.5
7.00	27.0		

1-1-118 Transverse Cerebellar Diameter (CEREB) CHITTY

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy". Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.30 cm
Max Range: 3.60 cm

Cereb (cm)	GA (weeks+days)		
	5%	50%	95%
1.30	13w1d	14w3d	16w0d
1.40	14w0d	15w2d	16w6d
1.50	14w6d	16w2d	17w5d
1.60	15w4d	17w0d	18w4d
1.70	16w3d	17w6d	19w3d
1.80	17w2d	18w5d	20w2d
1.90	18w0d	19w4d	21w1d
2.00	18w6d	20w3d	22w0d
2.10	19w4d	21w1d	22w6d
2.20	20w2d	22w0d	23w5d
2.30	21w0d	22w5d	24w4d
2.40	21w5d	23w4d	25w4d
2.50	22w2d	24w2d	26w3d
2.60	23w0d	25w0d	27w3d
2.70	23w4d	25w6d	28w2d
2.80	24w1d	26w4d	29w2d
2.90	24w5d	27w2d	30w2d
3.00	25w1d	28w0d	31w2d
3.10	25w5d	28w6d	32w2d
3.20	26w1d	29w4d	33w3d
3.30	26w4d	30w2d	34w4d
3.40	26w6d	31w0d	35w5d
3.50	27w2d	31w5d	36w6d
3.60	27w4d	32w3d	38w1d

1-1-119 Transverse Cerebellar Diameter (CEREB) GOLDSTEIN

Reference: Goldstein I.; Reece A.; Pilu G.; Bovicelli L.; Hobbins J.C "Cerebellar measurement with ultrasonography in the evaluation of fetal growth and development." Am J Obstet Gynecol; May 1987; 1065-1069

$$GA = 6{,}329 + 4{,}807 \times Cereb + 1{,}484 \times Cereb^2 - 0{,}2474 \times Cereb^3$$

Cereb (cm)	GA (weeks)	Cereb (cm)	GA (weeks)
1.00	12.4	3.30	29.5
1.10	13.1	3.40	30.1
1.20	13.8	3.50	30.7
1.30	14.5	3.60	31.3
1.40	15.3	3.70	31.9
1.50	16.0	3.80	32.4
1.60	16.8	3.90	33.0
1.70	17.6	4.00	33.5
1.80	18.3	4.10	33.9
1.90	19.1	4.20	34.4
2.00	19.9	4.30	34.8
2.10	20.7	4.40	35.1
2.20	21.5	4.50	35.5
2.30	22.2	4.60	35.8
2.40	23.0	4.70	36.0
2.50	23.8	4.80	36.2
2.60	24.5	4.90	36.4
2.70	25.3	5.00	36.5
2.80	26.0	5.10	36.6
2.90	26.7	5.20	36.7
3.00	27.4	5.30	36.7
3.10	28.1	5.40	36.6
3.20	28.8	5.50	36.5

1-1-120 Transverse Cerebellar Diameter (CEREB) HILL

Reference: Hill L M, Guzick D, Fries J, Hixson J, Rivello D, "The Transverse Cerebellar Diameter in Estimating Gestational Age in the Large for Gestational Age-Fetus." Obstetrics and Gynecology; Vol.75; No.6; June 1990; pages 981-985

$$GA = 6{,}37 + 5{,}4 \times Cereb + 0{,}78 \times Cereb^2 - 0{,}13 \times Cereb^3$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.40 cm
Max Range: 5.60 cm

Standard Deviation:

Age (weeks)	± SD (weeks)
12-17	0.5
18-23	0.9
24-29	1.0
30-35	1.2
36-	1.6

Cereb (cm)	GA (w+d / d		Cereb (cm)	GA (w+d / d		Cereb (cm)	GA (w+d / d	
	mean	±dec		mean	±dec		mean	±dec
1.40	15w1d	4d	2.80	24w6d	7d	4.20	33w3d	8d
1.50	15w6d	4d	2.90	25w4d	7d	4.30	33w6d	8d
1.60	16w4d	4d	3.00	26w1d	7d	4.40	34w3d	8d
1.70	17w1d	4d	3.10	26w6d	7d	4.50	34w6d	8d
1.80	17w6d	4d	3.20	27w4d	7d	4.60	35w2d	8d
1.90	18w4d	6d	3.30	28w1d	7d	4.70	35w5d	8d
2.00	19w2d	6d	3.40	28w6d	7d	4.80	36w1d	11d
2.10	20w0d	6d	3.50	29w3d	7d	4.90	36w4d	11d
2.20	20w5d	6d	3.60	30w0d	8d	5.00	36w6d	11d
2.30	21w3d	6d	3.70	30w4d	8d	5.10	37w1d	11d
2.40	22w1d	6d	3.80	31w1d	8d	5.20	37w4d	11d
2.50	22w6d	6d	3.90	31w6d	8d	5.40	38w0d	11d
2.60	23w4d	6d	4.00	32w2d	8d	5.50	38w2d	11d
2.70	24w1d	7d	4.10	32w6d	8d	5.60	38w4d	11d

1-1-121 Transverse Cerebellar Diameter (CEREB) HOBBINS

Reference: Documents by E-Mail of Hobbins

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

$$GA = 2{,}6649 + (1{,}0056 \times TCD) - (0{,}0064678 \times TCD^2)$$

1-1-122 Transverse Cerebellar Diameter (CEREB) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: TCD and GA Values are taken from Fetal Growth Table; TCD (50% values) are used as Input and GA as Output!

TCD (cm)	GA (Week)
Median	
1.40	14
1.50	15
1.60	16
1.70	17
1.80	18
2.00	19
2.10	20
2.20	21
2.40	22
2.50	23
2.60	24
2.80	25
2.90	26
3.10	27
3.20	28
3.30	29
3.50	30
3.60	31
3.70	32
3.90	33
4.00	34
4.10	35
4.20	36
4.30	37
4.40	38
4.50	39

1-1-123 Transverse Trunk Diameter (TTD) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986; pp.431

NOTE: concerning DICOM-SR:
TTD Value is transferred as TAD value (Transverse Abdominal Diameter)
(because no TTD item present in DICOM standard)

TTD (cm)	GA (weeks)
1.70	12
2.00	13
2.40	14
2.70	15
3.10	16
3.40	17
3.70	18
4.00	19
4.40	20
4.70	21
5.00	22
5.30	23
5.60	24
5.90	25
6.20	26
6.50	27
6.90	28
7.20	29
7.40	30
7.80	31
8.10	32
8.30	33
8.60	34
8.90	35
9.20	36
9.40	37
9.70	38
9.90	39
10.10	40
10.20	41

1-1-124 Ulna (ULNA) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J., "Estimation of Gestational Age from Measurements of Fetal Long Bones." J Ultrasound Med 3:75-79, 1984

Ulna (cm)	GA (weeks+days)			Ulna (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
1.00	10w1d	13w1d	16w1d	3.80	22w1d	25w1d	28w1d
1.10	10w4d	13w4d	16w4d	3.90	22w4d	25w4d	28w5d
1.20	10w6d	13w6d	16w6d	4.00	23w1d	26w1d	29w1d
1.30	11w1d	14w1d	17w2d	4.10	23w4d	26w5d	29w5d
1.40	11w4d	14w4d	17w5d	4.20	24w1d	27w1d	30w2d
1.50	11w6d	15w0d	18w0d	4.30	24w5d	27w5d	30w6d
1.60	12w2d	15w3d	18w3d	4.40	25w1d	28w2d	31w2d
1.70	12w5d	15w5d	18w6d	4.50	25w6d	28w6d	31w6d
1.80	13w1d	16w1d	19w1d	4.60	26w2d	29w3d	32w3d
1.90	13w4d	16w4d	19w4d	4.70	26w6d	29w6d	33w0d
2.00	13w6d	16w6d	20w0d	4.80	27w3d	30w4d	33w4d
2.10	14w2d	17w2d	20w3d	4.90	28w0d	31w1d	34w1d
2.20	14w5d	17w5d	20w6d	5.00	28w4d	31w4d	34w5d
2.30	15w1d	18w1d	21w1d	5.10	29w1d	32w1d	35w2d
2.40	15w4d	18w4d	21w4d	5.20	29w5d	32w6d	35w6d
2.50	16w0d	19w0d	22w1d	5.30	30w2d	33w3d	36w3d
2.60	16w3d	19w3d	22w4d	5.40	30w6d	34w0d	37w0d
2.70	16w6d	19w6d	22w6d	5.50	31w4d	34w4d	37w5d
2.80	17w2d	20w2d	23w3d	5.60	32w1d	35w1d	38w2d
2.90	17w5d	20w6d	23w6d	5.70	32w6d	35w6d	38w6d
3.00	18w1d	21w1d	24w2d	5.80	33w3d	36w3d	39w4d
3.10	18w4d	21w5d	24w6d	5.90	34w0d	37w1d	40w1d
3.20	19w1d	22w1d	25w1d	6.00	34w4d	37w5d	40w6d
3.30	19w4d	22w5d	25w5d	6.10	35w2d	38w2d	41w3d
3.40	20w1d	23w1d	26w1d	6.20	35w6d	39w0d	42w0d
3.50	20w4d	23w4d	26w5d	6.30	36w4d	39w4d	42w5d
3.60	21w1d	24w1d	27w1d	6.40	37w1d	40w2d	43w2d
3.70	21w4d	24w4d	27w5d				

1-1-125 Ulna (ULNA) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: Ulna and GA Values are taken from Fetal Growth Table; Ulna (50% values) are used as Input and GA as Output!

Ulna (cm) 50%	GA (weeks)	Ulna (cm) 50%	GA (weeks)
0.50	12.5	4.40	27.5
0.80	13.0	4.50	28.0
1.00	13.5	4.60	28.5
1.10	14.0	4.70	29.0
1.30	14.5	4.80	29.5
1.50	15.0	4.90	30.0
1.60	15.5	4.90	30.5
1.80	16.0	5.00	31.0
1.90	16.5	5.10	31.5
2.10	17.0	5.20	32.0
2.20	17.5	5.30	32.5
2.30	18.0	5.30	33.0
2.50	18.5	5.40	33.5
2.60	19.0	5.50	34.0
2.70	19.5	5.50	34.5
2.80	20.0	5.60	35.0
3.00	20.5	5.70	35.5
3.10	21.0	5.70	36.0
3.20	21.5	5.80	36.5
3.30	22.0	5.80	37.0
3.40	22.5	5.90	37.5
3.50	23.0	5.90	38.0
3.60	23.5	6.00	38.5
3.70	24.0	6.00	39.0
3.80	24.5	6.10	39.5
3.90	25.0	6.10	40.0
4.00	25.5	6.20	40.5
4.10	26.0	6.20	41.0
4.20	26.5	6.20	41.5
4.30	27.0		

Section 1-2
Gestational (Fetal) Growth

CAUTION **Gestational Age / FW tables or equations are NOT the same as Gestational (Fetal) Growth / FW Growth tables or equations!**

NOTICE **Gestational (Fetal) Growth / FW Growth:**

These are normal ranges for sonographically determined variables **as a function of gestational age**. Therefore, the Last Menstruation Period (LMP) must be entered in the Patient ID Info first, otherwise the Growth Curve [Graph] won't be shown in the Report.

1-2-1 Abdominal Circumference (AC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open.home.htm
Date: December 2003

Input Unit: GA (week)
Output Unit: AC mean (cm) ± SD (cm)
Min Range: 11 weeks
Max Range: 41 weeks

GA (week)	AC (cm)		GA (week)	AC (cm)	
	mean	± 2SD		mean	± 2SD
11	5.2	1.0	27	23.0	2.5
12	6.3	1.0	28	24.2	2.5
13	7.4	1.0	29	25.9	2.5
14	8.4	1.0	30	26.2	2.5
15	9.6	1.0	31	27.2	3.0
16	10.6	1.0	32	28.3	3.0
17	12.0	1.5	33	29.4	3.0
18	13.1	1.5	34	30.5	3.0
19	14.0	1.5	35	31.5	3.0
20	15.1	1.5	36	32.5	3.5
21	16.4	2.0	37	33.3	3.5
22	17.6	2.0	38	34.2	3.5
23	18.6	2.0	39	35.6	3.5
24	20.1	2.0	40	36.2	3.5
25	21.2	2.0	41	36.7	3.5
26	22.3	2.5			

1-2-2 Abdominal Circumference (AC) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 15 weeks
Max Range: 40 weeks

GA (Week)	AC (mm)				
	3%	10%	50%	90%	97%
15	80,70	85,30	95,00	104,40	108,80
16	91,30	96,10	106,40	116,80	121,60
17	101,70	106,80	118,00	129,00	134,00
18	111,80	117,40	129,20	141,00	146,60
19	122,00	128,00	140,40	153,00	158,80
20	132,00	138,00	151,40	164,70	171,00
21	141,60	148,20	162,30	176,30	183,00
22	151,40	158,20	173,00	187,80	194,70
23	160,90	168,20	183,60	199,00	206,30
24	170,20	177,80	194,00	210,30	218,00
25	179,30	187,30	204,40	221,30	229,30
26	188,40	196,70	214,50	232,30	240,60
27	197,30	206,00	224,50	243,00	251,60
28	206,20	215,10	234,40	253,60	262,60
29	214,70	224,00	244,00	264,00	273,30
30	223,20	232,80	253,60	274,20	283,70
31	231,60	241,60	263,00	284,20	294,40
32	239,70	250,00	272,20	294,30	304,60
33	247,80	258,40	281,20	304,00	314,80
34	255,60	266,70	290,20	313,80	324,80
35	263,20	274,70	298,80	323,30	334,50
36	271,00	282,60	307,40	332,50	344,30
37	278,30	290,30	316,00	341,70	353,80
38	285,60	298,00	324,70	350,70	363,00
39	292,70	305,30	332,40	359,60	372,20
40	298,00	311,00	339,00	367,00	380,00

1-2-3 Abdominal Circumference (AC) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 3. Abdominal measurements", Br.J.Obstet.Gynaecol. Vol. 101 No. 2, 1994, pages 125-131

Input Unit: w [week]
Output Unit: cm]
Min Range: 12,0 weeks
Max Range: 42,0 weeks

GA (Week)	AC (cm)		
	-1SD	Median	+1SD
12	4.77	5.89	7.02
13	5.87	7.09	8.30
14	6.97	8.27	9.57
15	8.06	9.45	10.83
16	9.15	10.62	12.09
17	10.22	11.78	13.33
18	11.29	12.93	14.57
19	12.35	14.08	15.81
20	13.40	15.21	17.03
21	14.44	16.34	18.24
22	15.47	17.46	19.44
23	16.49	18.56	20.63
24	17.50	19.66	21.81
25	18.50	20.74	22.98
26	19.48	21.81	24.14
27	20.45	22.87	25.28
28	21.41	23.91	26.41
29	22.36	24.94	27.53
30	23.29	25.96	28.63
31	24.20	26.96	29.72
32	25.10	27.95	30.80
33	25.99	28.92	31.85
34	26.86	29.88	32.90
35	27.71	30.82	33.92
36	28.55	31.74	34.93
37	29.37	32.64	35.92
38	30.17	33.53	36.89
39	30.95	34.40	37.85
40	31.72	35.25	38.78
41	32.46	36.08	39.70
42	33.18	36.89	40.60

1-2-4 Abdominal Circumference (AC) CHITTY (derived)

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 3. Abdominal measurements", Br.J.Obstet.Gynaecol. Vol. 101 No. 2, 1994, pages 125-131

NOTE: AC derived from TAD/APAD

Input Unit: w [week]
Output Unit: mm]
Min Range: 12,0 weeks
Max Range: 42,0 weeks

GA (Week)	AC (cm)		
	5thcentile	50thcentile	95th centile
12	49.0	55.8	62.6
13	59.6	67.4	75.2
14	70.1	78.9	87.7
15	80.5	90.3	100.1
16	90.9	101.6	112.4
17	101.1	112.9	124.7
18	111.3	124.1	136.9
19	121.5	135.2	149.0
20	131.5	146.2	161.0
21	141.4	157.1	172.9
22	151.3	168.0	184.7
23	161.0	178.7	196.4
24	170.6	189.3	208.0
25	180.1	199.8	219.5
26	189.5	210.2	230.8
27	198.8	220.4	242.1
28	207.9	230.6	253.2
29	216.9	240.5	264.2
30	225.8	250.4	275.0
31	234.5	260.1	285.7
32	243.1	269.7	296.3
33	251.5	279.1	306.7
34	259.8	288.4	317.0
35	267.9	297.5	327.0
36	275.8	306.4	337.0
37	283.6	315.1	346.7
38	291.2	323.7	356.3
39	298.6	332.1	365.7
40	305.8	340.4	374.9
41	312.9	348.4	383.9
42	319.7	356.2	392.7

1-2-5 Abdominal Circumference (AC) HADLOCK

Reference: Hadlock F.P., Deter R.L., Harrist R.B., Park S.K.
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$AC = -13{,}3 + 1{,}61 \times GA - 0{,}00998 \times GA^2$$

Input Unit: w (week)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 1.34 cm

corresponds to: 16%…. 84% (-1,34cm… +1,34cm)

GA (weeks)	AC (cm)	GA (weeks)	AC (cm)
12.0	4.60	26.5	22.40
12.5	5.30	27.0	23.00
13.0	6.00	27.5	23.50
13.5	6.70	28.0	24.00
14.0	7.30	28.5	24.60
14.5	8.00	29.0	25.10
15.0	8.60	29.5	25.60
15.5	9.30	30.0	26.10
16.0	9.90	30.5	26.60
16.5	10.60	31.0	27.10
17.0	11.20	31.5	27.60
17.5	11.90	32.0	28.10
18.0	12.50	32.5	28.60
18.5	13.10	33.0	29.10
19.0	13.70	33.5	29.50
19.5	14.40	34.0	30.00
20.0	15.00	34.5	30.50
20.5	15.60	35.0	30.90
21.0	16.20	35.5	31.40
21.5	16.80	36.0	31.80
22.0	17.40	36.5	32.30
22.5	17.90	37.0	32.70
23.0	18.50	37.5	33.20
23.5	19.10	38.0	33.60
24.0	19.70	38.5	34.00
24.5	20.20	39.0	34.40
25.0	20.80	39.5	34.80
25.5	21.30	40.0	35.30
26.0	21.90		

1-2-6 Abdominal Circumference (AC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

GA (weeks	AC (cm)
12	5.30
13	6.30
14	7.50
15	8.50
16	9.70
17	10.70
18	11.60
19	12.60
20	13.50
21	14.50
22	15.50
23	16.50
24	17.30
25	18.30
26	19.10
27	20.20
28	21.10
29	22.20
30	23.00
31	24.00
32	24.90
33	25.80
34	26.80
35	27.70
36	28.70
37	29.60
38	30.60
39	31.50
40	32.00

1-2-7 Abdominal Circumference (AC) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F.
"Normal Growth of the Abdominal Perimeter"
American Journal of Perinatology; Volume1; Number 2; January 1984; pages 129-135

$$AC = -2{,}9055 + 0{,}39388 \times GA + 0{,}033897 \times GA^2 - 0{,}00055459 \times GA^3$$

Input Unit: w (week)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	AC (cm)		
	5%	50%	95%
12	3.50	5.70	8.00
13	4.50	6.70	9.00
14	5.50	7.70	10.00
15	6.50	8.80	11.00
16	7.60	9.80	12.00
17	8.60	10.90	13.10
18	9.70	11.90	14.20
19	10.80	13.00	15.20
20	11.90	14.10	16.30
21	12.90	15.20	17.40
22	14.00	16.30	18.50
23	15.10	17.30	19.60
24	16.20	18.40	20.60
25	17.20	19.50	21.70
26	18.30	20.50	22.70
27	19.30	21.50	23.80
28	20.30	22.50	24.80
29	21.30	23.50	25.70
30	22.20	24.40	26.70
31	23.10	25.40	27.60
32	24.00	26.20	28.50
33	24.80	27.10	29.30
34	25.60	27.90	30.10
35	26.40	28.60	30.90
36	27.10	29.30	31.60
37	27.80	30.00	32.20
38	28.30	30.60	32.80
39	28.90	31.10	33.30
40	29.40	31.60	33.80

1-2-8 Abdominal Circumference (AC) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee" Ultrasound Fetal measurement standardization & Japanese standard proposals" J Med Ultrasonics Vol. 28 No.5 (2001)

Input Unit: w (weeks)
Output Units: cm
Min Range: 16 weeks
Max Range: 42 weeks

Age (weeks	AC (cm)		
	-2 SD	Mean	+2 SD
16	8.50	10.40	12.30
17	9.40	11.40	13.40
18	10.40	12.50	14.60
19	11.30	13.50	15.70
20	12.20	14.50	16.80
21	13.20	15.50	17.90
22	14.10	16.50	19.00
23	15.00	17.50	20.10
24	15.90	18.50	21.20
25	16.80	19.50	22.30
26	17.60	20.50	23.30
27	18.50	21.40	24.40
28	19.30	22.40	25.40
29	20.20	23.30	26.40
30	21.00	24.20	27.40
31	21.80	25.10	28.40
32	22.50	25.90	29.40
33	23.30	26.80	30.30
34	24.00	27.60	31.20
35	24.70	28.40	32.10
36	25.40	29.20	33.00
37	26.00	29.90	33.80
38	26.60	30.60	34.60
39	27.20	31.30	35.40
40	27.70	31.90	36.10
41	28.20	32.50	36.80
42	28.70	33.10	37.50

1-2-9 Abdominal Circumference (AC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks	AC (cm)		
	5%	50%	95%
12	4,53	5,66	6,79
13	5,61	6,82	8,03
14	6,69	7,98	9,27
15	7,76	9,13	10,50
16	8,83	10,27	11,72
17	9,88	11,40	12,93
18	10,93	12,53	14,13
19	11,97	13,64	15,32
20	12,99	14,75	16,51
21	14,01	15,85	17,68
22	15,02	16,93	18,84
23	16,01	18,00	20,00
24	16,99	19,06	21,13
25	17,96	20,11	22,26
26	18,92	21,15	23,37
27	19,87	22,17	24,48
28	20,80	23,18	25,56
29	21,71	24,17	26,63
30	22,61	25,15	27,69
31	23,50	26,11	28,73
32	24,36	27,06	29,76
33	25,22	27,99	30,77
34	26,05	28,90	31,76
35	26,87	29,80	32,73
36	27,67	30,68	33,69
37	28,45	31,54	34,62
38	29,21	32,38	35,54
39	29,95	33,20	36,44
40	30,68	34,00	37,32
41	31,38	34,78	38,18
42	32,06	35,53	39,01

1-2-10 Abdominal Circumference (AC) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

GA	AC (mm)			GA	AC (mm)			GA	AC (mm)			GA	AC (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	47.6	59.3	68.3	20w0d	139.5	153.0	168.1	28w0d	224.3	244.6	263.1	36w0d	301.0	323.6	345.2
12w1d	49.2	60.8	69.9	20w1d	141.1	154.7	169.9	28w1d	225.8	246.1	264.7	36w1d	302.0	324.8	346.4
12w2d	50.8	62.3	71.6	20w2d	142.7	156.4	171.7	28w2d	227.4	247.7	266.3	36w2d	303.0	326.0	347.6
12w3d	52.4	63.8	73.2	20w3d	144.3	158.1	173.6	28w3d	228.9	249.2	267.9	36w3d	304.0	327.2	348.8
12w4d	54.0	65.4	74.9	20w4d	145.9	159.8	175.4	28w4d	230.4	250.8	269.5	36w4d	304.9	328.4	350.0
12w5d	55.7	66.9	76.5	20w5d	147.5	161.5	177.1	28w5d	232.0	252.3	271.1	36w5d	305.9	329.5	351.2
12w6d	57.3	68.5	78.2	20w6d	149.1	163.1	178.9	28w6d	233.5	253.9	272.7	36w6d	306.8	330.7	352.4
13w0d	58.9	70.0	79.8	21w0d	150.7	164.8	180.7	29w0d	235.1	255.4	274.3	37w0d	307.8	331.9	353.5
13w1d	60.6	71.6	81.5	21w1d	152.3	166.5	182.5	29w1d	236.6	257.0	275.9	37w1d	308.7	333.0	354.7
13w2d	62.2	73.2	83.2	21w2d	153.9	168.2	184.3	29w2d	238.1	258.5	277.5	37w2d	309.6	334.2	355.8
13w3d	63.9	74.7	84.9	21w3d	155.4	169.9	186.0	29w3d	239.7	260.1	279.1	37w3d	310.5	335.4	357.0
13w4d	65.5	76.3	86.6	21w4d	157.0	171.6	187.8	29w4d	241.2	261.6	280.6	37w4d	311.3	336.5	358.1
13w5d	67.2	77.9	88.3	21w5d	158.6	173.2	189.5	29w5d	242.8	263.2	282.2	37w5d	312.2	337.7	359.2
13w6d	68.9	79.6	90.0	21w6d	160.2	174.9	191.3	29w6d	244.3	264.7	283.8	37w6d	313.0	338.9	360.4
14w0d	70.6	81.2	91.7	22w0d	161.8	176.6	193.0	30w0d	245.9	266.3	285.4	38w0d	313.8	340.1	361.5
14w1d	72.2	82.8	93.5	22w1d	163.3	178.2	194.7	30w1d	247.4	267.8	286.9	38w1d	314.6	341.3	362.6
14w2d	73.9	84.5	95.2	22w2d	164.9	179.9	196.4	30w2d	248.9	269.3	288.5	38w2d	315.4	342.4	363.7
14w3d	75.6	86.2	97.0	22w3d	166.4	181.6	198.1	30w3d	250.4	270.9	290.0	38w3d	316.2	343.6	364.9
14w4d	77.3	87.8	98.7	22w4d	167.9	183.2	199.8	30w4d	252.0	272.4	291.6	38w4d	317.0	344.9	366.0
14w5d	79.0	89.5	100.5	22w5d	169.5	184.9	201.5	30w5d	253.5	273.9	293.1	38w5d	317.7	346.1	367.1
14w6d	80.7	91.2	102.3	22w6d	171.0	186.5	203.3	30w6d	255.0	275.4	294.7	38w6d	318.5	347.3	368.3
15w0d	82.4	92.9	104.0	23w0d	172.5	188.1	204.9	31w0d	256.5	276.9	296.2	39w0d	319.2	348.6	369.5
15w1d	84.1	94.6	105.8	23w1d	174.0	189.8	206.6	31w1d	258.0	278.4	297.8	39w1d	319.9	349.8	370.7
15w2d	85.8	96.3	107.6	23w2d	175.5	191.4	208.3	31w2d	259.5	279.9	299.3	39w2d	320.7	351.1	371.9
15w3d	87.5	98.0	109.4	23w3d	177.0	193.1	210.0	31w3d	261.0	281.4	300.9	39w3d	321.4	352.4	373.1
15w4d	89.2	99.7	111.2	23w4d	178.5	194.7	211.7	31w4d	262.4	282.8	302.4	39w4d	322.1	353.7	374.3
15w5d	90.9	101.4	113.0	23w5d	180.0	196.4	213.4	31w5d	263.9	284.3	303.9	39w5d	322.8	355.0	375.5
15w6d	92.6	103.2	114.8	23w6d	181.4	198.0	215.1	31w6d	265.3	285.7	305.5	39w6d	323.5	356.3	376.8
16w0d	94.3	104.9	116.6	24w0d	182.9	199.7	216.8	32w0d	266.7	287.2	307.0	40w0d	324.2	357.7	378.1
16w1d	96.0	106.6	118.4	24w1d	184.4	201.3	218.5	32w1d	268.1	288.6	308.5	40w1d	324.9	359.0	379.4
16w2d	97.6	108.3	120.3	24w2d	185.8	202.9	220.2	32w2d	269.5	290.1	310.0	40w2d	325.6	360.4	380.7
16w3d	99.3	110.0	122.1	24w3d	187.3	204.6	221.9	32w3d	270.9	291.5	311.5	40w3d	326.3	361.7	382.1
16w4d	100.9	111.8	123.9	24w4d	188.7	206.2	223.6	32w4d	272.3	292.9	313.0	40w4d	326.9	363.1	383.4
16w5d	102.6	113.5	125.7	24w5d	190.2	207.8	225.2	32w5d	273.6	294.3	314.5	40w5d	327.6	364.5	384.8
16w6d	104.2	115.2	127.6	24w6d	191.6	209.5	226.9	32w6d	275.0	295.7	316.0	40w6d	328.2	365.9	386.1

GA	AC (mm)			GA	AC (mm)			GA	AC (mm)			GA	AC (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
17w0d	105.8	116.9	129.4	25w0d	193.1	211.1	228.6	33w0d	276.3	297.0	317.5	41w0d	328.8	367.2	387.5
17w1d	107.5	118.6	131.2	25w1d	194.6	212.7	230.3	33w1d	277.6	298.4	318.9	41w1d	329.4	368.6	388.8
17w2d	109.1	120.3	133.1	25w2d	196.0	214.3	231.9	33w2d	278.9	299.8	320.3	41w2d	330.0	370.0	390.2
17w3d	110.7	122.1	134.9	25w3d	197.5	216.0	233.6	33w3d	280.2	301.1	321.8	41w3d	330.5	371.3	391.5
17w4d	112.3	123.8	136.7	25w4d	198.9	217.6	235.2	33w4d	281.5	302.5	323.2	41w4d	331.1	372.7	392.9
17w5d	113.9	125.5	138.6	25w5d	200.4	219.2	236.9	33w5d	282.8	303.8	324.6	41w5d	331.6	374.1	394.2
17w6d	115.5	127.2	140.4	25w6d	201.9	220.8	238.6	33w6d	284.0	305.1	326.0	41w6d	332.2	375.4	395.6
18w0d	117.1	128.9	142.3	26w0d	203.4	222.4	240.2	34w0d	285.3	306.4	327.3	42w0d	332.7	376.8	396.9
18w1d	118.7	130.7	144.1	26w1d	204.8	224.0	241.9	34w1d	286.5	307.6	328.7				
18w2d	120.3	132.4	146.0	26w2d	206.3	225.6	243.5	34w2d	287.7	308.9	330.0				
18w3d	121.9	134.1	147.8	26w3d	207.8	227.2	245.2	34w3d	288.9	310.2	331.3				
18w4d	123.5	135.8	149.7	26w4d	209.3	228.8	246.8	34w4d	290.0	311.4	332.6				
18w5d	125.1	137.6	151.5	26w5d	210.7	230.4	248.4	34w5d	291.2	312.7	333.9				
18w6d	126.7	139.3	153.4	26w6d	212.2	232.0	250.1	34w6d	292.4	313.9	335.2				
19w0d	128.3	141.0	155.2	27w0d	213.7	233.6	251.7	35w0d	293.5	315.1	336.5				
19w1d	129.9	142.7	157.1	27w1d	215.2	235.2	253.4	35w1d	294.6	316.4	337.8				
19w2d	131.5	144.4	158.9	27w2d	216.7	236.7	255.0	35w2d	295.7	317.6	339.0				
19w3d	133.1	146.1	160.8	27w3d	218.2	238.3	256.6	35w3d	296.8	318.8	340.3				
19w4d	134.7	147.9	162.6	27w4d	219.7	239.9	258.2	35w4d	297.8	320.0	341.5				
19w5d	136.3	149.6	164.4	27w5d	221.3	241.4	259.8	35w5d	298.9	321.2	342.8				
19w6d	137.9	151.3	166.3	27w6d	222.8	243.0	261.5	35w6d	299.9	322.4	344.0				

1-2-11 Abdominal Circumference (AC) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	AC (cm)			GA (weeks)	AC (cm)		
	5%	50%	95%		5%	50%	95%
12.5	5.00	6.20	7.40	27.5	20.20	22.20	24.20
13.0	5.50	6.70	8.00	28.0	20.70	22.70	24.70
13.5	6.00	7.30	8.50	28.5	21.20	23.20	25.20
14.0	6.50	7.80	9.10	29.0	21.70	23.70	25.70
14.5	7.10	8.30	9.60	29.5	22.10	24.20	26.30
15.0	7.60	8.90	10.20	30.0	22.60	24.70	26.80
15.5	8.10	9.40	10.80	30.5	23.10	25.20	27.30
16.0	8.60	10.00	11.40	31.0	23.50	25.70	27.80
16.5	9.10	10.50	11.90	31.5	24.00	26.20	28.30
17.0	9.60	11.10	12.50	32.0	24.40	26.60	28.80
17.5	10.20	11.60	13.10	32.5	24.90	27.10	29.30
18.0	10.70	12.20	13.60	33.0	25.30	27.60	29.80
18.5	11.20	12.70	14.20	33.5	25.80	28.00	30.30
19.0	11.70	13.20	14.80	34.0	26.20	28.50	30.80
19.5	12.20	13.80	15.30	34.5	26.60	28.90	31.30
20.0	12.70	14.30	15.90	35.0	27.00	29.40	31.70
20.5	13.30	14.90	16.50	35.5	27.50	29.80	32.20
21.0	13.80	15.40	17.00	36.0	27.90	30.30	32.70
21.5	14.30	15.90	17.60	36.5	28.30	30.70	33.10
22.0	14.80	16.50	18.10	37.0	28.70	31.10	33.60
22.5	15.30	17.00	18.70	37.5	29.00	31.50	34.00
23.0	15.80	17.50	19.30	38.0	29.40	31.90	34.40
23.5	16.30	18.10	19.80	38.5	29.80	32.30	34.80
24.0	16.80	18.60	20.40	39.0	30.10	32.70	35.20
24.5	17.30	19.10	20.90	39.5	30.50	33.10	35.60
25.0	17.80	19.60	21.50	40.0	30.80	33.40	36.00
25.5	18.30	20.20	22.00	40.5	31.10	33.80	36.40
26.0	18.80	20.70	22.60	41.0	31.40	34.10	36.70
26.5	19.30	21.20	23.10	41.5	31.70	34.30	37.00
27.0	19.80	21.70	23.60				

1-2-12 Abdominal Circumference (AC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	AC (cm)		
	5thcentile	Median	95th centile
14	8.00	9.00	10.20
15	8.80	9.90	11.20
16	9.60	10.80	12.20
17	10.50	11.80	13.30
18	11.40	12.80	14.40
19	12.30	13.90	15.60
20	13.30	14.90	16.80
21	14.30	16.10	18.10
22	15.30	17.20	19.30
23	16.30	18.30	20.60
24	17.40	19.50	21.90
25	18.40	20.70	23.30
26	19.50	21.90	24.60
27	20.50	23.10	25.90
28	21.60	24.30	27.20
29	22.60	25.40	28.50
30	23.70	26.60	29.80
31	24.60	27.70	31.00
32	25.60	28.70	32.20
33	26.50	29.70	33.40
34	27.40	30.70	34.50
35	28.20	31.60	35.50
36	28.90	32.40	36.40
37	29.50	33.20	37.20
38	30.20	33.90	38.00
39	30.70	34.50	38.70

1-2-13 Abdominal Circumference (AC) SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, Faculty of Medicine University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Input Unit:	w (weeks)	Min Range:	16.0 weeks
Output Unit:	cm	Max Range:	42.0 weeks

Used for Graph Display

GA (weeks)	AC (cm)		
	-1.64SD	Mean	+1.64SD
16	9.30	10.90	12.50
17	10.30	12.00	13.60
18	11.20	13.00	14.70
19	12.20	14.00	15.80
20	13.10	15.10	16.90
21	14.00	16.10	18.00
22	15.00	17.10	19.10
23	15.90	18.10	20.20
24	16.80	19.10	21.20
25	17.70	20.10	22.30
26	18.60	21.00	23.30
27	19.50	22.00	24.40
28	20.30	22.90	25.40
29	21.10	23.80	26.40
30	22.00	24.70	27.30
31	22.80	25.60	28.30
32	23.50	26.50	29.20
33	24.30	27.30	30.10
34	25.00	28.10	31.00
35	25.70	28.90	31.90
36	26.40	29.70	32.70
37	27.00	30.40	33.50
38	27.60	31.10	34.30
39	28.20	31.80	35.00
40	28.80	32.40	35.70
41	29.30	33.00	36.40
42	29.70	33.60	37.00

1-2-14 Abdominal Circumference (AC) TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA (weeks)	AC (cm)		
	-1.64SD	Mean	+1.64SD
16	9.30	10.90	12.50
17	10.30	12.00	13.60
18	11.20	13.00	14.70
19	12.20	14.00	15.80
20	13.10	15.10	16.90
21	14.00	16.10	18.00
22	15.00	17.10	19.10
23	15.90	18.10	20.20
24	16.80	19.10	21.20
25	17.70	20.10	22.30
26	18.60	21.00	23.30
27	19.50	22.00	24.40
28	20.30	22.90	25.40
29	21.10	23.80	26.40
30	22.00	24.70	27.30
31	22.80	25.60	28.30
32	23.50	26.50	29.20
33	24.30	27.30	30.10
34	25.00	28.10	31.00
35	25.70	28.90	31.90
36	26.40	29.70	32.70
37	27.00	30.40	33.50
38	27.60	31.10	34.30
39	28.20	31.80	35.00
40	28.80	32.40	35.70
41	29.30	33.00	36.40
42	29.70	33.60	37.00

1-2-15 Abdominal Diameter (AD) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)
111	34,0	151	54,0	191	74,0	231	93,5	271	110,0
112	34,5	152	54,5	192	74,5	232	94,0	272	110,3
113	35,0	153	55,0	193	75,0	233	94,4	273	110,7
114	35,5	154	55,5	194	75,5	234	94,8	274	111,0
115	36,0	155	56,0	195	76,0	235	95,2	275	111,3
116	36,5	156	56,5	196	76,5	236	95,6	276	111,7
117	37,0	157	57,0	197	77,0	237	96,0	277	112,0
118	37,5	158	57,5	198	77,5	238	96,5	278	112,3
119	38,0	159	58,0	199	78,0	239	97,0	279	112,7
120	38,5	160	58,5	200	78,5	240	97,5	280	113,0
121	39,0	161	59,0	201	79,0	241	98,0	281	113,3
122	39,5	162	59,5	202	79,5	242	98,4	282	113,5
123	40,0	163	60,0	203	80,0	243	98,8	283	113,8
124	40,5	164	60,5	204	80,5	244	99,2	284	114,0
125	41,0	165	61,0	205	81,0	245	99,6	285	114,3
126	41,5	166	61,5	206	81,5	246	100,0	286	114,5
127	42,0	167	62,0	207	82,0	247	100,5	287	114,8
128	42,5	168	62,5	208	82,5	248	101,0	288	115,0
129	43,0	169	63,0	209	83,0	249	101,4	289	115,3
130	43,5	170	63,5	210	83,5	250	101,8	290	115,5
131	44,0	171	64,0	211	84,0	251	102,2	291	115,8
132	44,5	172	64,5	212	84,5	252	102,6	292	116,0
133	45,0	173	65,0	213	85,0	253	103,0	293	116,2
134	45,5	174	65,5	214	85,3	254	103,4	294	116,4
135	46,0	175	66,0	215	86,0	255	103,8	295	116,6
136	46,5	176	66,5	216	86,5	256	104,2	296	116,8
137	47,0	177	67,0	217	87,0	257	104,6	297	117,0
138	47,5	178	67,5	218	87,5	258	105,0	298	117,2
139	48,0	179	68,0	219	88,0	259	105,3	299	117,4
140	48,5	180	68,5	220	88,5	260	105,7	300	117,6
141	49,0	181	69,0	221	89,0	261	106,0		
142	49,5	182	69,5	222	89,5	262	106,4		
143	50,0	183	70,0	223	90,0	263	106,8		
144	50,5	184	70,5	224	90,4	264	107,2		
145	51,0	185	71,0	225	90,8	265	107,6		
146	51,5	186	71,5	226	91,2	266	108,0		
147	52,0	187	72,0	227	91,6	267	108,4		
148	52,2	188	72,5	228	92,0	268	108,8		
149	53,0	189	73,0	229	92,5	269	109,2		
150	53,5	190	73,5	230	93,0	270	109,6		

1-2-16 Amniotic Fluid Index (AFI) MOORE

Reference: Moore, Th. R., Cayle, J. E., "The amniotic fluid index in normal human pregnancy", Am J Obstet Gynecol Vol. 162 No. 5, 1990, pages 1168-1173

Input Unit: w (weeks)
Output Unit; mm
Min Range: 16 weeks
Max Range: 42 weeks

GA (weeks)	AFI (mm)		
	5%	50%	95%
16	79	121	185
17	83	127	194
18	87	133	202
19	90	137	207
20	93	141	212
21	95	143	214
22	97	145	216
23	98	146	218
24	98	147	219
25	97	147	221
26	97	147	223
27	95	146	226
28	94	146	228
29	92	145	231
30	90	145	234
31	88	144	238
32	86	144	242
33	83	143	245
34	81	142	248
35	79	140	249
36	77	138	249
37	75	135	244
38	73	132	239
39	72	127	226
40	71	123	214
41	70	116	194
42	69	110	175

1-2-17 Anterior Posterior Abdominal Diameter (APAD) MERZ

Reference: Merz E., Wellek S. "Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones" Ultraschall in Med. 17 (1996) 153-162

GA (weeks)	APAD (cm)			GA (weeks)	APAD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	1.50	1.90	2.30	27.5	6.40	7.00	7.60
13.0	1.70	2.10	2.50	28.0	6.50	7.20	7.80
13.5	1.80	2.30	2.70	28.5	6.70	7.30	8.00
14.0	2.00	2.40	2.80	29.0	6.80	7.50	8.10
14.5	2.20	2.60	3.00	29.5	7.00	7.60	8.30
15.0	2.30	2.80	3.20	30.0	7.10	7.80	8.50
15.5	2.50	2.90	3.40	30.5	7.30	7.90	8.60
16.0	2.70	3.10	3.60	31.0	7.40	8.10	8.80
16.5	2.80	3.30	3.70	31.5	7.60	8.20	8.90
17.0	3.00	3.50	3.90	32.0	7.70	8.40	9.10
17.5	3.20	3.60	4.10	32.5	7.80	8.50	9.30
18.0	3.30	3.80	4.30	33.0	8.00	8.70	9.40
18.5	3.50	4.00	4.50	33.5	8.10	8.80	9.60
19.0	3.70	4.20	4.70	34.0	8.30	9.00	9.70
19.5	3.80	4.30	4.80	34.5	8.40	9.10	9.90
20.0	4.00	4.50	5.00	35.0	8.50	9.30	10.00
20.5	4.20	4.70	5.20	35.5	8.70	9.40	10.20
21.0	4.30	4.80	5.40	36.0	8.80	9.60	10.30
21.5	4.50	5.00	5.50	36.5	8.90	9.70	10.50
22.0	4.60	5.20	5.70	37.0	9.00	9.80	10.60
22.5	4.80	5.40	5.90	37.5	9.20	10.00	10.70
23.0	5.00	5.50	6.10	38.0	9.30	10.10	10.90
23.5	5.10	5.70	6.30	38.5	9.40	10.20	11.00
24.0	5.30	5.90	6.40	39.0	9.50	10.30	11.10
24.5	5.40	6.00	6.60	39.5	9.60	10.50	11.30
25.0	5.60	6.20	6.80	40.0	9.70	10.60	11.40
25.5	5.70	6.30	6.90	40.5	9.80	10.70	11.50
26.0	5.90	6.50	7.10	41.0	9.90	10.80	11.60
26.5	6.10	6.70	7.30	41.5	10.00	10.90	11.70
27.0	6.20	6.80	7.50				

1-2-18 Anterior Posterior Trunk Diameter (APTD) HANSMANN

Reference: Hansmann M. "Ultraschallbiometrie im II. und III. Trimester der Schwangerschaft" Gynäkologe 9 (1976) 133

NOTE: concerning DICOM-SR:
TTD Value is transferred as TAD value (Transverse Abdominal Diameter)
(because no TTD item present in DICOM standard)

GA (weeks)	AP		
	-2SD	mean	+2SD
14	2.25	2.25	2.25
15	2.21	2.58	2.95
16	2.45	2.85	3.25
17	2.61	3.11	3.61
18	3.02	3.46	3.90
19	3.25	3.75	4.25
20	3.40	4.00	4.60
21	3.76	4.34	4.92
22	4.04	4.65	5.26
23	4.20	4.90	5.60
24	4.35	5.15	5.95
25	4.68	5.48	6.28
26	4.95	5.80	6.65
27	5.30	6.15	7.00
28	5.43	6.39	7.35
29	5.70	6.70	7.70
30	6.01	7.01	8.01
31	6.10	7.25	8.40
32	6.52	7.62	8.72
33	6.81	7.93	9.05
34	6.90	8.15	9.40
35	7.08	8.40	9.72
36	7.40	8.75	10.10
37	7.62	9.02	10.42
38	7.90	9.30	10.70
39	8.06	9.53	11.00
40	8.16	9.68	11.20
41	8.32	9.84	11.35
42	8.41	9.91	11.40

1-2-19 APTD x TTD SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA (weeks)	APTD x TTD (cm^2)		
	-1.64SD	mean	+1.64SD
16.0	7.0	11.2	15.5
17.0	8.7	13.3	18.0
18.0	10.5	15.6	20.7
19.0	12.5	18.1	23.6
20.0	14.7	20.8	26.8
21.0	17.1	23.6	30.2
22.0	19.6	26.7	33.8
23.0	22.2	29.9	37.5
24.0	25.0	33.2	41.5
25.0	27.9	36.7	45.6
26.0	30.9	40.3	49.8
27.0	33.9	44.1	54.2
28.0	37.1	47.9	58.7
29.0	40.3	51.8	63.3
30.0	43.5	55.7	68.0
31.0	46.8	59.7	72.7
32.0	50.0	63.8	77.6
33.0	53.3	67.8	82.4
34.0	56.6	71.9	87.3
35.0	59.7	75.9	92.2
36.0	62.8	79.9	97.0
37.0	65.9	83.9	101.9
38.0	68.8	87.7	106.7
39.0	71.6	91.5	111.4
40.0	74.3	95.1	116.0
41.0	76.8	98.6	120.5
42.0	79.1	102.0	124.8

1-2-20 APTD x TTD TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

50%	$AxT = 9{,}618 \times GA^3 \times 10^{-6} - 1{,}982 \times GA^4 \times 10^{-8} + 1{,}791$
95%	$AxT = 1{,}194 \times GA^3 \times 10^{-5} - 2{,}543 \times GA^4 \times 10^{-8} + 4{,}715$
5%	$AxT = 12{,}549 \times GA + 9{,}372 \times GA^2 \times 10^{-2} - 2{,}975 \times GA^3 \times 10^{-4} + 3{,}505 \times GA^4 \times 10^{-7} + 617{,}59$

Input Unit: days

Output Unit: cm^2

Range: 140 .... 287 days (20w0d 41w0d

Table values are calculated with the equations above

GA	APTDxTTD (cm^2)			GA	APTDxTTD (cm^2)			GA	APTDxTTD (cm^2)			GA	APTDxTTD (cm^2)		
(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%
140	15,95	20,57	27,71	177	26,88	35,67	45,97	214	43,60	54,48	68,40	251	58,98	75,21	92,59
141	16,01	20,92	28,13	178	27,32	36,14	46,53	215	44,03	55,03	69,04	252	59,42	75,78	93,24
142	16,08	21,27	28,56	179	27,77	36,61	47,09	216	44,45	55,57	69,69	253	59,87	76,34	93,88
143	16,18	21,63	29,00	180	28,22	37,08	47,65	217	44,88	56,12	70,33	254	60,32	76,90	94,53
144	16,29	21,99	29,43	181	28,67	37,55	48,22	218	45,30	56,67	70,98	255	60,78	77,47	95,17
145	16,42	22,35	29,87	182	29,12	38,03	48,79	219	45,73	57,22	71,63	256	61,24	78,03	95,81
146	16,57	22,72	30,32	183	29,58	38,51	49,37	220	46,15	57,77	72,28	257	61,71	78,59	96,45
147	16,73	23,09	30,77	184	30,03	38,99	49,95	221	46,56	58,33	72,93	258	62,19	79,15	97,09
148	16,91	23,46	31,22	185	30,49	39,47	50,53	222	46,98	58,88	73,58	259	62,67	79,71	97,73
149	17,11	23,84	31,68	186	30,95	39,96	51,11	223	47,40	59,44	74,24	260	63,16	80,26	98,36
150	17,32	24,22	32,14	187	31,41	40,45	51,70	224	47,81	59,99	74,89	261	63,66	80,82	99,00
151	17,54	24,60	32,60	188	31,87	40,94	52,29	225	48,22	60,55	75,54	262	64,17	81,38	99,63
152	17,78	24,99	33,07	189	32,33	41,43	52,88	226	48,63	61,11	76,20	263	64,68	81,93	100,25
153	18,03	25,38	33,54	190	32,79	41,93	53,47	227	49,04	61,67	76,86	264	65,20	82,48	100,88
154	18,30	25,77	34,02	191	33,26	42,43	54,07	228	49,45	62,23	77,51	265	65,74	83,04	101,50
155	18,57	26,17	34,50	192	33,72	42,93	54,67	229	49,86	62,79	78,17	266	66,28	83,59	102,13
156	18,86	26,57	34,98	193	34,18	43,44	55,27	230	50,27	63,35	78,83	267	66,83	84,13	102,74
157	19,16	26,97	35,47	194	34,64	43,94	55,87	231	50,68	63,91	79,48	268	67,40	84,68	103,36
158	19,47	27,38	35,96	195	35,10	44,45	56,48	232	51,08	64,47	80,14	269	67,97	85,23	103,97
159	19,79	27,78	36,46	196	35,56	44,96	57,09	233	51,49	65,04	80,80	270	68,56	85,77	104,58
160	20,13	28,20	36,96	197	36,02	45,47	57,70	234	51,89	65,60	81,46	271	69,15	86,31	105,19
161	20,47	28,61	37,46	198	36,48	45,99	58,31	235	52,30	66,17	82,11	272	69,77	86,85	105,80
162	20,82	29,03	37,96	199	36,93	46,50	58,93	236	52,71	66,73	82,77	273	70,39	87,39	106,40
163	21,17	29,45	38,47	200	37,39	47,02	59,55	237	53,11	67,30	83,43	274	71,03	87,93	107,00
164	21,54	29,88	38,99	201	37,84	47,54	60,17	238	53,52	67,86	84,09	275	71,68	88,46	107,59

GA (days)	APTDxTTD (cm^2)			GA (days)	APTDxTTD (cm^2)			GA (days)	APTDxTTD (cm^2)			GA (days)	APTDxTTD (cm^2)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%		5%	50%	95%
165	21,92	30,31	39,50	202	38,30	48,07	60,79	239	53,93	68,43	84,75	276	72,34	88,99	108,18
166	22,30	30,74	40,02	203	38,75	48,59	61,41	240	54,34	68,99	85,40	277	73,03	89,52	108,77
167	22,69	31,17	40,55	204	39,20	49,12	62,04	241	54,75	69,56	86,06	278	73,72	90,05	109,36
168	23,08	31,61	41,07	205	39,65	49,65	62,67	242	55,16	70,12	86,72	279	74,44	90,58	109,94
169	23,48	32,05	41,60	206	40,09	50,18	63,30	243	55,57	70,69	87,37	280	75,17	91,10	110,51
170	23,89	32,49	42,14	207	40,54	50,71	63,93	244	55,99	71,26	88,03	281	75,91	91,62	111,09
171	24,30	32,94	42,67	208	40,98	51,24	64,56	245	56,41	71,82	88,68	282	76,68	92,14	111,66
172	24,72	33,38	43,21	209	41,42	51,78	65,20	246	56,83	72,39	89,34	283	77,46	92,65	112,22
173	25,15	33,84	43,76	210	41,86	52,32	65,83	247	57,25	72,95	89,99	284	78,27	93,17	112,78
174	25,57	34,29	44,31	211	42,30	52,86	66,47	248	57,68	73,52	90,64	285	79,09	93,68	113,34
175	26,01	34,75	44,86	212	42,73	53,40	67,11	249	58,11	74,09	91,29	286	79,93	94,18	113,89
176	26,44	35,21	45,41	213	43,17	53,94	67,75	250	58,54	74,65	91,94	287	80,80	94,69	114,44

1-2-21 Binocular Distance (BOD) JEANTY

Reference: Jeanty P., Dramaix-Wilmet M., Van Gansbeke D., Van Regemorter N., Rodesch F. "Fetal ocular biometry by ultrasound" Radiology 143(2): 513-516; May 1982

GA (weeks)	BOD (cm)			GA (weeks)	BOD (cm)		
	5%	50%	95%		5%	50%	95%
12	1.10	1.60	2.00	27	4.00	4.50	4.90
13	1.40	1.80	2.30	28	4.20	4.60	5.10
14	1.60	2.00	2.50	29	4.30	4.80	5.20
15	1.80	2.30	2.70	30	4.50	4.90	5.30
16	2.00	2.50	2.90	31	4.60	5.00	5.50
17	2.20	2.70	3.10	32	4.70	5.20	5.60
18	2.40	2.90	3.30	33	4.90	5.30	5.70
19	2.60	3.10	3.50	34	5.00	5.40	5.80
20	2.80	3.30	3.70	35	5.10	5.50	6.00
21	3.00	3.50	3.90	36	5.20	5.60	6.10
22	3.20	3.60	4.10	37	5.30	5.70	6.20
23	3.40	3.80	4.30	38	5.40	5.80	6.30
24	3.50	4.00	4.40	39	5.50	5.90	6.40
25	3.70	4.20	4.60	40	5.60	6.00	6.40
26	3.90	4.30	4.70				

1-2-22 Biparietal Diameter (BPD) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	BPD (cm)		GA (week)	BPD (cm)	
	mean	±2SD		mean	±2SD
11	1,60	0,20	27	6,80	0,50
12	2,00	0,40	28	7,20	0,40
13	2,40	0,40	29	7,50	0,40
14	2,80	0,40	30	7,60	0,40
15	3,10	0,40	31	8,00	0,60
16	3,60	0,50	32	8,10	0,40
17	3,90	0,50	33	8,40	0,60
18	4,20	0,40	34	8,60	0,60
19	4,50	0,50	35	8,80	0,65
20	4,70	0,40	36	9,00	0,60
21	4,90	0,40	37	9,20	0,65
22	5,20	0,50	38	9,30	0,60
23	5,70	0,50	39	9,50	0,80
24	6,00	0,60	40	9,60	0,80
25	6,40	0,60	41	9,80	0,80
26	6,70	0,40			

1-2-23 Biparietal Diameter (BPD) CAMPBELL

Reference: Campbell S., Warsof S.L., Little D., Cooper D.J.
"Routine Ultrasound Screening for the Prediction of Gestational Age"
Obstetrics & Gynecology; Vol. 65; No. 5; May 1985; pages 613-620

GA (weeks)	BPD (cm)	
	mean	±1SD
12	2.12	0.30
13	2.17	0.28
14	2.78	0.32
15	3.14	0.28
16	3.53	0.29
17	3.87	0.24
18	4.15	0.29
19	4.60	0.31
20	4.82	0.32
21	5.12	0.31
22	5.42	0.34
23	5.82	0.23
24	6.16	0.39
25	6.42	0.58
26	6.59	0.50
27	7.09	0.52
28	7.58	0.32
29	7.87	0.34
30	8.03	0.43
31	8.22	0.39
32	8.57	0.35
33	8.67	0.28
34	8.94	0.36
35	9.16	0.30
36	9.14	0.42
37	9.35	0.39
38	9.35	0.44
39	9.62	0.39
40	9.59	0.33

1-2-24 Biparietal Diameter (BPD) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 11 weeks
Max Range: 41 weeks

GA (week)	BPD (mm)				
	3%	10%	50%	90%	97%
11	12,08	13,12	15,36	17,60	18,63
12	15,81	16,96	19,40	21,81	22,92
13	19,47	20,71	23,30	25,92	27,12
14	23,05	24,36	27,14	29,92	31,23
15	26,56	27,93	30,89	33,82	35,23
16	29,97	31,41	34,53	37,62	39,08
17	33,32	34,85	38,12	41,35	42,87
18	36,55	38,15	41,58	44,97	46,56
19	39,76	41,46	45,00	48,52	50,18
20	42,85	44,56	48,22	51,90	53,64
21	45,86	47,66	51,43	55,23	57,00
22	48,79	50,61	54,53	58,44	60,30
23	51,63	53,48	57,51	61,54	63,45
24	54,38	56,31	60,42	64,57	66,50
25	57,04	59,00	63,25	67,48	69,42
26	59,62	61,64	65,94	70,24	72,27
27	62,12	64,15	68,55	72,92	75,00
28	64,50	66,61	71,03	75,52	77,60
29	66,84	68,98	73,50	77,97	80,09
30	69,07	71,21	75,80	80,37	82,52
31	71,22	73,39	78,00	82,63	84,80
32	73,30	75,49	80,16	84,80	87,00
33	75,24	77,46	82,14	86,84	89,04
34	77,14	79,36	84,07	88,80	91,00
35	78,94	81,14	85,90	90,61	92,83
36	80,64	82,88	87,61	92,35	94,56
37	82,27	84,50	89,24	93,97	96,19
38	83,78	86,00	90,70	95,42	97,66
39	85,22	87,43	92,10	96,86	99,05
40	86,57	88,78	93,45	98,13	100,31
41	87,00	89,00	94,00	99,00	101,00

1-2-25 Biparietal Diameter (BPD) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101, 1994, pages 35-43.

NOTE: Outer-outer measurement

GA (Week)	BPD (cm)		
	3thcentile	Median	97thcentile
12	1.55	1.97	2.39
13	1.92	2.35	2.78
14	2.29	2.73	3.17
15	2.65	3.10	3.56
16	3.01	3.47	3.94
17	3.36	3.83	4.31
18	3.70	4.19	4.68
19	4.04	4.54	5.04
20	4.37	4.88	5.39
21	4.70	5.22	5.74
22	5.02	5.55	6.08
23	5.33	5.87	6.41
24	5.63	6.18	6.73
25	5.92	6.48	7.04
26	6.20	6.78	7.35
27	6.48	7.06	7.65
28	6.74	7.34	7.93
29	6.99	7.60	8.21
30	7.24	7.86	8.47
31	7.47	8.10	8.73
32	7.69	8.33	8.97
33	7.90	8.55	9.21
34	8.10	8.76	9.43
35	8.29	8.96	9.63
36	8.46	9.15	9.83
37	8.62	9.32	10.01
38	8.77	9.48	10.18
39	8.90	9.62	10.34
40	9.02	9.75	10.48
41	9.13	9.87	10.61
42	9.22	9.97	10.72

1-2-26 Biparietal Diameter (BPD) HADLOCK

Reference: Hadlock F.P., Deter R.L.; Harrist R.B., Park S.K.
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$BPD = -3{,}08 + 0{,}41 \times GA - 0{,}000061 \times GA^3$$

Input Unit: w (week)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 0.30 cm

corresponds to: 16% … 84% (-0.30cm … +0.30cm)

GA (weeks)	BPD (cm)	GA (weeks)	BPD (cm)	GA (weeks)	BPD (cm)
12.0	1.70	21.5	5.10	31.0	7.80
12.5	1.90	22.0	5.30	31.5	7.90
13.0	2.10	22.5	5.50	32.0	8.10
13.5	2.30	23.0	5.60	32.5	8.20
14.0	2.50	23.5	5.80	33.0	8.30
14.5	2.70	24.0	5.90	33.5	8.40
15.0	2.90	24.5	6.10	34.0	8.50
15.5	3.10	25.0	6.20	34.5	8.60
16.0	3.20	25.5	6.40	35.0	8.70
16.5	3.40	26.0	6.50	35.5	8.80
17.0	3.60	26.5	6.70	36.0	8.90
17.5	3.80	27.0	6.80	36.5	8.90
18.0	3.90	27.5	6.90	37.0	9.00
18.5	4.10	28.0	7.10	37.5	9.10
19.0	4.30	28.5	7.20	38.0	9.20
19.5	4.50	29.0	7.30	38.5	9.20
20.0	4.60	29.5	7.50	39.0	9.30
20.5	4.80	30.0	7.60	39.5	9.40
21.0	5.00	30.5	7.70	40.0	9.40

1-2-27 Biparietal Diameter (BPD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986. p.432

GA (weeks)	BPD (cm)		
	5%	50%	95%
12	2.00	2.00	2.00
13	1.90	2.40	2.90
14	2.30	2.80	3.20
15	2.70	3.20	3.50
16	3.10	3.50	3.90
17	3.40	3.80	4.20
18	3.80	4.20	4.60
19	4.10	4.60	5.00
20	4.40	4.90	5.30
21	4.80	5.20	5.70
22	5.10	5.60	6.00
23	5.40	5.90	6.40
24	5.70	6.20	6.70
25	6.00	6.50	7.10
26	6.30	6.80	7.40
27	6.60	7.10	7.70
28	6.80	7.40	8.00
29	7.10	7.70	8.30
30	7.30	8.00	8.60
31	7.50	8.20	8.80
32	7.80	8.50	9.10
33	8.00	8.70	9.30
34	8.20	8.90	9.50
35	8.40	9.10	9.70
36	8.60	9.30	9.90
37	8.80	9.50	10.10
38	8.90	9.60	10.20
39	9.00	9.80	10.40
40	9.20	9.90	10.50
41	9.30	10.00	10.60

1-2-28 Biparietal Diameter (BPD) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J.C., Tack B., Bracken M., Cantraine F.
"A longitudinal Study of fetal head biometry"
American Journal of Perinatology; Volume1; Number 2; January 1984; pages 118-128

$$BPD = -19{,}634 + 3{,}0209 \times GA + 0{,}042134 \times GA^2 - 0{,}0011756 \times GA^3$$

Input Unit: weeks
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	BPD (cm)		
	5%	50%	95%
10	0.90	1.40	1.80
11	1.30	1.70	2.20
12	1.60	2.10	2.50
13	2.00	2.40	2.90
14	2.30	2.80	3.20
15	2.70	3.10	3.60
16	3.00	3.50	3.90
17	3.40	3.80	4.30
18	3.70	4.20	4.60
19	4.00	4.50	4.90
20	4.40	4.80	5.30
21	4.70	5.10	5.60
22	5.00	5.50	5.90
23	5.30	5.80	6.20
24	5.60	6.10	6.50
25	5.90	6.40	6.80
26	6.20	6.70	7.10
27	6.50	7.00	7.40
28	6.80	7.20	7.70
29	7.00	7.50	7.90
30	7.30	7.70	8.20
31	7.50	7.90	8.40
32	7.70	8.20	8.60
33	7.90	8.40	8.80
34	8.10	8.60	9.00
35	8.30	8.70	9.20
36	8.40	8.90	9.30
37	8.60	9.00	9.50
38	8.70	9.10	9.60
39	8.80	9.30	9.70
40	8.90	9.30	9.80

1-2-29 Biparietal Diameter (BPD) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

Age (weeks)	BPD (cm)		
	-1 SD	Mean	+1 SD
11	1,36	1,59	1,82
12	1,69	1,93	2,17
13	2,03	2,27	2,52
14	2,36	2,61	2,86
15	2,69	2,95	3,21
16	3,03	3,29	3,55
17	3,36	3,63	3,90
18	3,69	3,96	4,23
19	4,02	4,30	4,58
20	4,34	4,62	4,90
21	4,66	4,95	5,24
22	4,96	5,26	5,56
23	5,27	5,57	5,87
24	5,57	5,88	6,19
25	5,86	6,17	6,48
26	6,14	6,46	6,78
27	6,42	6,74	7,06
28	6,68	7,01	7,34
29	6,93	7,26	7,60
30	7,17	7,51	7,85
31	7,39	7,74	8,09
32	7,61	7,96	8,31
33	7,81	8,17	8,53
34	8,00	8,36	8,72
35	8,16	8,53	8,90
36	8,32	8,69	9,06
37	8,45	8,83	9,21
38	8,58	8,96	9,35
39	8,67	9,06	9,45
40	8,75	9,15	9,55
41	8,82	9,22	9,62
42	8,85	9,26	9,67

1-2-30 Biparietal Diameter (BPD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	BPD (cm)		
	5%	50%	95%
12	1,70	2,10	2,50
13	2,08	2,49	2,90
14	2,45	2,87	3,29
15	2,82	3,25	3,68
16	3,18	3,62	4,06
17	3,53	3,99	4,44
18	3,88	4,35	4,81
19	4,22	4,70	5,17
20	4,56	5,04	5,53
21	4,88	5,38	5,88
22	5,20	5,71	6,22
23	5,51	6,03	6,55
24	5,81	6,34	6,87
25	6,11	6,65	7,19
26	6,39	6,94	7,49
27	6,66	7,22	7,78
28	6,92	7,49	8,07
29	7,17	7,76	8,34
30	7,41	8,01	8,60
31	7,64	8,25	8,85
32	7,86	8,47	9,09
33	8,06	8,69	9,31
34	8,25	8,89	9,53
35	8,43	9,08	9,73
36	8,60	9,26	9,91
37	8,75	9,42	10,09
38	8,89	9,57	10,25
39	9,01	9,70	10,39
40	9,12	9,82	10,52
41	9,21	9,92	10,63
42	9,29	10,01	10,73

1-2-31 Biparietal Diameter (BPD) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

GA	BPD (mm)			GA	BPD(mm)			GA	BPD (mm)			GA	BPD (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	17.4	20.3	23.9	20w0d	43.2	47.1	50.8	28w0d	67.4	72.0	76.6	36w0d	84.2	88.9	94.2
12w1d	17.9	20.8	24.4	20w1d	43.6	47.6	51.3	28w1d	67.9	72.4	77.0	36w1d	84.4	89.1	94.4
12w2d	18.3	21.3	24.9	20w2d	44.0	48.0	51.8	28w2d	68.3	72.8	77.4	36w2d	84.6	89.3	94.7
12w3d	18.8	21.7	25.3	20w3d	44.5	48.5	52.3	28w3d	68.7	73.2	77.8	36w3d	84.8	89.5	94.9
12w4d	19.3	22.2	25.8	20w4d	44.9	48.9	52.8	28w4d	69.1	73.5	78.2	36w4d	85.0	89.7	95.1
12w5d	19.7	22.7	26.3	20w5d	45.3	49.4	53.3	28w5d	69.5	73.9	78.5	36w5d	85.1	89.9	95.3
12w6d	20.2	23.2	26.7	20w6d	45.7	49.8	53.8	28w6d	69.9	74.3	78.9	36w6d	85.3	90.1	95.5
13w0d	20.7	23.7	27.2	21w0d	46.1	50.3	54.2	29w0d	70.3	74.7	79.3	37w0d	85.5	90.3	95.7
13w1d	21.2	24.2	27.7	21w1d	46.5	50.8	54.7	29w1d	70.7	75.0	79.6	37w1d	85.7	90.5	95.9
13w2d	21.6	24.7	28.2	21w2d	46.9	51.2	55.2	29w2d	71.0	75.4	80.0	37w2d	85.8	90.7	96.1
13w3d	22.1	25.2	28.6	21w3d	47.3	51.7	55.7	29w3d	71.4	75.8	80.3	37w3d	86.0	90.8	96.3
13w4d	22.6	25.7	29.1	21w4d	47.8	52.1	56.2	29w4d	71.8	76.1	80.7	37w4d	86.1	91.0	96.5
13w5d	23.1	26.2	29.6	21w5d	48.2	52.6	56.7	29w5d	72.2	76.5	81.1	37w5d	86.3	91.2	96.7
13w6d	23.6	26.7	30.1	21w6d	48.6	53.1	57.2	29w6d	72.5	76.8	81.4	37w6d	86.4	91.4	96.8
14w0d	24.1	27.1	30.6	22w0d	49.0	53.5	57.7	30w0d	72.9	77.2	81.8	38w0d	86.6	91.5	97.0
14w1d	24.6	27.7	31.1	22w1d	49.5	54.0	58.2	30w1d	73.3	77.5	82.1	38w1d	86.8	91.7	97.2
14w2d	25.1	28.2	31.5	22w2d	49.9	54.5	58.7	30w2d	73.6	77.9	82.5	38w2d	86.9	91.8	97.3
14w3d	25.6	28.7	32.0	22w3d	50.3	54.9	59.2	30w3d	74.0	78.2	82.8	38w3d	87.0	92.0	97.5
14w4d	26.1	29.2	32.5	22w4d	50.8	55.4	59.6	30w4d	74.3	78.6	83.2	38w4d	87.2	92.2	97.6
14w5d	26.6	29.7	33.0	22w5d	51.2	55.9	60.1	30w5d	74.7	78.9	83.5	38w5d	87.3	92.3	97.7
14w6d	27.1	30.2	33.5	22w6d	51.7	56.3	60.6	30w6d	75.0	79.2	83.8	38w6d	87.4	92.5	97.9
15w0d	27.6	30.7	34.0	23w0d	52.1	56.8	61.1	31w0d	75.3	79.6	84.2	39w0d	87.6	92.6	98.0
15w1d	28.1	31.2	34.5	23w1d	52.5	57.3	61.6	31w1d	75.7	79.9	84.5	39w1d	87.7	92.8	98.1
15w2d	28.6	31.7	35.0	23w2d	53.0	57.7	62.1	31w2d	76.0	80.2	84.8	39w2d	87.8	92.9	98.3
15w3d	29.1	32.2	35.4	23w3d	53.4	58.2	62.6	31w3d	76.3	80.5	85.2	39w3d	88.0	93.1	98.4
15w4d	29.6	32.7	35.9	23w4d	53.9	58.7	63.1	31w4d	76.6	80.9	85.5	39w4d	88.1	93.2	98.5
15w5d	30.0	33.2	36.4	23w5d	54.3	59.1	63.5	31w5d	76.9	81.2	85.8	39w5d	88.2	93.4	98.6
15w6d	30.5	33.7	36.9	23w6d	54.8	59.6	64.0	31w6d	77.2	81.5	86.1	39w6d	88.3	93.5	98.7
16w0d	31.0	34.2	37.4	24w0d	55.2	60.0	64.5	32w0d	77.5	81.8	86.4	40w0d	88.5	93.7	98.8
16w1d	31.5	34.7	37.8	24w1d	55.7	60.5	65.0	32w1d	77.8	82.1	86.8	40w1d	88.6	93.8	98.9
16w2d	32.0	35.1	38.3	24w2d	56.1	60.9	65.4	32w2d	78.1	82.4	87.1	40w2d	88.8	94.0	99.0
16w3d	32.5	35.6	38.8	24w3d	56.6	61.4	65.9	32w3d	78.4	82.7	87.4	40w3d	88.9	94.1	99.1
16w4d	32.9	36.1	39.3	24w4d	57.0	61.8	66.4	32w4d	78.7	83.0	87.7	40w4d	89.0	94.3	99.2
16w5d	33.4	36.6	39.8	24w5d	57.5	62.3	66.9	32w5d	79.0	83.3	88.0	40w5d	89.2	94.4	99.3
16w6d	33.9	37.1	40.2	24w6d	57.9	62.7	67.3	32w6d	79.2	83.6	88.3	40w6d	89.3	94.6	99.4

GA	BPD (mm)			GA	BPD(mm)			GA	BPD (mm)			GA	BPD (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
17w0d	34.3	37.5	40.7	25w0d	58.3	63.2	67.8	33w0d	79.5	83.8	88.6	41w0d	89.4	94.7	99.5
17w1d	34.8	38.0	41.2	25w1d	58.8	63.6	68.2	33w1d	79.8	84.1	88.9	41w1d	89.6	94.8	99.6
17w2d	35.2	38.5	41.7	25w2d	59.2	64.1	68.7	33w2d	80.0	84.4	89.2	41w2d	89.7	95.0	99.7
17w3d	35.7	38.9	42.2	25w3d	59.7	64.5	69.1	33w3d	80.3	84.7	89.4	41w3d	89.9	95.1	99.8
17w4d	36.1	39.4	42.6	25w4d	60.1	64.9	69.6	33w4d	80.5	84.9	89.7	41w4d	90.0	95.3	99.9
17w5d	36.6	39.9	43.1	25w5d	60.5	65.4	70.0	33w5d	80.8	85.2	90.0	41w5d	90.2	95.4	100.0
17w6d	37.0	40.3	43.6	25w6d	61.0	65.8	70.5	33w6d	81.0	85.4	90.3	41w6d	90.3	95.5	100.1
18w0d	37.4	40.8	44.1	26w0d	61.4	66.2	70.9	34w0d	81.3	85.7	90.6	42w0d	90.4	95.7	100.2
18w1d	37.9	41.2	44.5	26w1d	61.9	66.7	71.3	34w1d	81.5	86.0	90.9				
18w2d	38.3	41.7	45.0	26w2d	62.3	67.1	71.8	34w2d	81.7	86.2	91.1				
18w3d	38.7	42.2	45.5	26w3d	62.8	67.5	72.2	34w3d	82.0	86.4	91.4				
18w4d	39.1	42.6	46.0	26w4d	63.2	67.9	72.6	34w4d	82.2	86.7	91.7				
18w5d	39.5	43.1	46.5	26w5d	63.6	68.3	73.0	34w5d	82.4	86.9	91.9				
18w6d	40.0	43.5	46.9	26w6d	64.1	68.8	73.4	34w6d	82.6	87.2	92.2				
19w0d	40.4	44.0	47.4	27w0d	64.5	69.2	73.9	35w0d	82.8	87.4	92.5				
19w1d	40.8	44.4	47.9	27w1d	64.9	69.6	74.3	35w1d	83.0	87.6	92.7				
19w2d	41.2	44.9	48.4	27w2d	65.3	70.0	74.7	35w2d	83.2	87.8	93.0				
19w3d	41.6	45.3	48.9	27w3d	65.8	70.4	75.1	35w3d	83.4	88.1	93.2				
19w4d	42.0	45.8	49.3	27w4d	66.2	70.8	75.5	35w4d	83.6	88.3	93.5				
19w5d	42.4	46.2	49.8	27w5d	66.6	71.2	75.9	35w5d	83.8	88.5	93.7				
19w6d	42.8	46.7	50.3	27w6d	67.0	71.6	76.3	35w6d	84.0	88.7	94.0				

1-2-32 Biparietal Diameter (BPD) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)
49	3,0	109	33,8	151	52,5	193	71,2	235	86,8	277	95,1
51	4,0	110	34,2	152	53,0	194	71,6	236	87,0	278	95,2
53	5,0	111	34,6	153	53,4	195	72,0	237	87,3	279	95,3
55	6,0	112	35,0	154	53,8	196	72,5	238	87,5	280	95,4
57	7,0	113	35,5	155	54,2	197	73,0	239	87,8	281	95,5
59	8,0	114	36,0	156	54,6	198	73,5	240	88,0	282	95,6
61	9,0	115	36,5	157	55,0	199	74,0	241	88,3	283	95,7
63	10,0	116	37,0	158	55,5	200	74,4	242	88,5	284	95,8
66	11,0	117	37,4	159	56,0	201	74,8	243	88,8	285	95,9
68	12,0	118	37,8	160	56,5	202	75,2	244	89,0	286	96,0
70	13,0	119	38,2	161	57,0	203	75,6	245	89,2	287	96,1
72	14,0	120	38,6	162	57,5	204	76,0	246	89,4	288	96,2
74	15,0	121	39,0	163	58,0	205	76,5	247	89,6	289	96,3
77	16,0	122	39,5	164	58,4	206	77,0	248	89,8	290	96,3
79	17,0	123	40,0	165	58,8	207	77,5	249	90,0	291	96,4
81	18,0	124	40,5	166	59,2	208	78,0	250	90,2	292	96,5
83	19,0	125	41,0	167	59,6	209	78,4	251	90,4	293	96,6
84	19,6	126	41,4	168	60,0	210	78,8	252	90,6	294	96,7
85	20,3	127	41,8	169	60,5	211	79,2	253	90,8	295	96,8
86	20,9	128	42,2	170	61,0	212	79,6	254	91,0	296	96,85
87	21,5	129	42,6	171	61,5	213	80,0	255	91,2	297	96,9
88	22,0	130	43,0	172	62,0	214	80,3	256	91,4	298	96,93
89	22,6	131	43,5	173	62,4	215	80,7	257	91,6	299	96,06
90	23,2	132	44,0	174	62,8	216	81,0	258	91,8	300	97,0
91	23,9	133	44,5	175	63,2	217	81,3	259	92,0		
92	24,5	134	45,0	176	63,6	218	81,7	260	92,2		
93	25,0	135	45,4	177	64,0	219	82,0	261	92,4		
94	26,0	136	45,8	178	64,5	220	82,3	262	92,6		
95	26,5	137	46,2	179	65,0	221	82,7	263	92,8		
96	27,0	138	46,6	180	65,5	222	83,0	264	93,0		
97	28,0	139	47,0	181	66,0	223	83,3	265	93,2		
98	28,5	140	47,5	182	66,4	224	83,7	266	93,4		
99	29,0	141	48,0	183	66,8	225	84,0	267	93,6		
100	29,5	142	48,5	184	67,2	226	84,3	268	93,8		
101	30,0	143	49,0	185	67,6	227	84,7	269	94,0		
102	30,5	144	49,4	186	68,0	228	85,0	270	94,2		
103	31,0	145	49,8	187	68,5	229	85,3	271	94,4		
104	31,5	146	50,2	188	69,0	230	85,5	272	94,6		
105	32,0	147	50,6	189	69,5	231	85,8	273	94,7		
106	32,5	148	51,0	190	70,0	232	86,0	274	94,8		
107	33,0	149	51,5	191	70,4	233	86,3	275	94,9		
108	33,4	150	52,0	192	70,8	234	86,6	276	95,0		

1-2-33 Biparietal Diameter (BPD) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	BPD (cm)			GA (weeks)	BPD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	2.10	2.50	2.90	27.5	6.80	7.30	7.80
13.0	2.30	2.60	3.00	28.0	6.90	7.40	7.90
13.5	2.40	2.80	3.10	28.5	7.10	7.60	8.10
14.0	2.50	2.90	3.30	29.0	7.20	7.70	8.20
14.5	2.70	3.10	3.50	29.5	7.30	7.80	8.40
15.0	2.80	3.20	3.60	30.0	7.40	8.00	8.50
15.5	3.00	3.40	3.80	30.5	7.60	8.10	8.60
16.0	3.10	3.50	3.90	31.0	7.70	8.20	8.80
16.5	3.30	3.70	4.10	31.5	7.80	8.30	8.90
17.0	3.50	3.90	4.30	32.0	7.90	8.50	9.00
17.5	3.60	4.00	4.50	32.5	8.00	8.60	9.10
18.0	3.80	4.20	4.60	33.0	8.10	8.70	9.20
18.5	4.00	4.40	4.80	33.5	8.20	8.80	9.30
19.0	4.10	4.60	5.00	34.0	8.30	8.90	9.50
19.5	4.30	4.70	5.20	34.5	8.40	9.00	9.60
20.0	4.50	4.90	5.30	35.0	8.50	9.10	9.70
20.5	4.60	5.10	5.50	35.5	8.60	9.20	9.70
21.0	4.80	5.20	5.70	36.0	8.70	9.20	9.80
21.5	4.90	5.40	5.90	36.5	8.70	9.30	9.90
22.0	5.10	5.60	6.00	37.0	8.80	9.40	10.00
22.5	5.30	5.70	6.20	37.5	8.90	9.50	10.10
23.0	5.40	5.90	6.40	38.0	8.90	9.50	10.10
23.5	5.60	6.10	6.50	38.5	9.00	9.60	10.20
24.0	5.70	6.20	6.70	39.0	9.00	9.60	10.30
24.5	5.90	6.40	6.90	39.5	9.10	9.70	10.30
25.0	6.10	6.50	7.00	40.0	9.10	9.70	10.30
25.5	6.20	6.70	7.20	40.5	9.10	9.70	10.40
26.0	6.40	6.80	7.30	41.0	9.10	9.80	10.40
26.5	6.50	7.00	7.50	41.5	9.20	9.80	10.40
27.0	6.60	7.10	7.70				

1-2-34 Biparietal Diameter (BPD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	BPD (cm)		
	5thcentile	Median	95thcentile
14	2.80	3.10	3.40
15	3.10	3.40	3.70
16	3.40	3.70	4.00
17	3.60	4.00	4.30
18	3.90	4.30	4.70
19	4.20	4.60	5.00
20	4.50	4.90	5.40
21	4.80	5.20	5.70
22	5.10	5.60	6.10
23	5.40	5.90	6.40
24	5.70	6.20	6.80
25	6.00	6.60	7.10
26	6.30	6.90	7.50
27	6.60	7.20	7.80
28	6.90	7.50	8.10
29	7.20	7.80	8.50
30	7.40	8.10	8.80
31	7.70	8.30	9.00
32	7.90	8.60	9.30
33	8.10	8.80	9.60
34	8.30	9.00	9.80
35	8.50	9.20	10.00
36	8.60	9.40	10.20
37	8.70	9.50	10.30
38	8.80	9.60	10.40
39	8.90	9.70	10.50

1-2-35 Biparietal Diameter (BPD) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	BPD (cm)		GA	BPD (cm)		GA	BPD (cm)		GA	BPD (cm)	
(weeks)	mean	±1.5SD	(weeks)	mean	±1.5SD	(weeks)	mean	±1.5SD	(weeks)	mean	±1.5SD
10w0d	1.33	0.29	17w5d	4.10	0.41	25w3d	6.51	0.50	33w1d	8.46	0.56
10w1d	1.38	0.29	17w6d	4.15	0.41	25w4d	6.55	0.50	33w2d	8.48	0.56
10w2d	1.44	0.29	18w0d	4.20	0.41	25w5d	6.59	0.50	33w3d	8.51	0.56
10w3d	1.50	0.29	18w1d	4.24	0.41	25w6d	6.63	0.50	33w4d	8.54	0.56
10w4d	1.55	0.29	18w2d	4.29	0.41	26w0d	6.67	0.50	33w5d	8.57	0.56
10w5d	1.61	0.29	18w3d	4.34	0.41	26w1d	6.71	0.50	33w6d	8.60	0.56
10w6d	1.66	0.30	18w4d	4.39	0.41	26w2d	6.75	0.50	34w0d	8.62	0.56
11w0d	1.72	0.30	18w5d	4.43	0.41	26w3d	6.80	0.50	34w1d	8.65	0.56
11w1d	1.77	0.30	18w6d	4.48	0.42	26w4d	6.84	0.50	34w2d	8.68	0.56
11w2d	1.83	0.30	19w0d	4.53	0.42	26w5d	6.88	0.50	34w3d	8.70	0.56
11w3d	1.88	0.30	19w1d	4.57	0.42	26w6d	6.92	0.51	34w4d	8.73	0.56
11w4d	1.93	0.30	19w2d	4.62	0.42	27w0d	6.95	0.51	34w5d	8.75	0.56
11w5d	1.99	0.32	19w3d	4.67	0.42	27w1d	6.99	0.51	34w6d	8.78	0.56
11w6d	2.04	0.32	19w4d	4.71	0.42	27w2d	7.03	0.51	35w0d	8.80	0.56
12w0d	2.09	0.32	19w5d	4.76	0.42	27w3d	7.07	0.51	35w1d	8.83	0.57
12w1d	2.15	0.32	19w6d	4.80	0.42	27w4d	7.11	0.51	35w2d	8.85	0.57
12w2d	2.20	0.32	20w0d	4.85	0.44	27w5d	7.15	0.51	35w3d	8.87	0.57
12w3d	2.25	0.32	20w1d	4.90	0.44	27w6d	7.19	0.51	35w4d	8.90	0.57
12w4d	2.31	0.32	20w2d	4.94	0.44	28w0d	7.23	0.51	35w5d	8.92	0.57
12w5d	2.36	0.33	20w3d	4.99	0.44	28w1d	7.27	0.51	35w6d	8.94	0.57
12w6d	2.41	0.33	20w4d	5.03	0.44	28w2d	7.30	0.51	36w0d	8.96	0.57
13w0d	2.46	0.33	20w5d	5.08	0.44	28w3d	7.34	0.51	36w1d	8.98	0.57
13w1d	2.52	0.33	20w6d	5.12	0.44	28w4d	7.38	0.53	36w2d	9.00	0.57
13w2d	2.57	0.33	21w0d	5.17	0.44	28w5d	7.42	0.53	36w3d	9.02	0.57
13w3d	2.62	0.33	21w1d	5.21	0.44	28w6d	7.45	0.53	36w4d	9.04	0.57
13w4d	2.67	0.35	21w2d	5.26	0.45	29w0d	7.49	0.53	36w5d	9.06	0.57
13w5d	2.72	0.35	21w3d	5.30	0.45	29w1d	7.53	0.53	36w6d	9.08	0.57
13w6d	2.77	0.35	21w4d	5.35	0.45	29w2d	7.56	0.53	37w0d	9.10	0.57
14w0d	2.82	0.35	21w5d	5.39	0.45	29w3d	7.60	0.53	37w1d	9.12	0.57
14w1d	2.87	0.35	21w6d	5.44	0.45	29w4d	7.64	0.53	37w2d	9.14	0.57
14w2d	2.93	0.35	22w0d	5.48	0.45	29w5d	7.67	0.53	37w3d	9.15	0.57
14w3d	2.98	0.35	22w1d	5.52	0.45	29w6d	7.71	0.53	37w4d	9.17	0.57
14w4d	3.03	0.36	22w2d	5.57	0.45	30w0d	7.74	0.53	37w5d	9.18	0.57
14w5d	3.08	0.36	22w3d	5.61	0.45	30w1d	7.78	0.53	37w6d	9.20	0.57
14w6d	3.13	0.36	22w4d	5.66	0.47	30w2d	7.81	0.53	38w0d	9.21	0.57
15w0d	3.18	0.36	22w5d	5.70	0.47	30w3d	7.85	0.54	38w1d	9.23	0.57
15w1d	3.23	0.36	22w6d	5.74	0.47	30w4d	7.88	0.54	38w2d	9.24	0.57
15w2d	3.28	0.36	23w0d	5.79	0.47	30w5d	7.92	0.54	38w3d	9.26	0.59
15w3d	3.33	0.36	23w1d	5.83	0.47	30w6d	7.95	0.54	38w4d	9.27	0.59
15w4d	3.38	0.38	23w2d	5.87	0.47	31w0d	7.98	0.54	38w5d	9.28	0.59
15w5d	3.42	0.38	23w3d	5.92	0.47	31w1d	8.02	0.54	38w6d	9.29	0.59
15w6d	3.47	0.38	23w4d	5.96	0.47	31w2d	8.05	0.54	39w0d	9.30	0.59

GA (weeks)	BPD (cm)		GA (weeks)	BPD (cm)		GA (weeks)	BPD (cm)		GA (weeks)	BPD (cm)	
	mean	±1.5SD		mean	±1.5SD		mean	±1.5SD		mean	±1.5SD
16w0d	3.52	0.38	23w5d	6.00	0.47	31w3d	8.08	0.54	39w1d	9.31	0.59
16w1d	3.57	0.38	23w6d	6.05	0.48	31w4d	8.12	0.54	39w2d	9.32	0.59
16w2d	3.62	0.38	24w0d	6.09	0.48	31w5d	8.15	0.54	39w3d	9.33	0.59
16w3d	3.67	0.38	24w1d	6.13	0.48	31w6d	8.18	0.54	39w4d	9.34	0.59
16w4d	3.72	0.38	24w2d	6.17	0.48	32w0d	8.21	0.54	39w5d	9.35	0.59
16w5d	3.77	0.39	24w3d	6.22	0.48	32w1d	8.24	0.54	39w6d	9.36	0.59
16w6d	3.81	0.39	24w4d	6.26	0.48	32w2d	8.27	0.54	40w0d	9.36	0.59
17w0d	3.86	0.39	24w5d	6.30	0.48	32w3d	8.31	0.54			
17w1d	3.91	0.39	24w6d	6.34	0.48	32w4d	8.34	0.56			
17w2d	3.96	0.39	25w0d	6.39	0.48	32w5d	8.37	0.56			
17w3d	4.01	0.39	25w1d	6.43	0.48	32w6d	8.40	0.56			
17w4d	4.05	0.39	25w2d	6.47	0.50	33w0d	8.43	0.56			

1-2-36 Biparietal Diameter (BPD) SABBAGHA

Reference: Sabbagha R.E., Barton B.A., Barton F.B., Kingas E., Orgill J., Turner J.H.
"Sonar biparietal diameter II. Predictive of three fetal growth patterns leading to a closer assessment of gestational age and neonatal weight"
American Journal of Obstetrics and Gynecology; October 15; 1976; pp.485-490

GA (weeks)	BPD (cm)			GA (weeks)	BPD (cm)		
	5%	50%	95%		5%	50%	95%
16	3.10	3.70	4.50	29	6.80	7.50	8.30
17	3.40	4.00	4.70	30	7.10	7.80	8.60
18	3.70	4.30	4.90	31	7.30	8.00	8.80
19	3.90	4.50	5.10	32	7.50	8.30	9.00
20	4.20	4.70	5.30	33	7.70	8.50	9.10
21	4.50	5.00	5.50	34	7.90	8.70	9.30
22	4.90	5.30	5.80	35	8.20	8.80	9.60
23	5.20	5.60	6.20	36	8.30	9.00	9.70
24	5.50	5.90	6.60	37	8.40	9.20	9.80
25	5.80	6.20	7.00	38	8.50	9.30	9.90
26	6.10	6.60	7.30	39	8.70	9.40	10.00
27	6.40	6.90	7.60	40	8.90	9.50	10.10
28	6.60	7.20	7.90				

1-2-37 Biparietal Diameter (BPD) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y. Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo "Standard Values of Ultrasonographic Fetal Biometry" Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Input Unit:	w (weeks)	Min Range:	10.0 weeks
Output Unit:	cm	Max Range:	42.0 weeks

GA (weeks)	BPD (cm)		
	-1.64SD	Mean	+1.64SD
10	1.05	1.43	1.81
11	1.37	1.76	2.15
12	1.70	2.10	2.50
13	2.04	2.44	2.85
14	2.37	2.78	3.20
15	2.70	3.12	3.55
16	3.03	3.46	3.90
17	3.35	3.80	4.24
18	3.68	4.13	4.58
19	4.00	4.46	4.92
20	4.32	4.79	5.26
21	4.63	5.11	5.59
22	4.93	5.42	5.91
23	5.23	5.73	6.23
24	5.52	6.03	6.53
25	5.80	6.32	6.84
26	6.08	6.60	7.13
27	6.34	6.87	7.41
28	6.59	7.14	7.68
29	6.83	7.39	7.94
30	7.06	7.63	8.19
31	7.28	7.85	8.42
32	7.48	8.06	8.65
33	7.67	8.26	8.85
34	7.85	8.45	9.04
35	8.01	8.61	9.22
36	8.15	8.76	9.38
37	8.27	8.90	9.52
38	8.38	9.01	9.65
39	8.46	9.11	9.75
40	8.53	9.18	9.84
41	8.58	9.24	9.90
42	8.60	9.28	9.95

1-2-38 Biparietal Diameter (BPD) TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

Table values are derived from the graphs of the publication.

GA (days)	BPD (mm)		
	5%	50%	95%
84	13,88	19,58	24,55
91	17,61	22,99	27,60
98	21,26	26,41	30,74
105	24,83	29,82	33,97
112	28,31	33,20	37,27
119	31,70	36,54	40,62
126	35,00	39,86	43,99
133	38,22	43,14	47,38
140	41,35	46,37	50,77
147	44,39	49,56	54,15
154	47,35	52,70	57,49
161	50,22	55,78	60,79
168	53,00	58,80	64,03
175	55,69	61,75	67,20
182	58,30	64,63	70,28
189	60,83	67,42	73,27
196	63,26	70,13	76,14
203	65,61	72,75	78,90
210	67,87	75,27	81,53
217	70,05	77,68	84,01
224	72,14	79,97	86,35
231	74,14	82,14	88,53
238	76,05	84,18	90,54
245	77,88	86,07	92,37
252	79,62	87,82	94,02
259	81,27	89,41	95,48
266	82,84	90,84	96,75
273	84,32	92,08	97,81
280	85,72	93,14	98,67
287	87,02	94,01	99,31

1-2-39 Clavicula (CLAV) YARKONI

Reference: Yarkoni S., Schmidt W., Jeanty P., Reece A., Hobbins J.C.
"Clavicular Measurement: A New Biometric Parameter for Fetal Evaluation"
Journal of Ultrasound in Medicine 4:467-470, September 1985.

$$Clav = 0{,}1118303 + 0{,}09788639 \times GA$$

Input Unit: weeks
Output Unit: cm
Min Range: 15.0 weeks
Max Range: 40.0 weeks

Standard Deviation: 2.92 cm

GA (weeks)	Clav (cm)		
	5%	50%	95%
15	1.10	1.60	2.10
16	1.20	1.70	2.20
17	1.30	1.80	2.30
18	1.40	1.90	2.40
19	1.50	2.00	2.50
20	1.60	2.10	2.60
21	1.70	2.20	2.70
22	1.80	2.30	2.80
23	1.90	2.40	2.90
24	2.00	2.50	3.00
25	2.10	2.60	3.10
26	2.20	2.70	3.20
27	2.30	2.80	3.30
28	2.40	2.90	3.40
29	2.50	3.00	3.50
30	2.60	3.10	3.60
31	2.70	3.20	3.70
32	2.80	3.30	3.80
33	2.90	3.40	3.90
34	3.00	3.50	4.00
35	3.10	3.60	4.10
36	3.20	3.70	4.20
37	3.30	3.80	4.30
38	3.40	3.90	4.40
39	3.50	4.00	4.50
40	3.60	4.10	4.60

1-2-40 Cisterna Magna (CM) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	CM (cm)		
	5%	50%	95%
14	1.9	3.5	5.3
15	2.1	3.8	5.7
16	2.4	4.1	6.0
17	2.6	4.3	6.3
18	2.8	4.6	6.6
19	3.1	4.9	6.9
20	3.3	5.1	7.2
21	3.5	5.4	7.5
22	3.7	5.6	7.7
23	3.9	5.8	8.0
24	4.1	6.0	8.2
25	4.3	6.2	8.5
26	4.4	6.4	8.7
27	4.6	6.6	8.9
28	4.7	6.8	9.1
29	4.9	6.9	9.3
30	5.0	7.0	9.4
31	5.1	7.2	9.6
32	5.2	7.3	9.7
33	5.3	7.4	9.8
34	5.3	7.5	9.9
35	5.4	7.5	10.0
36	5.4	7.6	10.0
37	5.4	7.6	10.1
38	5.5	7.6	10.1
39	5.5	7.6	10.1

1-2-41 Crown-Rump Length (CRL) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (w+d)	CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)	CRL (cm)
5w2d	0.1	8w3d	2.0	11w4d	5.2
5w3d	0.2	8w4d	2.1	11w5d	5.5
5w4d	0.3	8w5d	2.2	11w6d	5.6
5w5d	0.3	8w6d	2.2	12w0d	5.7
5w6d	0.4	9w0d	2.3	12w1d	5.8
6w0d	0.4	9w1d	2.4	12w2d	6.0
6w1d	0.5	9w2d	2.6	12w3d	6.1
6w2d	0.6	9w3d	2.7	12w4d	6.3
6w3d	0.7	9w4d	2.8	12w5d	6.4
6w4d	0.8	9w5d	2.9	12w6d	6.5
6w5d	0.9	9w6d	3.1	13w0d	6.8
6w6d	1.0	10w0d	3.4	13w1d	7.0
7w0d	1.1	10w1d	3.6	13w2d	7.2
7w1d	1.1	10w2d	3.7	13w3d	7.4
7w2d	1.2	10w3d	3.8	13w4d	7.6
7w3d	1.2	10w4d	3.9	13w5d	7.7
7w4d	1.3	10w5d	3.9	13w6d	8.0
7w5d	1.4	10w6d	4.0	14w0d	8.1
7w6d	1.5	11w0d	4.4	14w1d	8.4
8w0d	1.7	11w1d	4.5	14w2d	8.5
8w1d	1.8	11w2d	4.7	14w3d	8.6
8w2d	1.9	11w3d	4.8	14w4d	8.7

1-2-42 Crown-Rump Length (CRL) HADLOCK

Reference: Hadlock F., Shah Y.P, Kanon D.J., Math B., Lindsey J.V., "Fetal Crown-Rump Length: Reevaluation of Relation to Menstrual Age (5-18 weeks) with High-Resolution Real-Time Ultrasound." Radiology, 182:501-505, 1992.

$$CRL = e^{-6{,}983 + 1{,}4498 \times GA - 0{,}078345 \times GA^2 + 0{,}001501 \times GA^3}$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 5w0d
Max Range: 18w0d

GA (Age)	CM (cm)			GA (Age)	CM (cm)			GA (Age)	CM (cm)		
	-1SD	Mean	+1SD		-1SD	Mean	+1SD		-1SD	Mean	+1SD
5w0d	0.20	0.22	0.24	9w3d	2.45	2.66	2.88	13w6d	7.20	7.82	8.45
5w1d	0.23	0.25	0.27	9w4d	2.58	2.81	3.03	14w0d	7.34	7.98	8.62
5w2d	0.25	0.28	0.30	9w5d	2.72	2.96	3.19	14w1d	7.49	8.14	8.79
5w3d	0.28	0.31	0.33	9w6d	2.86	3.11	3.35	14w2d	7.63	8.30	8.96
5w4d	0.31	0.34	0.37	10w0d	3.00	3.26	3.52	14w3d	7.77	8.45	9.13
5w5d	0.35	0.38	0.41	10w1d	3.14	3.42	3.69	14w4d	7.91	8.60	9.29
5w6d	0.38	0.42	0.45	10w2d	3.29	3.58	3.86	14w5d	8.05	8.75	9.45
6w0d	0.42	0.46	0.49	10w3d	3.44	3.74	4.04	14w6d	8.19	8.90	9.61
6w1d	0.46	0.50	0.54	10w4d	3.59	3.90	4.21	15w0d	8.32	9.05	9.77
6w2d	0.51	0.55	0.60	10w5d	3.74	4.07	4.39	15w1d	8.45	9.19	9.93
6w3d	0.56	0.61	0.65	10w6d	3.90	4.24	4.57	15w2d	8.59	9.33	10.08
6w4d	0.61	0.66	0.71	11w0d	4.05	4.41	4.76	15w3d	8.72	9.47	10.23
6w5d	0.66	0.72	0.78	11w1d	4.21	4.58	4.94	15w4d	8.85	9.62	10.38
6w6d	0.72	0.79	0.85	11w2d	4.37	4.75	5.13	15w5d	8.97	9.75	10.53
7w0d	0.79	0.85	0.92	11w3d	4.53	4.92	5.32	15w6d	9.10	9.89	10.68
7w1d	0.85	0.93	1.00	11w4d	4.69	5.10	5.50	16w0d	9.23	10.03	10.83
7w2d	0.92	1.00	1.08	11w5d	4.85	5.27	5.69	16w1d	9.35	10.17	10.98
7w3d	1.00	1.08	1.17	11w6d	5.01	5.45	5.88	16w2d	9.48	10.30	11.13
7w4d	1.07	1.17	1.26	12w0d	5.17	5.62	6.07	16w3d	9.60	10.44	11.27
7w5d	1.16	1.26	1.36	12w1d	5.33	5.80	6.26	16w4d	9.73	10.57	11.42
7w6d	1.24	1.35	1.46	12w2d	5.49	5.97	6.45	16w5d	9.85	10.71	11.57
8w0d	1.33	1.45	1.56	12w3d	5.65	6.15	6.64	16w6d	9.98	10.85	11.71
8w1d	1.43	1.55	1.67	12w4d	5.81	6.32	6.82	17w0d	10.10	10.98	11.86
8w2d	1.52	1.66	1.79	12w5d	5.97	6.49	7.01	17w1d	10.23	11.12	12.01
8w3d	1.63	1.77	1.91	12w6d	6.13	6.66	7.20	17w2d	10.36	11.26	12.16
8w4d	1.73	1.88	2.03	13w0d	6.29	6.83	7.38	17w3d	10.49	11.40	12.31
8w5d	1.84	2.00	2.16	13w1d	6.44	7.00	7.56	17w4d	10.62	11.54	12.47
8w6d	1.96	2.13	2.30	13w2d	6.60	7.17	7.74	17w5d	10.75	11.69	12.62
9w0d	2.08	2.26	2.44	13w3d	6.75	7.34	7.92	17w6d	10.89	11.83	12.78
9w1d	2.20	2.39	2.58	13w4d	6.90	7.50	8.10	18w0d	11.02	11.98	12.94
9w2d	2.32	2.52	2.73	13w5d	7.05	7.66	8.28				

1-2-43 Crown-Rump Length (CRL) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann). "Ultrasound Diagnosis in Obstetrics and Gynecology." Springer-Verlag, New York, 1986, p.438

GA (w+d)	CRL (cm)			GA (w+d)	CRL (cm)		
	-2SD	Mean	+2SD		-2SD	Mean	+2SD
6w1d	0.23	0.69	1.15	12w2d	4.00	5.56	7.13
6w2d	0.28	0.76	1.25	12w4d	4.32	5.94	7.55
6w3d	0.32	0.83	1.34	12w6d	4.64	6.31	7.98
6w4d	0.36	0.90	1.43	13w2d	5.13	6.88	8.63
6w5d	0.39	0.96	1.52	13w4d	5.56	7.26	9.06
6w6d	0.43	1.02	1.61	13w6d	5.78	7.63	9.48
7w0d	0.47	1.08	1.69	14w2d	6.25	8.18	10.11
7w1d	0.50	1.14	1.78	14w4d	6.56	8.54	10.52
7w2d	0.54	1.21	1.87	14w6d	6.86	8.89	10.92
7w3d	0.58	1.27	1.96	15w2d	7.28	9.39	11.50
7w4d	0.62	1.33	2.05	15w4d	7.55	9.71	11.87
7w5d	0.66	1.40	2.14	15w6d	7.80	10.01	12.22
7w6d	0.70	1.47	2.24	16w2d	8.15	10.44	12.73
8w0d	0.75	1.54	2.34	16w4d	8.36	10.70	13.04
8w1d	0.80	1.62	2.44	16w6d	8.56	10.95	13.34
8w3d	0.91	1.78	2.65	17w2d	8.83	11.30	13.77
8w5d	1.03	1.96	2.88	17w4d	8.99	11.51	14.04
9w0d	1.17	2.15	3.12	17w6d	9.15	11.72	14.29
9w2d	1.33	2.36	3.39	18w2d	9.35	12.00	14.65
9w4d	1.51	2.59	3.66	18w4d	9.48	12.19	14.89
9w6d	1.70	2.83	3.96	18w6d	9.62	12.37	15.12
10w2d	2.03	3.24	4.44	19w1d	9.75	12.55	15.36
10w4d	2.27	3.53	4.79	19w3d	9.89	12.74	15.60
10w6d	2.52	3.83	5.14	19w5d	10.03	12.94	15.85
11w2d	2.93	4.32	5.71	20w0d	10.20	13.16	16.12
11w4d	3.22	4.66	6.13	20w1d	10.29	13.28	16.26
11w6d	3.53	5.02	6.51	20w2d	10.40	13.40	16.41

1-2-44 Crown-Rump Length (CRL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

GA (weeks)	CRL (cm)		
	5%	50%	95%
7w0d	0.57	1.01	1.72
7w2d	0.60	1.05	1.64
7w4d	0.65	1.13	1.66
7w6d	0.72	1.25	1.75
8w1d	0.81	1.40	1.91
8w3d	0.91	1.58	2.13
8w5d	1.03	1.78	2.40
9w0d	1.17	2.00	2.70
9w2d	1.33	2.25	3.03
9w4d	1.51	2.50	3.37
9w6d	1.71	2.76	3.73
10w1d	1.92	3.03	4.07
10w3d	2.15	3.31	4.41
10w5d	2.41	3.58	4.71
11w0d	2.67	3.84	4.98
11w2d	2.96	4.09	5.21
11w4d	3.27	4.33	5.38

1-2-45 Crown-Rump Length (CRL) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	CRL (mm)	GA (d)	CRL (mm)
44	7,0	72	35,0
45	7,5	73	36,5
46	8,0	74	38,0
47	8,5	75	39,5
48	9,0	76	41,0
49	9,5	77	42,5
50	10,0	78	44,0
51	11,0	79	45,5
52	12,0	80	47,0
53	13,0	81	48,0
54	14,0	82	49,0
55	15,0	83	50,5
56	16,0	84	52,0
57	17,0	85	54,0
58	18,0	86	56,0
59	19,0	87	58,0
60	20,0	88	60,0
61	21,0	89	62,0
62	22,0	90	64,0
63	23,0	91	66,0
64	24,0	92	68,0
65	25,0	93	70,0
66	27,0	94	72,0
67	28,0	95	74,0
68	29,0	96	76,0
69	30,5	97	78,0
70	32,0	98	80,0
71	33,5	99	83,0

1-2-46 Crown-Rump Length (CRL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA (weeks)	CRL (cm)		GA (weeks)	CRL (cm)	
	Mean	±1.5SD		Mean	±1.5SD
7w0d	0.87	0.24	10w0d	3.00	0.72
7w1d	0.91	0.26	10w1d	3.15	0.74
7w2d	0.96	0.29	10w2d	3.31	0.77
7w3d	1.02	0.30	10w3d	3.47	0.78
7w4d	1.08	0.33	10w4d	3.63	0.81
7w5d	1.15	0.35	10w5d	3.79	0.83
7w6d	1.22	0.38	10w6d	3.95	0.86
8w0d	1.30	0.39	11w0d	4.12	0.87
8w1d	1.39	0.42	11w1d	4.28	0.90
8w2d	1.49	0.44	11w2d	4.45	0.92
8w3d	1.59	0.47	11w3d	4.62	0.95
8w4d	1.69	0.48	11w4d	4.79	0.96
8w5d	1.80	0.51	11w5d	4.96	0.99
8w6d	1.92	0.53	11w6d	5.13	1.01
9w0d	2.04	0.56	12w0d	5.30	1.04
9w1d	2.16	0.57	12w1d	5.48	1.05
9w2d	2.29	0.60	12w2d	5.65	1.08
9w3d	2.43	0.62	12w3d	5.82	1.10
9w4d	2.57	0.65	12w4d	5.99	1.13
9w5d	2.71	0.68	12w5d	6.16	1.14
9w6d	2.85	0.69	12w6d	6.32	1.17

1-2-47 Crown-Rump Length (CRL) ROBINSON

Reference: Robinson H.P., Fleming J.E.E.,
"A critical evaluation of Sonar "Crown-Rump Length" measurements"
British Journal of Obstetrics and Gynecology; Volume 82:702-710, September 1975

GA	CRL (cm)		GA	CRL (cm)	
(w+d)	Mean	±2SD	(w+d)	Mean	±2SD
6w2d	0.67	0.29	10w2d	3.55	0.69
6w3d	0.74	0.31	10w3d	3.69	0.70
6w4d	0.80	0.32	10w4d	3.84	0.72
6w5d	0.87	0.34	10w5d	3.99	0.73
6w6d	0.95	0.35	10w6d	4.14	0.74
7w0d	1.02	0.37	11w0d	4.30	0.76
7w1d	1.10	0.38	11w1d	4.46	0.77
7w2d	1.18	0.39	11w2d	4.62	0.79
7w3d	1.26	0.41	11w3d	4.78	0.80
7w4d	1.35	0.42	11w4d	4.95	0.81
7w5d	1.44	0.44	11w5d	5.12	0.83
7w6d	1.53	0.45	11w6d	5.29	0.84
8w0d	1.63	0.46	12w0d	5.47	0.86
8w1d	1.73	0.48	12w1d	5.65	0.87
8w2d	1.83	0.49	12w2d	5.83	0.88
8w3d	1.93	0.51	12w3d	6.01	0.90
8w4d	2.04	0.52	12w4d	6.20	0.91
8w5d	2.15	0.53	12w5d	6.39	0.93
8w6d	2.26	0.55	12w6d	6.59	0.94
9w0d	2.38	0.56	13w0d	6.78	0.95
9w1d	2.50	0.58	13w1d	6.98	0.97
9w2d	2.62	0.59	13w2d	7.18	0.98
9w3d	2.74	0.60	13w3d	7.39	1.00
9w4d	2.87	0.62	13w4d	7.60	1.01
9w5d	3.00	0.63	13w5d	7.81	1.02
9w6d	3.13	0.65	13w6d	8.02	1.04
10w0d	3.27	0.66	14w0d	8.24	1.05
10w1d	3.40	0.67			

1-2-48 Crown-Rump Length (CRL) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA	CRL (cm)			GA	CRL (cm)		
(w+d)	-1.64SD	Mean	+1.64SD	(w+d)	-1.64SD	Mean	+1.64SD
7w0d	0.51	0.79	1.07	10w1d	2.09	2.93	3.76
7w1d	0.55	0.86	1.17	10w2d	2.19	3.05	3.91
7w2d	0.60	0.93	1.27	10w3d	2.29	3.18	4.06
7w3d	0.65	1.01	1.37	10w4d	2.40	3.31	4.22
7w4d	0.71	1.09	1.47	10w5d	2.51	3.44	4.38
7w5d	0.76	1.17	1.58	10w6d	2.62	3.58	4.54
7w6d	0.82	1.25	1.69	11w0d	2.73	3.71	4.70
8w0d	0.88	1.34	1.80	11w1d	2.84	3.85	4.86
8w1d	0.95	1.43	1.91	11w2d	2.96	4.00	5.03
8w2d	1.01	1.52	2.03	11w3d	3.08	4.14	5.20
8w3d	1.08	1.61	2.15	11w4d	3.20	4.29	5.37
8w4d	1.15	1.71	2.27	11w5d	3.33	4.44	5.55
8w5d	1.22	1.81	2.39	11w6d	3.45	4.59	5.73
8w6d	1.30	1.91	2.52	12w0d	3.58	4.74	5.91
9w0d	1.38	2.01	2.65	12w1d	3.72	4.90	6.09
9w1d	1.46	2.12	2.78	12w2d	3.85	5.06	6.27
9w2d	1.54	2.23	2.91	12w3d	3.99	5.22	6.46
9w3d	1.63	2.34	3.05	12w4d	4.13	5.39	6.65
9w4d	1.72	2.45	3.18	12w5d	4.27	5.55	6.84
9w5d	1.81	2.57	3.32	12w6d	4.41	5.72	7.03
9w6d	1.90	2.68	3.47	13w0d	4.56	5.89	7.23
10w0d	1.99	2.80	3.61				

1-2-49 Crown-Rump Length (CRL) TOKYO

NOTE: Fetal Age table as shown in Section 1-1-57 on page 1-57 is used to plot the graph! No deviation values are calculated.

GA (days)	CRL (mm)	GA (days)	CRL (mm)
55	13	73	32
56	14	74	33
57	15	74	34
58	16	75	35
59	17	76	36
60	18	77	37
61	19	78	38
62	20	78	39
63	21	79	40
64	22	80	41
65	23	81	42
66	24	81	43
67	25	82	44
68	26	83	45
68	27	84	46
69	28	84	47
70	29	85	48
71	30	86	49
72	31	86	50

1-2-50 Ductus Venosus (DV PI) BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DVPI = -0{,}001 \bullet GA + 0{,}6625$$

Input Unit: GA in w [weeks]
Output Unit: DV PI [index]
SD: 0,14

1-2-51 Ductus Venosus (DV PLI) BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DVPLI = -0{,}006 \bullet GA + 0{,}5197$$

Input Unit: GA in w [weeks]
Output Unit: DV PLI [index]
SD: 0,1

1-2-52 Ductus Venosus (DV PVIV) BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DVPVIV = -0{,}0006 \bullet GA + 0{,}592$$

Input Unit: GA in w [weeks]
Output Unit: DV PVIV [index]
SD: 0,12

1-2-53 Ductus Venosus (DV S/a) BASCHAT

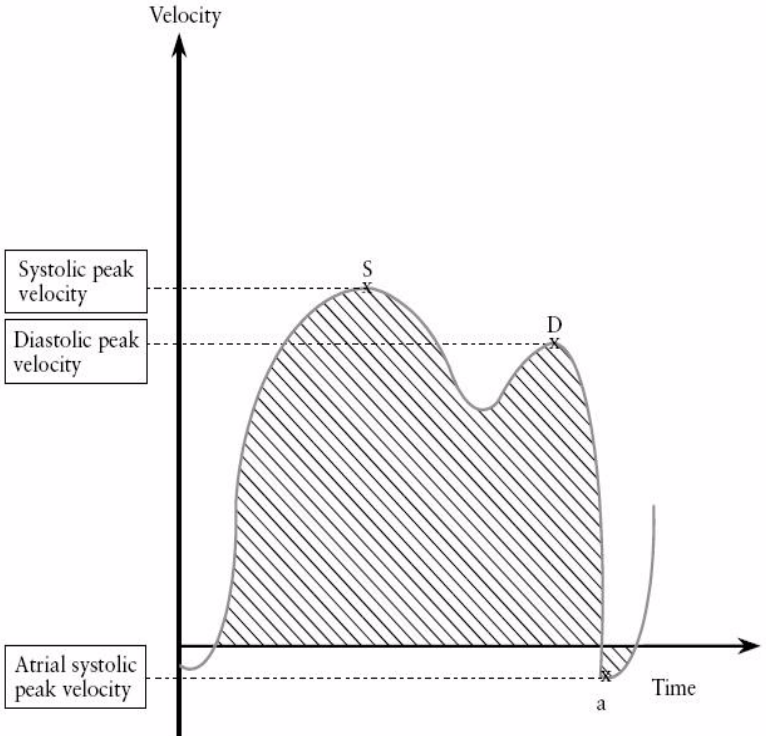
Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DV_{Sa} = -0{,}0023 \bullet GA + 2{,}2073$$

Input Unit: GA in w [weeks]
Output Unit: DV S/a[index]
SD: 0,5

1-2-54 Ductus Venosus Figure BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.



S...Systolic peak
D...Diastolic peak
a...Atrial systolic peak velocity

Figure 1 Schematic representation of a venous flow velocity waveform and definition of Doppler indices reported in the literature. a, atrial systolic peak flow velocity; D, diastolic peak blood flow velocity; DV ductus venosus; PLI, preload index; s, systolic peak blood flow velocity; TAMX, time-averaged maximum velocity.

Ductus Venosus:

DV PLI = (S - a)/D

DV S/A = S/a

PVIV = (S - a)/D

PI = (S - a)/ TAMX or PI = (S - a)/TAMean (dependent on Measure Setup Settings)

1-2-55 Femur Length (FL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

Input Unit: GA [week]
Output Unit: FL mean [cm] +/- SD[cm]
Min Range: 11 weeks
Max Range: 41 weeks

GA (week)	FL (cm)		GA (week)	FL (cm)	
	mean	±2SD		mean	±2SD
11	0,80	0,20	27	5,00	0,50
12	1,00	0,25	28	5,40	0,40
13	1,10	0,25	29	5,50	0,55
14	1,50	0,30	30	5,80	0,60
15	1,70	0,35	31	5,90	0,55
16	2,20	0,40	32	6,20	0,60
17	2,50	0,40	33	6,50	0,40
18	2,80	0,50	34	6,60	0,40
19	3,00	0,50	35	6,70	0,60
20	3,20	0,60	36	6,90	0,60
21	3,40	0,60	37	7,20	0,50
22	3,70	0,50	38	7,30	0,55
23	4,30	0,50	39	7,50	0,60
24	4,50	0,40	40	7,60	0,40
25	4,80	0,50	41	7,70	0,50
26	4,90	0,50			

1-2-56 Femur Length (FL) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 12 weeks
Max Range: 41 weeks

GA (Week)	FL (mm)				
	3%	10%	50%	90%	97%
12	2,76	3,89	6,33	8,79	10,00
13	6,09	7,29	9,88	12,42	13,65
14	9,40	10,65	13,33	16,00	17,27
15	12,56	13,87	16,66	19,44	20,77
16	15,70	17,00	19,95	22,80	24,18
17	18,74	20,12	23,12	26,13	27,53
18	21,69	23,14	26,23	29,30	30,80
19	24,59	26,06	29,25	32,44	33,91
20	27,42	28,94	32,23	35,48	37,03
21	30,12	31,72	35,05	38,41	40,00
22	32,83	34,39	37,87	41,30	42,91
23	35,34	37,00	40,50	44,03	45,71
24	37,89	39,58	43,16	46,75	48,42
25	40,33	42,04	45,69	49,36	51,08
26	42,66	44,40	48,17	51,88	53,62
27	44,95	46,72	50,53	54,32	56,09
28	47,13	48,94	52,80	56,64	58,45
29	49,22	51,06	54,94	58,91	60,72
30	51,30	53,14	57,13	61,08	62,92
31	53,26	55,13	59,15	63,14	65,04
32	55,12	57,04	61,11	65,19	67,07
33	56,96	58,87	63,00	67,10	69,03
34	58,69	60,62	64,76	68,88	70,84
35	60,33	62,29	66,47	70,65	72,63
36	61,90	63,89	68,13	72,34	74,30
37	63,40	65,36	69,63	73,91	75,89
38	64,81	66,79	71,11	75,38	77,41
39	66,16	68,19	72,48	76,81	78,84
40	67,42	69,47	73,79	78,14	80,17
41	68,00	70,00	74,00	79,00	81,00

1-2-57 Femur Length (FL) CHITTY

Reference: Chitty LS, Altman DG, Henderson A, Campbell S (1994). Charts of fetal size: 4. Femur length. Br J Obstet Gynaecol 101:132-135

Input Unit: w [weeks]
Output Unit: mm
Min Range: 12 weeks
Max Range: 42 weeks

GA (weeks)	FL (mm)			SD
	5th Cent.	50th Cent.	95th Cent.	mm
12	4,8	7.7	10,6	1,8
13	7,9	10.9	13,9	1,8
14	11,0	14.1	17,2	1,9
15	14,0	17.2	20,4	1,9
16	17,0	20.3	23,6	2,0
17	19,9	23.3	26,7	2,1
18	22,8	26.3	29,7	2,1
19	25,6	29.2	32,8	2,2
20	28,4	32.1	35,7	2,2
21	31,1	34.9	38,6	2,3
22	33,8	37.6	41,5	2,3
23	36,4	40.3	44,3	2,4
24	38,9	42.9	47,0	2,5
25	41,4	45.5	49,6	2,5
26	43,7	48.0	52,2	2,6
27	46,0	50.4	54,7	2,6
28	48,3	52.7	57,1	2,7
29	50,4	55.0	59,5	2,8
30	52,5	57.1	61,7	2,8
31	54,5	59.2	63,9	2,9
32	56,4	61.2	66,0	2,9
33	58,2	63.1	68,0	3,0
34	59,9	64.9	69,9	3,0
35	61,5	66.6	71,7	3,1
36	63,0	68.2	73,4	3,2
37	64,4	69.7	75,0	3,2
38	65,7	71.1	76,5	3,3
39	66,9	72.4	77,9	3,3
40	68,0	73.6	79,1	3,4
41	68,9	74.6	80,3	3,5
42	69,8	75.6	81,3	3,5

1-2-58 Femur Length (FL) HADLOCK

Reference: *Hadlock F.P., Deter R.L.; Harrist R.B., Park S.K.*
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$FL = -3{,}91 + 0{,}427 \times GA - 0{,}0034 \times GA^2$$

Input Unit: w (week)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 0.3 cm

corresponds to: 16% … 84% (-0.3cm … +0.3cm)

GA (weeks)	FL (cm)	GA (weeks)	FL (cm)
12.0	0.70	26.5	5.00
12.5	0.90	27.0	5.10
13.0	1.10	27.5	5.20
13.5	1.20	28.0	5.40
14.0	1.40	28.5	5.50
14.5	1.60	29.0	5.60
15.0	1.70	29.5	5.70
15.5	1.90	30.0	5.80
16.0	2.00	30.5	5.90
16.5	2.20	31.0	6.00
17.0	2.40	31.5	6.10
17.5	2.50	32.0	6.20
18.0	2.70	32.5	6.30
18.5	2.80	33.0	6.40
19.0	3.00	33.5	6.50
19.5	3.10	34.0	6.60
20.0	3.30	34.5	6.70
20.5	3.40	35.0	6.80
21.0	3.50	35.5	6.90
21.5	3.70	36.0	7.00
22.0	3.80	36.5	7.10
22.5	4.00	37.0	7.20
23.0	4.10	37.5	7.30
23.5	4.20	38.0	7.40
24.0	4.40	38.5	7.40
24.5	4.50	39.0	7.50
25.0	4.60	39.5	7.60
25.5	4.70	40.0	7.70
26.0	4.90		

1-2-59 Femur Length (FL) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann)"Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

GA (weeks)	FL (cm)		
	5%	50%	95%
13	1.00	1.00	1.00
14	1.20	1.20	1.20
15	1.30	1.60	2.10
16	1.50	1.80	2.30
17	1.80	2.20	2.60
18	2.10	2.50	2.90
19	2.40	2.80	3.20
20	2.70	3.10	3.50
21	2.90	3.40	3.80
22	3.20	3.60	4.10
23	3.40	3.90	4.40
24	3.70	4.10	4.70
25	3.90	4.40	4.90
26	4.20	4.70	5.20
27	4.40	4.90	5.50
28	4.60	5.10	5.70
29	4.90	5.40	5.90
30	5.10	5.60	6.20
31	5.30	5.90	6.40
32	5.50	6.10	6.60
33	5.70	6.30	6.80
34	5.90	6.50	7.00
35	6.10	6.70	7.20
36	6.30	6.90	7.40
37	6.50	7.10	7.70
38	6.70	7.30	7.90
39	6.80	7.40	8.10
40	7.00	7.50	8.40

1-2-60 Femur Length (FL) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$FL = -2{,}5252 + 0{,}2555 \times GA + 0{,}0027566 \times GA^2 - 7{,}3286 \times GA^3 \times 10^{-5}$$

Input Unit: weeks
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	FL (cm)		
	5%	50%	95%
12	0.40	0.80	1.30
13	0.60	1.10	1.60
14	0.90	1.40	1.80
15	1.20	1.70	2.10
16	1.50	2.00	2.40
17	1.80	2.30	2.70
18	2.10	2.50	3.00
19	2.40	2.80	3.30
20	2.60	3.10	3.60
21	2.90	3.40	3.80
22	3.20	3.60	4.10
23	3.50	3.90	4.40
24	3.70	4.20	4.60
25	4.00	4.40	4.90
26	4.20	4.70	5.10
27	4.50	4.90	5.40
28	4.70	5.20	5.60
29	5.00	5.40	5.90
30	5.20	5.60	6.10
31	5.40	5.90	6.30
32	5.60	6.10	6.50
33	5.80	6.30	6.70
34	6.00	6.50	6.90
35	6.20	6.70	7.10
36	6.40	6.80	7.30
37	6.50	7.00	7.40
38	6.70	7.10	7.60
39	6.80	7.30	7.70
40	7.00	7.40	7.90

1-2-61 Femur Length (FL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

Age (weeks)	FL (cm)		
	-2SD	mean	+2SD
16	1.49	2.01	2.54
17	1.74	2.27	2.80
18	1.98	2.53	3.07
19	2.23	2.78	3.33
20	2.48	3.04	3.59
21	2.73	3.29	3.85
22	2.97	3.54	4.11
23	3.21	3.79	4.36
24	3.45	4.03	4.61
25	3.68	4.27	4.86
26	3.91	4.50	5.10
27	4.13	4.73	5.33
28	4.35	4.96	5.56
29	4.56	5.17	5.79
30	4.76	5.38	6.00
31	4.95	5.58	6.21
32	5.14	5.78	6.41
33	5.32	5.96	6.61
34	5.49	6.14	6.79
35	5.65	6.30	6.96
36	5.80	6.46	7.12
37	5.93	6.60	7.27
38	6.06	6.74	7.41
39	6.17	6.86	7.54
40	6.27	6.96	7.65
41	6.36	7.06	7.75
42	6.43	7.14	7.84

1-2-62 Femur Length (FL) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	FL(cm)		
	5%	50%	95%
12	0,41	0,70	0,98
13	0,72	1,03	1,34
14	1,03	1,36	1,69
15	1,33	1,68	2,04
16	1,63	2,00	2,37
17	1,92	2,30	2,69
18	2,21	2,61	3,00
19	2,49	2,90	3,31
20	2,76	3,19	3,61
21	3,03	3,47	3,90
22	3,30	3,74	4,18
23	3,56	4,01	4,45
24	3,81	4,26	4,72
25	4,05	4,52	4,98
26	4,29	4,76	5,23
27	4,52	5,00	5,48
28	4,75	5,23	5,71
29	4,97	5,45	5,94
30	5,18	5,67	6,16
31	5,39	5,88	6,38
32	5,59	6,09	6,58
33	5,78	6,28	6,79
34	5,96	6,47	6,98
35	6,14	6,65	7,16
36	6,31	6,83	7,34
37	6,48	7,00	7,51
38	6,64	7,16	7,68
39	6,79	7,31	7,84
40	6,93	7,46	7,99
41	7,07	7,60	8,13
42	7,20	7,73	8,26

1-2-63 Femur Length (FL) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

GA	FL (mm)			GA	FL(mm)			GA	FL (mm)			GA	FL (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	5.0	7.4	10.4	20w0d	28.9	31.8	35.2	28w0d	48.9	52.8	56.9	36w0d	63.2	68.7	72.3
12w1d	5.5	7.9	10.8	20w1d	29.3	32.2	35.6	28w1d	49.2	53.1	57.2	36w1d	63.4	68.9	72.5
12w2d	5.9	8.4	11.3	20w2d	29.7	32.6	36.0	28w2d	49.5	53.4	57.5	36w2d	63.6	69.1	72.8
12w3d	6.4	8.8	11.7	20w3d	30.1	33.0	36.4	28w3d	49.7	53.7	57.8	36w3d	63.8	69.4	73.0
12w4d	6.8	9.3	12.1	20w4d	30.4	33.4	36.8	28w4d	50.0	54.0	58.1	36w4d	64.0	69.6	73.3
12w5d	7.3	9.7	12.6	20w5d	30.8	33.8	37.2	28w5d	50.3	54.3	58.3	36w5d	64.2	69.8	73.5
12w6d	7.7	10.2	13.1	20w6d	31.2	34.2	37.7	28w6d	50.6	54.6	58.6	36w6d	64.4	70.0	73.8
13w0d	8.1	10.6	13.5	21w0d	31.6	34.6	38.1	29w0d	50.8	54.9	58.9	37w0d	64.6	70.3	74.0
13w1d	8.6	11.1	13.9	21w1d	32.0	35.0	38.5	29w1d	51.1	55.2	59.2	37w1d	64.8	70.5	74.2
13w2d	9.0	11.5	14.4	21w2d	32.4	35.4	38.9	29w2d	51.4	55.5	59.5	37w2d	64.9	70.7	74.4
13w3d	9.5	12.0	14.9	21w3d	32.8	35.8	39.3	29w3d	51.6	55.8	59.8	37w3d	65.1	70.9	74.7
13w4d	9.9	12.4	15.3	21w4d	33.2	36.2	39.7	29w4d	51.9	56.1	60.0	37w4d	65.3	71.1	74.9
13w5d	10.4	12.9	15.8	21w5d	33.6	36.6	40.1	29w5d	52.2	56.4	60.3	37w5d	65.5	71.3	75.1
13w6d	10.8	13.3	16.2	21w6d	34.0	37.0	40.5	29w6d	52.4	56.7	60.6	37w6d	65.6	71.5	75.3
14w0d	11.3	13.8	16.7	22w0d	34.4	37.4	40.9	30w0d	52.7	57.0	60.9	38w0d	65.8	71.7	75.5
14w1d	11.7	14.3	17.1	22w1d	34.8	37.8	41.3	30w1d	53.0	57.3	61.1	38w1d	66.0	71.9	75.7
14w2d	12.1	14.7	17.6	22w2d	35.2	38.1	41.7	30w2d	53.2	57.6	61.4	38w2d	66.1	72.1	75.9
14w3d	12.6	15.2	18.0	22w3d	35.6	38.5	42.1	30w3d	53.5	57.9	61.7	38w3d	66.3	72.2	76.1
14w4d	13.0	15.6	18.5	22w4d	36.0	38.9	42.5	30w4d	53.8	58.2	61.9	38w4d	66.5	72.4	76.3
14w5d	13.5	16.1	19.0	22w5d	36.4	39.3	42.9	30w5d	54.0	58.4	62.2	38w5d	66.6	72.6	76.5
14w6d	13.9	16.5	19.4	22w6d	36.8	39.7	43.3	30w6d	54.3	58.7	62.5	38w6d	66.8	72.8	76.7
15w0d	14.4	17.0	19.9	23w0d	37.2	40.1	43.7	31w0d	54.6	59.0	62.8	39w0d	67.0	73.0	76.9
15w1d	14.8	17.5	20.3	23w1d	37.5	40.5	44.1	31w1d	54.8	59.3	63.0	39w1d	67.1	73.2	77.1
15w2d	15.3	17.9	20.8	23w2d	37.9	40.9	44.5	31w2d	55.1	59.6	63.3	39w2d	67.3	73.3	77.3
15w3d	15.7	18.4	21.2	23w3d	38.3	41.3	44.9	31w3d	55.4	59.9	63.6	39w3d	67.5	73.5	77.5
15w4d	16.2	18.8	21.7	23w4d	38.7	41.7	45.3	31w4d	55.7	60.2	63.9	39w4d	67.6	73.7	77.7
15w5d	16.6	19.3	22.1	23w5d	39.1	42.1	45.7	31w5d	55.9	60.5	64.2	39w5d	67.8	73.9	77.8
15w6d	17.0	19.7	22.6	23w6d	39.4	42.5	46.1	31w6d	56.2	60.8	64.4	39w6d	68.0	74.0	78.0
16w0d	17.5	20.1	23.0	24w0d	39.8	42.9	46.6	32w0d	56.5	61.1	64.7	40w0d	68.1	74.2	78.2
16w1d	17.9	20.6	23.5	24w1d	40.2	43.2	47.0	32w1d	56.7	61.3	65.0	40w1d	68.3	74.4	78.3
16w2d	18.4	21.0	23.9	24w2d	40.6	43.6	47.4	32w2d	57.0	61.6	65.3	40w2d	68.5	74.6	78.5
16w3d	18.8	21.5	24.4	24w3d	40.9	44.0	47.8	32w3d	57.2	61.9	65.6	40w3d	68.7	74.7	78.7
16w4d	19.2	21.9	24.8	24w4d	41.3	44.4	48.2	32w4d	57.5	62.2	65.8	40w4d	68.8	74.9	78.9
16w5d	19.6	22.3	25.3	24w5d	41.6	44.8	48.6	32w5d	57.8	62.5	66.1	40w5d	69.0	75.1	79.0
16w6d	20.1	22.8	25.7	24w6d	42.0	45.1	49.0	32w6d	58.0	62.8	66.4	40w6d	69.2	75.2	79.2

GA	FL (mm)			GA	FL(mm)			GA	FL (mm)			GA	FL (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
17w0d	20.5	23.2	26.1	25w0d	42.4	45.5	49.4	33w0d	58.3	63.1	66.7	41w0d	69.4	75.4	79.3
17w1d	20.9	23.6	26.6	25w1d	42.7	45.9	49.7	33w1d	58.5	63.4	67.0	41w1d	69.5	75.6	79.5
17w2d	21.3	24.0	27.0	25w2d	43.0	46.3	50.1	33w2d	58.8	63.6	67.2	41w2d	69.7	75.7	79.7
17w3d	21.7	24.5	27.4	25w3d	43.4	46.6	50.5	33w3d	59.0	63.9	67.5	41w3d	69.9	75.9	79.8
17w4d	22.1	24.9	27.9	25w4d	43.7	47.0	50.9	33w4d	59.3	64.2	67.8	41w4d	70.0	76.1	80.0
17w5d	22.5	25.3	28.3	25w5d	44.1	47.4	51.3	33w5d	59.5	64.5	68.1	41w5d	70.2	76.2	80.1
17w6d	22.9	25.7	28.7	25w6d	44.4	47.7	51.7	33w6d	59.8	64.8	68.4	41w6d	70.4	76.4	80.3
18w0d	23.3	26.1	29.2	26w0d	44.7	48.1	52.1	34w0d	60.0	65.0	68.6	42w0d	70.6	76.6	80.4
18w1d	23.7	26.5	29.6	26w1d	45.0	48.4	52.4	34w1d	60.2	65.3	68.9				
18w2d	24.1	26.9	30.0	26w2d	45.4	48.8	52.8	34w2d	60.5	65.6	69.2				
18w3d	24.5	27.3	30.5	26w3d	45.7	49.1	53.2	34w3d	60.7	65.8	69.4				
18w4d	24.9	27.7	30.9	26w4d	46.0	49.5	53.5	34w4d	61.0	66.1	69.7				
18w5d	25.3	28.2	31.3	26w5d	46.3	49.8	53.9	34w5d	61.2	66.4	70.0				
18w6d	25.7	28.6	31.8	26w6d	46.6	50.2	54.2	34w6d	61.4	66.6	70.2				
19w0d	26.1	29.0	32.2	27w0d	46.9	50.5	54.6	35w0d	61.7	66.9	70.5				
19w1d	26.5	29.4	32.6	27w1d	47.2	50.8	54.9	35w1d	61.9	67.2	70.8				
19w2d	26.9	29.8	33.0	27w2d	47.5	51.2	55.2	35w2d	62.1	67.4	71.0				
19w3d	27.3	30.2	33.5	27w3d	47.8	51.5	55.6	35w3d	62.3	67.7	71.3				
19w4d	27.7	30.6	33.9	27w4d	48.1	51.8	55.9	35w4d	62.6	67.9	71.5				
19w5d	28.1	31.0	34.3	27w5d	48.4	52.1	56.2	35w5d	62.8	68.2	71.8				
19w6d	28.5	31.4	34.7	27w6d	48.6	52.5	56.5	35w6d	63.0	68.4	72.0				

1-2-64 Femur Length (FL) MARSAL

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)
85	8,0	123	25,2	161	40,4	199	55,3	237	66,8	275	76,3
86	8,5	124	25,6	162	40,8	200	55,6	238	67,0	276	76,5
87	9,0	125	26,0	163	41,2	201	56,0	239	67,3	277	76,8
88	9,5	126	26,4	164	41,6	202	56,3	240	67,5	278	77,0
89	10,0	127	26,8	165	42,0	203	56,7	241	67,8	279	77,3
90	10,5	128	27,2	166	42,4	204	57,0	242	68,0	280	77,5
91	11,1	129	27,6	167	42,8	205	57,3	243	68,3	281	77,8
92	11,7	130	28,0	168	43,2	206	57,7	244	68,5	270	75,0
93	12,2	131	28,4	169	43,6	207	58,0	245	68,8	271	75,3
94	12,8	132	28,8	170	44,0	208	58,3	246	69,0	272	75,5
95	13,3	133	29,2	171	44,4	209	58,7	247	69,3	273	75,8
96	13,8	134	29,6	172	44,8	210	59,0	248	69,5	274	76,0
97	14,2	135	30,0	173	45,2	211	59,3	249	69,8	275	76,3
98	14,6	136	30,4	174	45,6	212	59,7	250	70,0	276	76,5
99	15,0	137	30,8	175	46,0	213	60,0	251	70,3	277	76,8
100	15,4	138	31,2	176	46,4	214	60,3	252	70,5	278	77,0
101	15,8	139	31,6	177	46,8	215	60,7	253	70,8	279	77,3
102	16,2	140	32,0	178	47,2	216	61,0	254	71,0	280	77,5
103	16,6	141	32,4	179	47,6	217	61,3	255	71,3	281	77,8
104	17,0	142	32,8	180	48,0	218	61,7	256	71,5	282	78,0
105	17,4	143	33,2	181	48,4	219	62,0	257	71,8	283	78,3
106	17,8	144	33,6	182	48,8	220	62,3	258	72,0	284	78,5
107	18,2	145	34,0	183	49,2	221	62,7	259	72,3	285	78,8
108	18,6	146	34,4	184	49,6	222	63,0	260	72,5	286	79,0
109	19,0	147	34,8	185	50,0	223	63,3	261	72,8	287	79,3
110	19,4	148	35,2	186	50,4	224	63,5	262	73,0	288	79,5
111	19,8	149	35,6	187	50,8	225	63,8	263	73,3	289	79,8
112	20,2	150	36,0	188	51,3	226	64,0	264	73,5	290	80,0
113	20,6	151	36,4	189	51,6	227	64,3	265	73,8	291	80,3
114	21,0	152	36,8	190	52,0	228	64,5	266	74,0	292	80,5
115	21,5	153	37,6	191	52,4	229	64,8	267	74,3	293	80,8
116	22,0	154	37,8	192	52,8	230	65,0	268	74,5	294	81,0
117	22,5	155	38,0	193	53,2	231	65,3	269	74,8	295	81,2
118	23,0	156	38,4	194	53,6	232	65,5	270	75,0	296	81,4
119	23,5	157	38,8	195	54,0	233	65,8	271	75,3	297	81,6
120	24,0	158	39,2	196	54,3	234	66,0	272	75,5	298	81,8
121	24,4	159	39,6	197	54,7	235	66,3	273	75,8	299	82,0
122	24,8	160	40,0	198	55,0	236	66,5	274	76,0	300	82,2

1-2-65 Femur Length (FL) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	FL (cm)			GA (weeks)	FL (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.60	0.90	1.20	27.5	4.80	5.20	5.70
13.0	0.80	1.10	1.40	28.0	4.90	5.30	5.80
13.5	1.00	1.30	1.60	28.5	5.00	5.50	5.90
14.0	1.10	1.50	1.80	29.0	5.10	5.60	6.00
14.5	1.30	1.60	2.00	29.5	5.20	5.70	6.10
15.0	1.50	1.80	2.10	30.0	5.30	5.80	6.20
15.5	1.60	2.00	2.30	30.5	5.40	5.90	6.30
16.0	1.80	2.10	2.50	31.0	5.50	6.00	6.40
16.5	1.90	2.30	2.60	31.5	5.60	6.10	6.60
17.0	2.10	2.40	2.80	32.0	5.70	6.20	6.70
17.5	2.20	2.60	2.90	32.5	5.80	6.30	6.80
18.0	2.40	2.70	3.10	33.0	5.90	6.40	6.90
18.5	2.50	2.90	3.20	33.5	6.00	6.50	7.00
19.0	2.70	3.00	3.40	34.0	6.10	6.60	7.10
19.5	2.80	3.20	3.50	34.5	6.20	6.70	7.20
20.0	2.90	3.30	3.70	35.0	6.30	6.80	7.30
20.5	3.10	3.50	3.80	35.5	6.40	6.90	7.40
21.0	3.20	3.60	4.00	36.0	6.50	7.00	7.40
21.5	3.30	3.70	4.10	36.5	6.60	7.00	7.50
22.0	3.50	3.90	4.20	37.0	6.60	7.10	7.60
22.5	3.60	4.00	4.40	37.5	6.70	7.20	7.70
23.0	3.70	4.10	4.50	38.0	6.80	7.30	7.80
23.5	3.90	4.30	4.60	38.5	6.90	7.40	7.90
24.0	4.00	4.40	4.80	39.0	6.90	7.40	7.90
24.5	4.10	4.50	4.90	39.5	7.00	7.50	8.00
25.0	4.20	4.60	5.00	40.0	7.10	7.60	8.10
25.5	4.30	4.80	5.20	40.5	7.10	7.60	8.10
26.0	4.50	4.90	5.30	41.0	7.20	7.70	8.20
26.5	4.60	5.00	5.40	41.5	7.20	7.70	8.30
27.0	4.70	5.10	5.50				

1-2-66 Femur Length (FL) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	FL (cm)		
	5thcentile	Median	95thcentile
14	1.40	1.70	1.90
15	1.70	1.90	2.20
16	1.90	2.20	2.50
17	2.10	2.40	2.80
18	2.40	2.70	3.00
19	2.60	3.00	3.30
20	2.90	3.20	3.60
21	3.20	3.50	3.90
22	3.40	3.80	4.20
23	3.70	4.10	4.50
24	3.90	4.30	4.70
25	4.20	4.60	5.00
26	4.40	4.80	5.30
27	4.70	5.10	5.50
28	4.90	5.30	5.80
29	5.10	5.60	6.00
30	5.30	5.80	6.30
31	5.50	6.00	6.50
32	5.70	6.20	6.70
33	5.90	6.40	6.90
34	6.10	6.60	7.10
35	6.30	6.80	7.30
36	6.40	6.90	7.40
37	6.60	7.10	7.60
38	6.70	7.20	7.70
39	6.80	7.30	7.80

1-2-67 Femur Length (FL) O'BRIEN

Reference: O´Brien G.D., Queenan J.T. "Growth of the ultrasound fetal femur length during normal pregnancy. Part I." American Journal in Obstetrics and Gynecology; December 1981; 141(7); pp. 833-887

GA (Week)	FL(mm)		
	-2SD	Mean	+2SD
14	14,1	16,6	19,1
15	17,6	19,9	22,2
16	19,0	22,0	25,0
17	22,3	25,2	28,1
18	26,5	29,6	32,7
19	29,3	32,4	35,5
20	32,3	34,8	37,3
21	33,4	37,5	41,6
22	37,0	40,9	44,8
23	39,9	43,5	47,1
24	42,9	46,4	49,9
25	43,4	48,0	52,6
26	46,1	51,1	56,1
27	49,8	53,0	56,2
28	50,3	54,4	58,5
29	53,0	57,3	61,6
30	54,9	58,7	62,5
31	57,0	61,5	66,0
32	58,4	62,8	67,0
33	60,3	64,9	69,5
34	61,3	65,7	70,1
35	62,9	67,7	72,5
36	65,1	69,5	74,1
37	66,5	70,8	75,1
38	66,2	71,8	77,4
39	69,1	74,2	79,3
40	69,8	75,4	81,0

1-2-68 Femur Length (FL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	FL (cm)		GA	FL (cm)		GA	FL (cm)		GA	FL (cm)	
(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD
13w0d	0.94	0.32	19w6d	2.99	0.36	26w5d	4.72	0.41	33w4d	6.11	0.44
13w1d	0.98	0.32	20w0d	3.03	0.36	26w6d	4.75	0.41	33w5d	6.14	0.44
13w2d	1.03	0.32	20w1d	3.07	0.36	27w0d	4.78	0.41	33w6d	6.16	0.44
13w3d	1.07	0.32	20w2d	3.11	0.36	27w1d	4.82	0.41	34w0d	6.19	0.44
13w4d	1.12	0.32	20w3d	3.15	0.36	27w2d	4.85	0.41	34w1d	6.21	0.44
13w5d	1.17	0.32	20w4d	3.19	0.36	27w3d	4.88	0.41	34w2d	6.24	0.44
13w6d	1.21	0.33	20w5d	3.23	0.36	27w4d	4.91	0.41	34w3d	6.26	0.45
14w0d	1.26	0.33	20w6d	3.27	0.36	27w5d	4.94	0.41	34w4d	6.29	0.45
14w1d	1.30	0.33	21w0d	3.30	0.36	27w6d	4.97	0.41	34w5d	6.31	0.45
14w2d	1.35	0.33	21w1d	3.34	0.36	28w0d	5.01	0.41	34w6d	6.34	0.45
14w3d	1.39	0.33	21w2d	3.38	0.36	28w1d	5.04	0.41	35w0d	6.36	0.45
14w4d	1.44	0.33	21w3d	3.42	0.36	28w2d	5.07	0.41	35w1d	6.39	0.45
14w5d	1.48	0.33	21w4d	3.46	0.38	28w3d	5.10	0.41	35w2d	6.41	0.45
14w6d	1.53	0.33	21w5d	3.49	0.38	28w4d	5.13	0.41	35w3d	6.43	0.45
15w0d	1.57	0.33	21w6d	3.53	0.38	28w5d	5.16	0.41	35w4d	6.46	0.45
15w1d	1.61	0.33	22w0d	3.57	0.38	28w6d	5.19	0.41	35w5d	6.48	0.45
15w2d	1.66	0.33	22w1d	3.61	0.38	29w0d	5.22	0.41	35w6d	6.50	0.45
15w3d	1.70	0.33	22w2d	3.64	0.38	29w1d	5.25	0.41	36w0d	6.53	0.45
15w4d	1.75	0.33	22w3d	3.68	0.38	29w2d	5.28	0.42	36w1d	6.55	0.45
15w5d	1.79	0.33	22w4d	3.72	0.38	29w3d	5.31	0.42	36w2d	6.57	0.45
15w6d	1.83	0.33	22w5d	3.75	0.38	29w4d	5.34	0.42	36w3d	6.60	0.45
16w0d	1.88	0.33	22w6d	3.79	0.38	29w5d	5.37	0.42	36w4d	6.62	0.45
16w1d	1.92	0.33	23w0d	3.83	0.38	29w6d	5.40	0.42	36w5d	6.64	0.45
16w2d	1.96	0.33	23w1d	3.86	0.38	30w0d	5.43	0.42	36w6d	6.66	0.45
16w3d	2.01	0.35	23w2d	3.90	0.38	30w1d	5.46	0.42	37w0d	6.69	0.47
16w4d	2.05	0.35	23w3d	3.93	0.38	30w2d	5.49	0.42	37w1d	6.71	0.47
16w5d	2.09	0.35	23w4d	3.97	0.38	30w3d	5.52	0.42	37w2d	6.73	0.47
16w6d	2.13	0.35	23w5d	4.01	0.38	30w4d	5.54	0.42	37w3d	6.75	0.47
17w0d	2.18	0.35	23w6d	4.04	0.38	30w5d	5.57	0.42	37w4d	6.77	0.47
17w1d	2.22	0.35	24w0d	4.08	0.38	30w6d	5.60	0.42	37w5d	6.79	0.47
17w2d	2.26	0.35	24w1d	4.11	0.39	31w0d	5.63	0.42	37w6d	6.82	0.47
17w3d	2.30	0.35	24w2d	4.15	0.39	31w1d	5.66	0.42	38w0d	6.84	0.47
17w4d	2.34	0.35	24w3d	4.18	0.39	31w2d	5.69	0.42	38w1d	6.86	0.47
17w5d	2.39	0.35	24w4d	4.22	0.39	31w3d	5.71	0.42	38w2d	6.88	0.47
17w6d	2.43	0.35	24w5d	4.25	0.39	31w4d	5.74	0.42	38w3d	6.90	0.47
18w0d	2.47	0.35	24w6d	4.28	0.39	31w5d	5.77	0.42	38w4d	6.92	0.47
18w1d	2.51	0.35	25w0d	4.32	0.39	31w6d	5.80	0.44	38w5d	6.94	0.47
18w2d	2.55	0.35	25w1d	4.35	0.39	32w0d	5.82	0.44	38w6d	6.96	0.47
18w3d	2.59	0.35	25w2d	4.39	0.39	32w1d	5.85	0.44	39w0d	6.98	0.47
18w4d	2.63	0.35	25w3d	4.42	0.39	32w2d	5.88	0.44	39w1d	7.00	0.47
18w5d	2.67	0.35	25w4d	4.45	0.39	32w3d	5.90	0.44	39w2d	7.02	0.47
18w6d	2.71	0.35	25w5d	4.49	0.39	32w4d	5.93	0.44	39w3d	7.04	0.47

GA (w+d)	FL (cm)		GA (w+d)	FL (cm)		GA (w+d)	FL (cm)		GA (w+d)	FL (cm)	
	mean	±1.5SD		mean	±1.5SD		mean	±1.5SD		mean	±1.5SD
19w0d	2.75	0.36	25w6d	4.52	0.39	32w5d	5.96	0.44	39w4d	7.06	0.48
19w1d	2.79	0.36	26w0d	4.56	0.39	32w6d	5.98	0.44	39w5d	7.08	0.48
19w2d	2.83	0.36	26w1d	4.59	0.39	33w0d	6.01	0.44	39w6d	7.10	0.48
19w3d	2.87	0.36	26w2d	4.62	0.39	33w1d	6.04	0.44	40w0d	7.12	0.48
19w4d	2.91	0.36	26w3d	4.65	0.39	33w2d	6.06	0.44			
19w5d	2.95	0.36	26w4d	4.69	0.39	33w3d	6.09	0.44			

1-2-69 Femur Length (FL) SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Input Unit:	w (weeks)	Min Range:	16.0 weeks
Output Unit:	cm	Max Range:	42.0 weeks

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GA (weeks)	FL (cm)		
	-1.64SD	mean	+1.64SD
16	1.71	2.14	2.58
17	1.96	2.40	2.84
18	2.21	2.65	3.10
19	2.46	2.91	3.36
20	2.71	3.16	3.62
21	2.95	3.41	3.88
22	3.19	3.66	4.13
23	3.43	3.91	4.38
24	3.67	4.15	4.63
25	3.90	4.39	4.87
26	4.13	4.62	5.11
27	4.35	4.84	5.34
28	4.56	5.06	5.57
29	4.77	5.28	5.79
30	4.97	5.48	6.00
31	5.16	5.68	6.20
32	5.35	5.87	6.40
33	5.52	6.05	6.58
34	5.69	6.22	6.76
35	5.84	6.38	6.92
36	5.99	6.53	7.08
37	6.12	6.67	7.22
38	6.24	6.80	7.36
39	6.35	6.91	7.47
40	6.44	7.01	7.58
41	6.53	7.10	7.67
42	6.59	7.17	7.75

1-2-70 Femur Length (FL) TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

50%	$FL = 7{,}696 \times GA \times 10^{-1} - 1{,}118 \times GA^2 \times 10^{-3} - 51{,}63$
95%	$FL = 1{,}336 \times GA^2 \times 10^{-3} - 7{,}028 \times GA^4 \times 10^{-9} + 8{,}813$
5%	$FL = 4{,}376 \times GA \times 10^{-1} - 4{,}005 \times GA^2 \times 10^{-4} - 26{,}75$

Input Unit: days

Output Unit: mm

Range: 140 ...287 days (20w0d .. 41w0d)

Table values are calculated with the equations above.

GA	FL (cm)			GA	FL (cm)			GA	FL (cm)			GA	FL (cm)			GA	FL (cm)		
(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%
140	2,67	3,23	3,42	170	3,61	4,16	4,69	200	4,48	5,10	5,76	230	5,27	5,98	6,62	260	6,00	6,70	7,29
141	2,70	3,26	3,47	171	3,64	4,19	4,73	201	4,50	5,13	5,79	231	5,30	6,01	6,65	261	6,02	6,72	7,31
142	2,73	3,29	3,51	172	3,67	4,22	4,77	202	4,53	5,16	5,82	232	5,32	6,04	6,67	262	6,04	6,74	7,33
143	2,76	3,32	3,56	173	3,70	4,25	4,81	203	4,56	5,19	5,85	233	5,35	6,06	6,70	263	6,06	6,76	7,34
144	2,80	3,35	3,60	174	3,73	4,28	4,84	204	4,59	5,22	5,88	234	5,37	6,09	6,72	264	6,09	6,78	7,36
145	2,83	3,38	3,65	175	3,76	4,31	4,88	205	4,61	5,25	5,92	235	5,40	6,12	6,75	265	6,11	6,80	7,38
146	2,86	3,41	3,69	176	3,79	4,35	4,92	206	4,64	5,29	5,95	236	5,42	6,14	6,77	266	6,13	6,82	7,40
147	2,89	3,44	3,73	177	3,82	4,38	4,96	207	4,67	5,32	5,98	237	5,45	6,17	6,80	267	6,15	6,83	7,42
148	2,92	3,47	3,78	178	3,85	4,41	4,99	208	4,69	5,35	6,01	238	5,47	6,19	6,82	268	6,18	6,85	7,43
149	2,96	3,50	3,82	179	3,87	4,44	5,03	209	4,72	5,38	6,04	239	5,50	6,22	6,84	269	6,20	6,87	7,45
150	2,99	3,53	3,87	180	3,90	4,47	5,07	210	4,75	5,41	6,07	240	5,52	6,24	6,87	270	6,22	6,89	7,47
151	3,02	3,56	3,91	181	3,93	4,50	5,10	211	4,78	5,44	6,10	241	5,55	6,27	6,89	271	6,24	6,90	7,48
152	3,05	3,59	3,95	182	3,96	4,54	5,14	212	4,80	5,47	6,13	242	5,57	6,30	6,91	272	6,26	6,92	7,50
153	3,08	3,62	3,99	183	3,99	4,57	5,18	213	4,83	5,50	6,16	243	5,59	6,32	6,94	273	6,29	6,93	7,51
154	3,11	3,65	4,04	184	4,02	4,60	5,21	214	4,86	5,53	6,19	244	5,62	6,34	6,96	274	6,31	6,95	7,53
155	3,15	3,69	4,08	185	4,05	4,63	5,25	215	4,88	5,56	6,22	245	5,64	6,37	6,98	275	6,33	6,97	7,55
156	3,18	3,72	4,12	186	4,08	4,66	5,28	216	4,91	5,58	6,24	246	5,67	6,39	7,00	276	6,35	6,98	7,56
157	3,21	3,75	4,16	187	4,11	4,69	5,32	217	4,94	5,61	6,27	247	5,69	6,42	7,03	277	6,37	6,99	7,58
158	3,24	3,78	4,21	188	4,14	4,73	5,35	218	4,96	5,64	6,30	248	5,71	6,44	7,05	278	6,40	7,01	7,59
159	3,27	3,81	4,25	189	4,17	4,76	5,39	219	4,99	5,67	6,33	249	5,74	6,46	7,07	279	6,42	7,02	7,61
160	3,30	3,84	4,29	190	4,19	4,79	5,42	220	5,01	5,70	6,36	250	5,76	6,49	7,09	280	6,44	7,04	7,62
161	3,33	3,87	4,33	191	4,22	4,82	5,46	221	5,04	5,73	6,38	251	5,79	6,51	7,11	281	6,46	7,05	7,63
162	3,36	3,90	4,37	192	4,25	4,85	5,49	222	5,07	5,76	6,41	252	5,81	6,53	7,13	282	6,48	7,06	7,65
163	3,39	3,93	4,41	193	4,28	4,88	5,53	223	5,09	5,79	6,44	253	5,83	6,55	7,15	283	6,50	7,07	7,66
164	3,42	3,97	4,45	194	4,31	4,91	5,56	224	5,12	5,82	6,47	254	5,86	6,58	7,17	284	6,52	7,08	7,68
165	3,46	4,00	4,49	195	4,34	4,95	5,59	225	5,14	5,84	6,49	255	5,88	6,60	7,19	285	6,54	7,10	7,69
166	3,49	4,03	4,53	196	4,36	4,98	5,63	226	5,17	5,87	6,52	256	5,90	6,62	7,21	286	6,56	7,11	7,70

GA (days)	FL (cm)			GA (days)	FL (cm)			GA (days)	FL (cm)			GA (days)	FL (cm)			GA (days)	FL (cm)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%		5%	50%	95%		5%	50%	95%
167	3,52	4,06	4,57	197	4,39	5,01	5,66	227	5,19	5,90	6,55	257	5,93	6,64	7,23	287	6,59	7,12	7,72
168	3,55	4,09	4,61	198	4,42	5,04	5,69	228	5,22	5,93	6,57	258	5,95	6,66	7,25				
169	3,58	4,12	4,65	199	4,45	5,07	5,72	229	5,25	5,95	6,60	259	5,97	6,68	7,27				

1-2-71 Femur Length (FL) WARDA

Reference: Warda A.H.; Deter R.L.; Rossavik I.K.; Carpenter R.J.; Hadlock F.P.
"Fetal Femur Length: A Critical Reevaluation of the Relationship to Menstrual Age"
Ultrasound in Obstetrics and Gynecology Vol. 66: 69-75, 1985

$$FL = -3{,}8929 + 0{,}42062 \times GA - 0{,}0034513 \times GA^2$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	FL (cm)			GA (weeks)	FL (cm)		
	5%	50%	95%		5%	50%	95%
12	0.60	0.70	0.80	27	4.20	4.90	5.60
13	0.90	1.00	1.10	28	4.50	5.20	5.90
14	1.10	1.30	1.50	29	4.60	5.40	6.20
15	1.40	1.60	1.80	30	4.80	5.60	6.40
16	1.70	2.00	2.30	31	5.00	5.80	6.60
17	2.00	2.30	2.60	32	5.20	6.00	6.80
18	2.20	2.60	3.00	33	5.30	6.20	7.10
19	2.50	2.90	3.30	34	5.50	6.40	7.30
20	2.70	3.10	3.50	35	5.70	6.60	7.50
21	2.90	3.40	3.90	36	5.80	6.80	7.80
22	3.20	3.70	4.20	37	5.90	6.90	7.90
23	3.40	4.00	4.60	38	6.10	7.10	8.10
24	3.60	4.20	4.80	39	6.30	7.30	8.30
25	3.90	4.50	5.10	40	6.40	7.40	8.40
26	4.00	4.70	5.40				

1-2-72 Fetal Trunk Area (FTA) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	FTA (cm^2)		GA	FTA (cm^2)		GA	FTA (cm^2)		GA	FTA (cm^2)		GA	FTA (cm^2)	
(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD
14w0d	5.60	1.80	19w2d	16.60	3.45	24w4d	31.70	5.85	29w6d	50.20	8.70	35w1d	70.10	12.00
14w1d	5.80	1.80	19w3d	16.90	3.60	24w5d	32.20	5.85	30w0d	50.80	8.70	35w2d	70.60	12.15
14w2d	6.00	1.80	19w4d	17.30	3.60	24w6d	32.60	6.00	30w1d	51.30	8.85	35w3d	71.10	12.30
14w3d	6.30	1.95	19w5d	17.60	3.75	25w0d	33.10	6.00	30w2d	51.80	8.85	35w4d	71.60	12.30
14w4d	6.50	1.95	19w6d	18.00	3.75	25w1d	33.60	6.15	30w3d	52.40	9.00	35w5d	72.20	12.45
14w5d	6.80	1.95	20w0d	18.40	3.75	25w2d	34.10	6.15	30w4d	52.90	9.15	35w6d	72.70	12.60
14w6d	7.10	1.95	20w1d	18.70	3.90	25w3d	34.50	6.30	30w5d	53.40	9.15	36w0d	73.20	12.60
15w0d	7.30	2.10	20w2d	19.10	3.90	25w4d	35.00	6.30	30w6d	54.00	9.30	36w1d	73.70	12.75
15w1d	7.60	2.10	20w3d	19.50	3.90	25w5d	35.50	6.45	31w0d	54.50	9.30	36w2d	74.20	12.90
15w2d	7.80	2.10	20w4d	19.90	4.05	25w6d	36.00	6.45	31w1d	55.00	9.45	36w3d	74.70	12.90
15w3d	8.10	2.25	20w5d	20.20	4.05	26w0d	36.50	6.60	31w2d	55.60	9.60	36w4d	75.20	13.05
15w4d	8.40	2.25	20w6d	20.60	4.20	26w1d	36.90	6.60	31w3d	56.10	9.60	36w5d	75.70	13.20
15w5d	8.70	2.25	21w0d	21.00	4.20	26w2d	37.40	6.75	31w4d	56.70	9.75	36w6d	76.20	13.20
15w6d	8.90	2.25	21w1d	21.40	4.20	26w3d	37.90	6.75	31w5d	57.20	9.75	37w0d	76.80	13.35
16w0d	9.20	2.40	21w2d	21.80	4.35	26w4d	38.40	6.90	31w6d	57.70	9.90	37w1d	77.30	13.50
16w1d	9.50	2.40	21w3d	22.20	4.35	26w5d	38.90	6.90	32w0d	58.30	10.05	37w2d	77.70	13.65
16w2d	9.80	2.40	21w4d	22.60	4.50	26w6d	39.40	7.05	32w1d	58.80	10.05	37w3d	78.20	13.65
16w3d	10.10	2.55	21w5d	23.00	4.50	27w0d	39.90	7.05	32w2d	59.40	10.20	37w4d	78.70	13.80
16w4d	10.40	2.55	21w6d	23.40	4.50	27w1d	40.40	7.20	32w3d	59.90	10.20	37w5d	79.20	13.95
16w5d	10.70	2.55	22w0d	23.80	4.65	27w2d	40.90	7.20	32w4d	60.40	10.35	37w6d	79.70	13.95
16w6d	11.00	2.70	22w1d	24.20	4.65	27w3d	41.40	7.35	32w5d	61.00	10.50	38w0d	80.20	14.10
17w0d	11.30	2.70	22w2d	24.70	4.80	27w4d	41.90	7.35	32w6d	61.50	10.50	38w1d	80.70	14.25
17w1d	11.60	2.70	22w3d	25.10	4.80	27w5d	42.40	7.50	33w0d	62.10	10.65	38w2d	81.10	14.40
17w2d	11.90	2.85	22w4d	25.50	4.95	27w6d	42.90	7.50	33w1d	62.60	10.65	38w3d	81.60	14.40
17w3d	12.20	2.85	22w5d	25.90	4.95	28w0d	43.40	7.65	33w2d	63.10	10.80	38w4d	82.10	14.55
17w4d	12.50	2.85	22w6d	26.40	4.95	28w1d	44.00	7.65	33w3d	63.70	10.95	38w5d	82.60	14.70
17w5d	12.80	3.00	23w0d	26.80	5.10	28w2d	44.50	7.80	33w4d	64.20	10.95	38w6d	83.00	14.70
17w6d	13.20	3.00	23w1d	27.20	5.10	28w3d	45.00	7.80	33w5d	64.70	11.10	39w0d	83.50	14.85
18w0d	13.50	3.00	23w2d	27.70	5.25	28w4d	45.50	7.95	33w6d	65.30	11.25	39w1d	83.90	15.00
18w1d	13.80	3.15	23w3d	28.10	5.25	28w5d	46.00	7.95	34w0d	65.80	11.25	39w2d	84.40	15.15
18w2d	14.10	3.15	23w4d	28.50	5.40	28w6d	46.60	8.10	34w1d	66.40	11.40	39w3d	84.80	15.15
18w3d	14.50	3.15	23w5d	29.00	5.40	29w0d	47.10	8.10	34w2d	66.90	11.40	39w4d	85.30	15.30
18w4d	14.80	3.30	23w6d	29.40	5.55	29w1d	47.60	8.25	34w3d	67.40	11.55	39w5d	85.70	15.45
18w5d	15.20	3.30	24w0d	29.90	5.55	29w2d	48.10	8.40	34w4d	67.90	11.70	39w6d	86.10	15.60
18w6d	15.50	3.30	24w1d	30.30	5.55	29w3d	48.70	8.40	34w5d	68.50	11.70	40w0d	86.60	15.60
19w0d	15.80	3.45	24w2d	30.80	5.70	29w4d	49.20	8.55	34w6d	69.00	11.85			
19w1d	16.20	3.45	24w3d	31.30	5.70	29w5d	49.70	8.55	35w0d	69.50	12.00			

1-2-73 Fibula (FIB) JEANTY

Reference: Hansmann, Hackeloer, Staudach, Wittmann. "Ultrasound Diagnosis in Obstetrics and Gynecology." Springer-Verlag, New York, 1986, p182

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	FIB (mm)		
	5%	50%	95%
12	-	6	-
13	-	9	-
14	6	12	19
15	9	15	21
16	13	18	23
17	13	21	28
18	15	23	31
19	19	26	33
20	21	28	36
21	24	31	37
22	27	33	39
23	28	35	42
24	29	37	45
25	34	40	45
26	36	42	47
27	37	44	50
28	38	45	53
29	41	47	54
30	43	49	56
31	42	51	59
32	42	52	63
33	46	54	62
34	46	55	65
35	51	57	62
36	54	58	63
37	54	59	65
38	56	61	65
39	56	62	67
40	59	63	67

1-2-74 Gestational Sac (GS) HELLMAN

Reference: Hellman L.M., Kobayashi M, Fillisti L., et al. "Growth and development of the human fetus prior to the 20th week of gestation". American Journal of Obstetrics and Gynecology; March 15; 1969; 789-800

$$GS = 0{,}702 \times GA - 2{,}543$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 6.0 weeks
Max Range: 12.0 weeks

GA (weeks)	GS (cm)		
	-2SD	Mean	+2SD
6,0	1,03	1,67	2,31
6,5	1,38	2,02	2,66
7,0	1,73	2,37	3,01
7,5	2,08	2,72	3,36
8,0	2,43	3,07	3,71
8,5	2,78	3,42	4,06
9,0	3,14	3,78	4,42
9,5	3,49	4,13	4,77
10,0	3,84	4,48	5,12
10,5	4,19	4,83	5,47
11,0	4,54	5,18	5,82
11,5	4,89	5,53	6,17
12,0	5,24	5,88	6,52

1-2-75 Gestational Sac (GS) REMPEN

Reference: Rempen A. "Biometrie in der Frühgravidität (I. Trimenon)" Der Frauenarzt; 32,4 /1991

GA (weeks)	GS (cm)			GA (weeks)	GS (cm)		
	5%	50%	95%		5%	50%	95%
4w4d	0.00	0.05	1.10	9w0d	2.61	3.66	4.71
4w5d	0.00	0.18	1.23	9w1d	2.71	3.76	4.81
4w6d	0.00	0.32	1.37	9w2d	2.80	3.85	4.90
5w0d	0.00	0.45	1.50	9w3d	2.90	3.95	5.00
5w1d	0.00	0.58	1.63	9w4d	2.99	4.04	5.09
5w2d	0.00	0.71	1.76	9w5d	3.08	4.13	5.18
5w3d	0.00	0.84	1.89	9w6d	3.17	4.22	5.27
5w4d	0.00	0.97	2.02	10w0d	3.26	4.31	5.36
5w5d	0.04	1.09	2.14	10w1d	3.35	4.40	5.45
5w6d	0.17	1.22	2.27	10w2d	3.44	4.49	5.54
6w0d	0.29	1.34	2.39	10w3d	3.52	4.57	5.62
6w1d	0.41	1.46	2.51	10w4d	3.61	4.66	5.71
6w2d	0.54	1.59	2.64	10w5d	3.69	4.74	5.79
6w3d	0.66	1.71	2.76	10w6d	3.77	4.82	5.87
6w4d	0.78	1.83	2.88	11w0d	3.85	4.90	5.95
6w5d	0.89	1.94	2.99	11w1d	3.93	4.98	6.03
6w6d	1.01	2.06	3.11	11w2d	4.01	5.06	6.11
7w0d	1.12	2.17	3.22	11w3d	4.09	5.14	6.19
7w1d	1.24	2.29	3.34	11w4d	4.16	5.21	6.26
7w2d	1.35	2.40	3.45	11w5d	4.24	5.29	6.34
7w3d	1.46	2.51	3.56	11w6d	4.31	5.36	6.41
7w4d	1.57	2.62	3.67	12w0d	4.38	5.43	6.48
7w5d	1.68	2.73	3.78	12w1d	4.46	5.51	6.56
7w6d	1.79	2.84	3.89	12w2d	4.53	5.58	6.63
8w0d	1.90	2.95	4.00	12w3d	4.59	5.64	6.69
8w1d	2.00	3.05	4.10	12w4d	4.66	5.71	6.76
8w2d	2.11	3.16	4.21	12w5d	4.73	5.78	6.83
8w3d	2.21	3.26	4.31	12w6d	4.79	5.84	6.89
8w4d	2.31	3.36	4.41	13w0d	4.86	5.91	6.96
8w5d	2.41	3.46	4.51	13w1d	4.92	5.97	7.02
8w6d	2.51	3.56	4.61	13w2d	4.98	6.03	7.08

1-2-76 Head Circumference (HC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	HC (cm)		GA (week)	HC (cm)	
	mean	±2SD		mean	±2SD
11	5,9	1,5	27	25,0	2,0
12	7,0	1,5	28	26,3	2,0
13	8,4	1,5	29	26,9	2,5
14	9,6	1,5	30	27,4	2,5
15	10,8	1,5	31	28,4	2,5
16	12,8	1,5	32	28,8	2,5
17	14,1	1,5	33	30,0	2,5
18	15,1	2,0	34	30,5	2,5
19	16,0	2,0	35	31,0	2,5
20	17,0	2,0	36	31,7	2,5
21	17,6	2,0	37	32,1	2,5
22	18,8	2,0	38	32,8	2,5
23	21,0	2,0	39	33,6	2,5
24	22,0	2,0	40	34,0	2,5
25	23,1	2,0	41	34,4	2,5
26	23,8	2,0			

1-2-77 Head Circumference (HC) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstet Fertil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 16 weeks
Max Range: 40 weeks

GA (week)	HC (mm)				
	3%	10%	50%	90%	97%
16	105,80	110,58	120,86	131,25	136,11
17	118,67	123,78	134,49	145,38	150,39
18	131,08	136,36	147,55	158,92	164,11
19	143,00	148,53	160,29	172,14	177,48
20	154,53	160,21	172,47	184,86	190,54
21	165,41	171,49	184,21	197,12	203,09
22	176,12	182,35	195,74	208,91	215,15
23	186,32	192,31	206,64	220,26	226,76
24	196,19	203,00	217,18	231,39	238,00
25	205,50	212,40	227,32	241,91	248,81
26	214,44	221,57	236,72	252,00	259,23
27	222,87	230,33	246,00	261,75	269,13
28	231,00	238,56	254,77	271,00	278,57
29	238,40	246,35	263,00	279,71	287,56
30	245,86	253,74	270,84	288,13	296,00
31	252,54	260,81	278,33	296,00	304,27
32	258,86	267,22	285,29	303,54	312,00
33	264,62	273,38	292,00	310,40	319,10
34	270,14	279,00	298,10	317,00	325,91
35	275,33	284,23	303,62	323,00	332,16
36	279,79	289,00	308,81	328,75	338,00
37	283,90	293,32	313,52	334,00	343,34
38	287,63	297,29	317,88	338,64	348,29
39	290,88	300,76	321,86	343,00	352,67
40	293,00	303,00	324,00	346,00	356,00

1-2-78 Head Circumference (HC) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101 No. 1, 1994, pages 35-43.

Input Unit: w [week]
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (Week)	HC (mm)		
	-1SD	Mean	+1SD
12	70,2	75,2	80,2
13	78,7	85,5	92,3
14	96,6	103,1	109,6
15	104,2	111,4	118,6
16	119,6	126,8	134,0
17	124,9	135,4	145,9
18	142,6	151,3	160,0
19	155,9	164,8	173,3
20	163,7	174,0	184,3
21	180,6	188,9	197,2
22	187,4	197,8	208,2
23	197,3	210,0	222,7
24	214,6	223,5	232,4
25	225,6	233,7	241,8
26	233,3	244,8	256,3
27	246,2	256,1	266,0
28	260,2	269,9	279,0
29	275,7	281,9	287,9
30	279,9	287,6	295,3
31	287,6	297,1	306,6
32	293,6	304,8	316,0
33	298,6	310,8	323,0
34	306,0	316,1	326,2
35	311,0	323,3	335,6
36	318,6	331,5	344,4
37	323,1	334,8	346,5
38	317,1	337,3	357,5
39	330,1	340,4	350,7
40	332,6	349,7	366,8
41	341,5	355,9	370,3
42	340,5	352,3	364,1

1-2-79 Head Circumference (HC) CHITTY (derived)

Reference: Chitty L.S., Altman D.G., Hendesson A., Campell S., Charts of fetal size:2 Head measurements Br J Obstetric Gynaecology 1994, Vol 101, pages 35-43.

NOTE: HC derived from BPD/OFD

GA (Week)	HC (mm)		
	5th Cent.	50th Cent.	95th Cent.
12	57.1	68.1	79.2
13	70.8	82.2	93.6
14	84.2	96.0	107.8
15	97.5	109.7	121.9
16	110.6	123.1	135.7
17	123.4	136.4	149.3
18	136.0	149.3	162.7
19	148.3	162.0	175.7
20	160.4	174.5	188.6
21	172.1	186.6	201.1
22	183.6	198.5	213.3
23	194.8	210.0	225.3
24	205.6	221.2	236.9
25	216.1	232.1	248.1
26	226.2	242.6	259.0
27	235.9	252.7	269.5
28	245.3	262.5	279.6
29	254.3	271.8	289.4
30	262.8	280.7	298.7
31	270.9	289.2	307.6
32	278.6	297.3	316.0
33	285.8	304.9	324.0
34	292.6	312.0	331.5
35	298.8	318.7	338.5
36	304.6	324.8	345.0
37	309.8	330.4	351.0
38	314.5	335.5	356.5
39	318.7	340.0	361.4
40	322.3	344.0	365.8
41	325.3	347.4	369.6
42	327.7	350.3	372.8

1-2-80 Head Circumference (HC) HADLOCK

Reference: *Hadlock F.P., Deter R.L.; Harrist R.B., Park S.K.*
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$HC = -11{,}48 + 1{,}56 \times GA - 0{,}0002548 \times GA^3$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 1.00 cm

Corresponds to: 16% … 84% (-1.00cm … +1.00cm)

GA (weeks)	HC (cm)	GA (weeks)	HC (cm)
12.0	6.80	26.5	25.10
12.5	7.50	27.0	25.60
13.0	8.20	27.5	26.10
13.5	8.90	28.0	26.60
14.0	9.70	28.5	27.10
14.5	10.40	29.0	27.50
15.0	11.00	29.5	28.00
15.5	11.70	30.0	28.40
16.0	12.40	30.5	28.80
16.5	13.10	31.0	29.30
17.0	13.80	31.5	29.70
17.5	14.40	32.0	30.10
18.0	15.10	32.5	30.40
18.5	15.80	33.0	30.80
19.0	16.40	33.5	31.20
19.5	17.00	34.0	31.50
20.0	17.70	34.5	31.80
20.5	18.30	35.0	32.20
21.0	18.90	35.5	32.50
21.5	19.50	36.0	32.80
22.0	20.10	36.5	33.00
22.5	20.70	37.0	33.30
23.0	21.30	37.5	33.50
23.5	21.90	38.0	33.80
24.0	22.40	38.5	34.00
24.5	23.00	39.0	34.20
25.0	23.50	39.5	34.40
25.5	24.10	40.0	34.60
26.0	24.60		

1-2-81 Head Circumference (HC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.434.

GA (weeks)	HC (cm)		
	5%	50%	95%
14	10.60	10.60	10.60
15	10.30	11.50	12.90
16	11.40	12.70	14.10
17	12.50	14.00	15.30
18	13.80	15.20	16.60
19	14.90	16.40	18.00
20	16.10	17.60	19.30
21	17.30	19.00	20.60
22	18.50	20.30	21.90
23	19.80	21.50	23.20
24	21.00	22.60	24.40
25	22.30	24.00	25.70
26	23.40	25.10	26.80
27	24.40	26.30	28.00
28	25.40	27.40	29.00
29	26.30	28.40	30.10
30	27.30	29.30	31.00
31	28.20	30.30	32.00
32	29.00	31.10	32.80
33	29.70	31.80	33.50
34	30.30	32.50	34.30
35	31.00	33.20	34.90
36	31.50	33.70	35.50
37	32.10	34.00	36.00
38	32.50	34.40	36.40
39	32.90	34.70	36.90
40	33.30	34.90	37.20

1-2-82 Head Circumference (HC) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J. C., Cantraine F., Tack B., Bracken M.; "A longitudinal study of fetal head biometry" American Journal of Perinatology; Volume1; Number 2; January 1984

GA (weeks)	HC (cm)		
	5%	50%	95%
10	2.60	5.00	7.40
11	3.80	6.30	8.70
12	5.10	7.50	10.00
13	6.40	8.80	11.20
14	7.60	10.10	12.50
15	8.90	11.30	13.80
16	10.10	12.60	15.00
17	11.40	13.80	16.30
18	12.60	15.10	17.50
19	13.80	16.30	18.70
20	15.00	17.50	19.90
21	16.20	18.70	21.10
22	17.40	19.80	22.30
23	18.50	21.00	23.40
24	19.60	22.10	24.50
25	20.70	23.20	25.60
26	21.80	24.20	26.60
27	22.80	25.20	27.70
28	23.80	26.20	28.60
29	24.70	27.10	29.60
30	25.60	28.10	30.50
31	26.50	28.90	31.30
32	27.30	29.70	32.20
33	28.10	30.50	32.90
34	28.80	31.20	33.60
35	29.40	31.90	34.30
36	30.00	32.50	34.90
37	30.60	33.00	35.50
38	31.10	33.50	35.90
39	31.50	33.90	36.40
40	31.90	34.30	36.70

1-2-83 Head Circumference (HC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	HC (cm)		
	5%	50%	95%
12	5,97	7,21	8,45
13	7,33	8,61	9,89
14	8,67	9,99	11,31
15	9,99	11,35	12,70
16	11,29	12,68	14,07
17	12,56	13,99	15,42
18	13,81	15,27	16,74
19	15,02	16,52	18,03
20	16,21	17,75	19,29
21	17,36	18,94	20,52
22	18,49	20,10	21,71
23	19,57	21,22	22,87
24	20,62	22,31	24,00
25	21,64	23,36	25,09
26	22,61	24,37	26,13
27	23,55	25,34	27,14
28	24,44	26,27	28,11
29	25,29	27,16	29,03
30	26,09	28,00	29,91
31	26,84	28,79	30,73
32	27,55	29,53	31,51
33	28,21	30,22	32,24
34	28,81	30,87	32,92
35	29,36	31,45	33,55
36	29,86	31,99	34,12
37	30,30	32,46	34,63
38	30,68	32,88	35,09
39	31,00	33,24	35,48
40	31,26	33,54	35,82
41	31,46	33,77	36,09
42	31,59	33,94	36,30

1-2-84 Head Circumference (HC) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

GA	HC (mm)			GA	HC(mm)			GA	HC (mm)			GA	HC (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	63.6	76.4	86.6	20w0d	163.0	175.3	188.2	28w0d	252.3	267.8	286.0	36w0d	308.7	327.3	344.8
12w1d	65.4	78.2	88.3	20w1d	164.6	177.1	190.1	28w1d	253.7	269.2	287.5	36w1d	309.4	328.0	345.5
12w2d	67.2	79.9	90.1	20w2d	166.2	178.8	191.9	28w2d	255.1	270.6	288.9	36w2d	310.0	328.6	346.2
12w3d	69.1	81.7	91.9	20w3d	167.8	180.5	193.8	28w3d	256.5	272.0	290.4	36w3d	310.6	329.2	346.9
12w4d	70.9	83.4	93.6	20w4d	169.4	182.3	195.6	28w4d	257.8	273.3	291.8	36w4d	311.2	329.8	347.6
12w5d	72.8	85.2	95.4	20w5d	171.0	184.0	197.5	28w5d	259.2	274.7	293.3	36w5d	311.8	330.4	348.3
12w6d	74.6	87.0	97.2	20w6d	172.6	185.8	199.4	28w6d	260.5	276.0	294.7	36w6d	312.4	331.0	348.9
13w0d	76.4	88.8	99.0	21w0d	174.2	187.5	201.2	29w0d	261.8	277.3	296.1	37w0d	313.0	331.6	349.6
13w1d	78.3	90.5	100.8	21w1d	175.8	189.3	203.1	29w1d	263.1	278.6	297.5	37w1d	313.5	332.1	350.3
13w2d	80.2	92.3	102.5	21w2d	177.4	191.0	204.9	29w2d	264.4	279.9	298.8	37w2d	314.1	332.7	350.9
13w3d	82.0	94.1	104.3	21w3d	179.0	192.8	206.8	29w3d	265.7	281.2	300.2	37w3d	314.6	333.2	351.6
13w4d	83.9	95.9	106.1	21w4d	180.6	194.6	208.6	29w4d	266.9	282.5	301.5	37w4d	315.1	333.7	352.2
13w5d	85.8	97.7	107.9	21w5d	182.2	196.3	210.5	29w5d	268.1	283.8	302.8	37w5d	315.6	334.2	352.9
13w6d	87.7	99.5	109.7	21w6d	183.9	198.1	212.3	29w6d	269.4	285.0	304.1	37w6d	316.1	334.8	353.5
14w0d	89.6	101.3	111.5	22w0d	185.5	199.8	214.2	30w0d	270.6	286.3	305.4	38w0d	316.6	335.3	354.2
14w1d	91.4	103.1	113.3	22w1d	187.1	201.6	216.0	30w1d	271.8	287.5	306.6	38w1d	317.1	335.7	354.9
14w2d	93.3	104.9	115.2	22w2d	188.8	203.3	217.9	30w2d	273.0	288.8	307.9	38w2d	317.5	336.2	355.5
14w3d	95.2	106.8	117.0	22w3d	190.4	205.1	219.7	30w3d	274.1	290.0	309.1	38w3d	318.0	336.7	356.2
14w4d	97.1	108.6	118.8	22w4d	192.0	206.8	221.5	30w4d	275.3	291.2	310.3	38w4d	318.4	337.2	356.9
14w5d	99.0	110.4	120.7	22w5d	193.7	208.6	223.3	30w5d	276.4	292.4	311.5	38w5d	318.9	337.6	357.6
14w6d	100.9	112.2	122.5	22w6d	195.3	210.3	225.1	30w6d	277.5	293.6	312.6	38w6d	319.3	338.1	358.3
15w0d	102.8	114.0	124.3	23w0d	197.0	212.1	227.0	31w0d	278.6	294.8	313.8	39w0d	319.8	338.6	359.0
15w1d	104.7	115.9	126.2	23w1d	198.6	213.8	228.8	31w1d	279.7	295.9	314.9	39w1d	320.2	339.0	359.7
15w2d	106.6	117.7	128.0	23w2d	200.2	215.6	230.6	31w2d	280.8	297.1	316.1	39w2d	320.6	339.5	360.4
15w3d	108.5	119.5	129.9	23w3d	201.9	217.3	232.4	31w3d	281.9	298.2	317.2	39w3d	321.1	339.9	361.1
15w4d	110.4	121.3	131.7	23w4d	203.5	219.0	234.2	31w4d	282.9	299.4	318.3	39w4d	321.5	340.3	361.9
15w5d	112.2	123.1	133.5	23w5d	205.2	220.8	236.0	31w5d	284.0	300.5	319.3	39w5d	321.9	340.8	362.6
15w6d	114.1	124.9	135.4	23w6d	206.8	222.5	237.8	31w6d	285.0	301.6	320.4	39w6d	322.4	341.2	363.4
16w0d	115.9	126.7	137.2	24w0d	208.4	224.2	239.6	32w0d	286.0	302.7	321.4	40w0d	322.8	341.6	364.2
16w1d	117.8	128.5	139.0	24w1d	210.1	225.9	241.4	32w1d	287.0	303.8	322.5	40w1d	323.3	342.1	364.9
16w2d	119.6	130.3	140.8	24w2d	211.7	227.6	243.2	32w2d	288.0	304.9	323.5	40w2d	323.7	342.5	365.7
16w3d	121.4	132.1	142.7	24w3d	213.3	229.3	244.9	32w3d	289.0	306.0	324.5	40w3d	324.2	343.0	366.5
16w4d	123.2	133.8	144.5	24w4d	214.9	230.9	246.7	32w4d	289.9	307.0	325.5	40w4d	324.6	343.4	367.3

GA	HC (mm)			GA	HC(mm)			GA	HC (mm)			GA	HC (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
16w5d	125.0	135.6	146.3	24w5d	216.5	232.6	248.5	32w5d	290.9	308.0	326.4	40w5d	325.1	343.8	368.1
16w6d	126.7	137.4	148.1	24w6d	218.1	234.3	250.2	32w6d	291.8	309.1	327.4	40w6d	325.5	344.3	368.9
17w0d	128.5	139.1	150.0	25w0d	219.8	235.9	251.9	33w0d	292.7	310.1	328.3	41w0d	326.0	344.7	369.7
17w1d	130.2	140.8	151.8	25w1d	221.4	237.6	253.7	33w1d	293.6	311.1	329.2	41w1d	326.5	345.1	370.5
17w2d	131.9	142.6	153.6	25w2d	223.0	239.2	255.4	33w2d	294.5	312.0	330.1	41w2d	327.0	345.6	371.4
17w3d	133.7	144.3	155.4	25w3d	224.6	240.8	257.1	33w3d	295.4	313.0	330.9	41w3d	327.5	346.0	372.2
17w4d	135.4	146.0	157.2	25w4d	226.2	242.4	258.8	33w4d	296.2	313.9	331.8	41w4d	327.9	346.4	373.0
17w5d	137.1	147.8	159.1	25w5d	227.8	244.0	260.5	33w5d	297.0	314.9	332.6	41w5d	328.4	346.9	373.8
17w6d	138.7	149.5	160.9	25w6d	229.4	245.6	262.2	33w6d	297.9	315.8	333.5	41w6d	328.9	347.3	374.6
18w0d	140.4	151.2	162.7	26w0d	231.0	247.1	263.9	34w0d	298.7	316.6	334.3	42w0d	329.4	347.8	375.4
18w1d	142.1	152.9	164.5	26w1d	232.5	248.7	265.5	34w1d	299.5	317.5	335.1				
18w2d	143.7	154.6	166.3	26w2d	234.1	250.3	267.2	34w2d	300.3	318.4	335.9				
18w3d	145.4	156.4	168.1	26w3d	235.7	251.8	268.8	34w3d	301.0	319.2	336.6				
18w4d	147.0	158.1	169.9	26w4d	237.3	253.3	270.5	34w4d	301.8	320.0	337.4				
18w5d	148.6	159.8	171.8	26w5d	238.8	254.8	272.1	34w5d	302.5	320.8	338.2				
18w6d	150.2	161.5	173.6	26w6d	240.4	256.3	273.6	34w6d	303.3	321.6	339.0				
19w0d	151.8	163.2	175.4	27w0d	241.9	257.8	275.2	35w0d	304.0	322.4	339.7				
19w1d	153.4	165.0	177.2	27w1d	243.4	259.3	276.8	35w1d	304.7	323.1	340.5				
19w2d	155.1	166.7	179.1	27w2d	244.9	260.7	278.4	35w2d	305.4	323.9	341.2				
19w3d	156.6	168.4	180.9	27w3d	246.4	262.2	279.9	35w3d	306.1	324.6	341.9				
19w4d	158.2	170.1	182.7	27w4d	247.9	263.6	281.4	35w4d	306.8	325.3	342.7				
19w5d	159.8	171.9	184.6	27w5d	249.4	265.0	283.0	35w5d	307.4	326.0	343.4				
19w6d	161.4	173.6	186.4	27w6d	250.8	266.4	284.5	35w6d	308.1	326.6	344.1				

1-2-85 Head Circumference (HC) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	HC (cm)			GA (weeks)	HC (cm)		
	5%	50%	95%		5%	50%	95%
12.5	8.00	9.20	10.40	27.5	25.30	26.80	28.40
13.0	8.40	9.60	10.80	28.0	25.80	27.30	28.90
13.5	8.90	10.10	11.30	28.5	26.30	27.80	29.40
14.0	9.40	10.60	11.90	29.0	26.80	28.30	29.90
14.5	10.00	11.20	12.40	29.5	27.20	28.80	30.30
15.0	10.50	11.80	13.00	30.0	27.70	29.20	30.80
15.5	11.10	12.40	13.70	30.5	28.10	29.70	31.30
16.0	11.70	13.00	14.30	31.0	28.50	30.10	31.70
16.5	12.30	13.60	14.90	31.5	28.90	30.50	32.10
17.0	13.00	14.30	15.60	32.0	29.30	30.90	32.50
17.5	13.60	14.90	16.20	32.5	29.70	31.30	32.90
18.0	14.20	15.50	16.80	33.0	30.00	31.60	33.30
18.5	14.80	16.20	17.50	33.5	30.30	32.00	33.60
19.0	15.50	16.80	18.10	34.0	30.70	32.30	34.00
19.5	16.10	17.40	18.80	34.5	31.00	32.60	34.30
20.0	16.70	18.10	19.40	35.0	31.30	32.90	34.60
20.5	17.30	18.70	20.10	35.5	31.50	33.20	34.90
21.0	18.00	19.30	20.70	36.0	31.80	33.50	35.20
21.5	18.60	20.00	21.40	36.5	32.00	33.70	35.40
22.0	19.20	20.60	22.00	37.0	32.20	33.90	35.60
22.5	19.80	21.20	22.60	37.5	32.40	34.10	35.90
23.0	20.40	21.80	23.20	38.0	32.60	34.30	36.10
23.5	21.00	22.40	23.80	38.5	32.70	34.50	36.20
24.0	21.60	23.00	24.40	39.0	32.90	34.60	36.40
24.5	22.10	23.60	25.00	39.5	33.00	34.80	36.50
25.0	22.70	24.10	25.60	40.0	33.10	34.90	36.60
25.5	23.20	24.70	26.20	40.5	33.20	34.90	36.70
26.0	23.80	25.30	26.70	41.0	33.20	35.00	36.80
26.5	24.30	25.80	27.30	41.5	33.20	35.00	36.90
27.0	24.80	26.30	27.80				

1-2-86 Head Circumference (HC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (week)	HC (cm)		
	5th centile	Median	95th centile
14	10.20	11.00	11.80
15	11.10	12.00	12.90
16	12.00	13.00	14.00
17	13.00	14.10	15.20
18	14.10	15.20	16.40
19	15.10	16.30	17.60
20	16.20	17.50	18.90
21	17.30	18.70	20.10
22	18.40	19.80	21.40
23	19.50	21.00	22.70
24	20.60	22.20	24.00
25	21.70	23.40	25.20
26	22.70	24.50	26.40
27	23.80	25.60	27.70
28	24.80	26.70	28.80
29	25.70	27.70	29.90
30	26.60	28.70	30.90
31	27.40	29.60	31.90
32	28.20	30.40	32.80
33	28.80	31.10	33.60
34	29.40	31.70	34.20
35	29.90	32.30	34.80
36	30.30	32.70	35.30
37	30.60	33.00	35.60
38	30.80	33.20	35.80
39	30.90	33.30	35.90

1-2-87 Humerus Length (HL) ASUM

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	HL (cm)		GA (Week)	HL (cm)	
	mean	±2SD		mean	±2SD
11	0,80	0,30	27	4,70	0,40
12	0,90	0,20	28	5,00	0,50
13	1,10	0,30	29	5,10	0,50
14	1,40	0,40	30	5,20	0,50
15	1,70	0,55	31	5,40	0,50
16	2,10	0,40	32	5,60	0,50
17	2,50	0,50	33	5,70	0,60
18	2,70	0,55	34	5,90	0,55
19	2,90	0,50	35	6,00	0,60
20	3,10	0,50	36	6,20	0,50
21	3,20	0,60	37	6,30	0,60
22	3,50	0,60	38	6,40	0,60
23	3,80	0,40	39	6,50	0,55
24	4,00	0,60	40	6,60	0,60
25	4,30	0,50	41	6,80	0,60
26	4,40	0,40			

1-2-88 Humerus Length (HL) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$HUM = -1{,}624 + 0{,}076315 \times GA + 0{,}01683 \times GA^2 - 0{,}00056212 \times GA^3 + 5{,}5666 \times GA^4 \times 10^6$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	HL (cm)		
	5%	50%	95%
12	0.40	0.90	1.30
13	0.70	1.10	1.50
14	1.00	1.40	1.80
15	1.30	1.70	2.10
16	1.60	2.00	2.40
17	1.80	2.20	2.70
18	2.10	2.50	2.90
19	2.40	2.80	3.20
20	2.60	3.00	3.40
21	2.90	3.30	3.70
22	3.10	3.50	3.90
23	3.30	3.80	4.20
24	3.60	4.00	4.40
25	3.80	4.20	4.60
26	4.00	4.40	4.80
27	4.20	4.60	5.00
28	4.40	4.80	5.20
29	4.60	5.00	5.40
30	4.70	5.10	5.60
31	4.90	5.30	5.70
32	5.10	5.50	5.90
33	5.20	5.60	6.00
34	5.40	5.80	6.20
35	5.50	5.90	6.30
36	5.60	6.10	6.50
37	5.80	6.20	6.60
38	5.90	6.30	6.70
39	6.10	6.50	6.90
40	6.20	6.60	7.00

1-2-89 Humerus Length (HL) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	HL (cm)			GA (weeks)	HL (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.50	0.80	1.10	27.5	4.40	4.70	5.10
13.0	0.70	1.00	1.30	28.0	4.50	4.80	5.20
13.5	0.90	1.20	1.50	28.5	4.50	4.90	5.30
14.0	1.00	1.30	1.70	29.0	4.60	5.00	5.40
14.5	1.20	1.50	1.80	29.5	4.70	5.10	5.50
15.0	1.40	1.70	2.00	30.0	4.80	5.20	5.60
15.5	1.50	1.80	2.20	30.5	4.90	5.30	5.70
16.0	1.70	2.00	2.30	31.0	5.00	5.40	5.80
16.5	1.80	2.10	2.50	31.5	5.10	5.50	5.90
17.0	2.00	2.30	2.60	32.0	5.10	5.50	6.00
17.5	2.10	2.40	2.80	32.5	5.20	5.60	6.00
18.0	2.20	2.60	2.90	33.0	5.30	5.70	6.10
18.5	2.40	2.70	3.00	33.5	5.40	5.80	6.20
19.0	2.50	2.80	3.20	34.0	5.40	5.90	6.30
19.5	2.60	3.00	3.30	34.5	5.50	5.90	6.30
20.0	2.70	3.10	3.40	35.0	5.60	6.00	6.40
20.5	2.90	3.20	3.60	35.5	5.60	6.10	6.50
21.0	3.00	3.30	3.70	36.0	5.70	6.10	6.60
21.5	3.10	3.50	3.80	36.5	5.80	6.20	6.60
22.0	3.20	3.60	3.90	37.0	5.80	6.30	6.70
22.5	3.30	3.70	4.00	37.5	5.90	6.30	6.80
23.0	3.40	3.80	4.20	38.0	5.90	6.40	6.80
23.5	3.60	3.90	4.30	38.5	6.00	6.40	6.90
24.0	3.70	4.00	4.40	39.0	6.00	6.50	6.90
24.5	3.80	4.10	4.50	39.5	6.10	6.50	7.00
25.0	3.90	4.20	4.60	40.0	6.10	6.60	7.00
25.5	4.00	4.30	4.70	40.5	6.10	6.60	7.10
26.0	4.10	4.50	4.80	41.0	6.20	6.60	7.10
26.5	4.20	4.60	4.90	41.5	6.20	6.70	7.10
27.0	4.30	4.70	5.00				

1-2-90 Humerus Length (HL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	HL (cm)		GA	HL (cm)		GA	HL (cm)		GA	HL (cm)		GA	HL (cm)	
(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD
13w0d	1.01	0.30	18w3d	2.52	0.33	23w6d	3.79	0.36	29w2d	4.83	0.39	34w5d	5.62	0.41
13w1d	1.05	0.30	18w4d	2.56	0.33	24w0d	3.82	0.36	29w3d	4.85	0.39	34w6d	5.64	0.41
13w2d	1.09	0.30	18w5d	2.59	0.33	24w1d	3.85	0.36	29w4d	4.87	0.39	35w0d	5.65	0.42
13w3d	1.14	0.30	18w6d	2.63	0.33	24w2d	3.88	0.36	29w5d	4.90	0.39	35w1d	5.67	0.42
13w4d	1.18	0.30	19w0d	2.67	0.33	24w3d	3.91	0.36	29w6d	4.92	0.39	35w2d	5.69	0.42
13w5d	1.22	0.30	19w1d	2.70	0.33	24w4d	3.94	0.36	30w0d	4.94	0.39	35w3d	5.71	0.42
13w6d	1.26	0.32	19w2d	2.74	0.33	24w5d	3.97	0.36	30w1d	4.97	0.39	35w4d	5.72	0.42
14w0d	1.31	0.32	19w3d	2.77	0.33	24w6d	4.00	0.36	30w2d	4.99	0.39	35w5d	5.74	0.42
14w1d	1.35	0.32	19w4d	2.81	0.33	25w0d	4.03	0.36	30w3d	5.01	0.39	35w6d	5.76	0.42
14w2d	1.39	0.32	19w5d	2.84	0.33	25w1d	4.06	0.36	30w4d	5.04	0.39	36w0d	5.77	0.42
14w3d	1.43	0.32	19w6d	2.88	0.35	25w2d	4.09	0.36	30w5d	5.06	0.39	36w1d	5.79	0.42
14w4d	1.47	0.32	20w0d	2.91	0.35	25w3d	4.12	0.36	30w6d	5.08	0.39	36w2d	5.80	0.42
14w5d	1.51	0.32	20w1d	2.95	0.35	25w4d	4.14	0.36	31w0d	5.10	0.39	36w3d	5.82	0.42
14w6d	1.55	0.32	20w2d	2.98	0.35	25w5d	4.17	0.36	31w1d	5.12	0.39	36w4d	5.84	0.42
15w0d	1.59	0.32	20w3d	3.02	0.35	25w6d	4.20	0.36	31w2d	5.15	0.39	36w5d	5.85	0.42
15w1d	1.63	0.32	20w4d	3.05	0.35	26w0d	4.23	0.38	31w3d	5.17	0.39	36w6d	5.87	0.42
15w2d	1.67	0.32	20w5d	3.09	0.35	26w1d	4.26	0.38	31w4d	5.19	0.39	37w0d	5.88	0.42
15w3d	1.71	0.32	20w6d	3.12	0.35	26w2d	4.28	0.38	31w5d	5.21	0.39	37w1d	5.90	0.42
15w4d	1.75	0.32	21w0d	3.15	0.35	26w3d	4.31	0.38	31w6d	5.23	0.39	37w2d	5.91	0.42
15w5d	1.79	0.32	21w1d	3.19	0.35	26w4d	4.34	0.38	32w0d	5.25	0.41	37w3d	5.93	0.42
15w6d	1.83	0.32	21w2d	3.22	0.35	26w5d	4.37	0.38	32w1d	5.27	0.41	37w4d	5.94	0.42
16w0d	1.87	0.32	21w3d	3.25	0.35	26w6d	4.39	0.38	32w2d	5.29	0.41	37w5d	5.95	0.42
16w1d	1.91	0.32	21w4d	3.29	0.35	27w0d	4.42	0.38	32w3d	5.31	0.41	37w6d	5.97	0.42
16w2d	1.95	0.32	21w5d	3.32	0.35	27w1d	4.45	0.38	32w4d	5.33	0.41	38w0d	5.98	0.44
16w3d	1.99	0.32	21w6d	3.35	0.35	27w2d	4.47	0.38	32w5d	5.35	0.41	38w1d	6.00	0.44
16w4d	2.03	0.32	22w0d	3.38	0.35	27w3d	4.50	0.38	32w6d	5.37	0.41	38w2d	6.01	0.44
16w5d	2.07	0.32	22w1d	3.42	0.35	27w4d	4.53	0.38	33w0d	5.39	0.41	38w3d	6.02	0.44
16w6d	2.11	0.33	22w2d	3.45	0.35	27w5d	4.55	0.38	33w1d	5.41	0.41	38w4d	6.04	0.44
17w0d	2.15	0.33	22w3d	3.48	0.35	27w6d	4.58	0.38	33w2d	5.43	0.41	38w5d	6.05	0.44
17w1d	2.18	0.33	22w4d	3.51	0.35	28w0d	4.60	0.38	33w3d	5.45	0.41	38w6d	6.06	0.44
17w2d	2.22	0.33	22w5d	3.54	0.35	28w1d	4.63	0.38	33w4d	5.47	0.41	39w0d	6.08	0.44
17w3d	2.26	0.33	22w6d	3.58	0.36	28w2d	4.65	0.38	33w5d	5.49	0.41	39w1d	6.09	0.44
17w4d	2.30	0.33	23w0d	3.61	0.36	28w3d	4.68	0.38	33w6d	5.51	0.41	39w2d	6.10	0.44
17w5d	2.34	0.33	23w1d	3.64	0.36	28w4d	4.70	0.38	34w0d	5.53	0.41	39w3d	6.11	0.44
17w6d	2.37	0.33	23w2d	3.67	0.36	28w5d	4.73	0.38	34w1d	5.55	0.41	39w4d	6.13	0.44
18w0d	2.41	0.33	23w3d	3.70	0.36	28w6d	4.75	0.38	34w2d	5.57	0.41	39w5d	6.14	0.44
18w1d	2.45	0.33	23w4d	3.73	0.36	29w0d	4.78	0.39	34w3d	5.58	0.41	39w6d	6.15	0.44
18w2d	2.48	0.33	23w5d	3.76	0.36	29w1d	4.80	0.39	34w4d	5.60	0.41	40w0d	6.16	0.44

1-2-91 Length of Vertebra (LV) TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

Table values are calculated using the following formulas:

Mean	$LV = 1{,}575 \cdot GA + 5{,}150 \cdot GA^2 \cdot 10^{-3} + 6{,}772 \cdot GA^{-6} - 101{,}22$
95%	$LV = 1{,}098 \cdot GA - 1{,}719 \bullet GA^2 \bullet 10^{-3} - 80{,}32$
5%	$LV = 3{,}715 \cdot GA \bullet -10^{-1} - 1{,}042 \bullet GA^2 \bullet 10^{-4} - 5{,}42$

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GA (days)	LV (mm)			GA (days)	LV (mm)			GA (days)	LV (mm)		
	5%	50%	95%		5%	50%	95%		5%	5%	95%
154	41,0	43,9	48,0	199	53,6	61,6	70,1	244	65,8	74,8	85,2
155	41,3	44,4	48,6	200	53,9	62,0	70,5	245	66,1	75,1	85,5
156	41,6	44,9	49,1	201	54,2	62,3	70,9	246	66,4	75,4	85,8
157	41,9	45,3	49,7	202	54,5	62,6	71,3	247	66,6	75,7	86,0
158	42,1	45,8	50,3	203	54,7	62,9	71,7	248	66,9	75,9	86,3
159	42,4	46,2	50,8	204	55,0	63,2	72,1	249	67,2	76,2	86,5
160	42,7	46,7	51,4	205	55,3	63,6	72,5	250	67,4	76,5	86,7
161	43,0	47,1	51,9	206	55,6	63,9	72,9	251	67,7	76,7	87,0
162	43,3	47,6	52,4	207	55,8	64,2	73,3	252	68,0	77,0	87,2
163	43,6	48,0	53,0	208	56,1	64,5	73,7	253	68,2	77,3	87,4
164	43,8	48,4	53,5	209	56,4	64,8	74,1	254	68,5	77,5	87,7
165	44,1	48,9	54,1	210	56,7	65,1	74,5	255	68,8	77,8	87,9
166	44,4	49,3	54,6	211	56,9	65,4	74,8	256	69,0	78,1	88,1
167	44,7	49,7	55,1	212	57,2	65,7	75,2	257	69,3	78,4	88,3
168	45,0	50,1	55,6	213	57,5	66,0	75,6	258	69,6	78,6	88,5
169	45,3	50,6	56,1	214	57,8	66,3	75,9	259	69,8	78,9	88,7
170	45,5	51,0	56,7	215	58,0	66,6	76,3	260	70,1	79,2	89,0
171	45,8	51,4	57,2	216	58,3	66,9	76,6	261	70,3	79,4	89,2
172	46,1	51,8	57,7	217	58,6	67,2	77,0	262	70,6	79,7	89,4
173	46,4	52,2	58,2	218	58,8	67,5	77,4	263	70,9	80,0	89,6
174	46,7	52,6	58,7	219	59,1	67,8	77,7	264	71,1	80,2	89,7
175	47,0	53,0	59,2	220	59,4	68,1	78,0	265	71,4	80,5	89,9
176	47,2	53,4	59,7	221	59,7	68,4	78,4	266	71,7	80,8	90,1
177	47,5	53,8	60,2	222	59,9	68,7	78,7	267	71,9	81,1	90,3
178	47,8	54,1	60,7	223	60,2	69,0	79,0	268	72,2	81,3	90,5
179	48,1	54,5	61,1	224	60,5	69,3	79,4	269	72,4	81,6	90,7
180	48,4	54,9	61,6	225	60,7	69,6	79,7	270	72,7	81,9	90,8
181	48,6	55,3	62,1	226	61,0	69,9	80,0	271	73,0	82,2	91,0

GA (days)	LV (mm)			GA (days)	LV (mm)			GA (days)	LV (mm)		
	5%	50%	95%		5%	50%	95%		5%	5%	95%
182	48,9	55,7	62,6	227	61,3	70,1	80,3	272	73,2	82,4	91,2
183	49,2	56,0	63,0	228	61,6	70,4	80,7	273	73,5	82,7	91,3
184	49,5	56,4	63,5	229	61,8	70,7	81,0	274	73,8	83,0	91,5
185	49,8	56,8	64,0	230	62,1	71,0	81,3	275	74,0	83,3	91,6
186	50,0	57,1	64,4	231	62,4	71,3	81,6	276	74,3	83,6	91,8
187	50,3	57,5	64,9	232	62,6	71,5	81,9	277	74,5	83,8	91,9
188	50,6	57,9	65,3	233	62,9	71,8	82,2	278	74,8	84,1	92,1
189	50,9	58,2	65,8	234	63,2	72,1	82,5	279	75,1	84,4	92,2
190	51,1	58,6	66,2	235	63,4	72,4	82,8	280	75,3	84,7	92,4
191	51,4	58,9	66,7	236	63,7	72,7	83,1	281	75,6	85,0	92,5
192	51,7	59,3	67,1	237	64,0	72,9	83,4	282	75,8	85,2	92,6
193	52,0	59,6	67,6	238	64,2	73,2	83,6	283	76,1	85,5	92,7
194	52,3	59,9	68,0	239	64,5	73,5	83,9	284	76,3	85,8	92,9
195	52,5	60,3	68,4	240	64,8	73,8	84,2	285	76,6	86,1	93,0
196	52,8	60,6	68,9	241	65,0	74,0	84,5	286	76,9	86,4	93,1
197	53,1	61,0	69,3	242	65,3	74,3	84,7	287	77,1	86,7	93,2
198	53,4	61,3	69,7	243	65,6	74,6	85,0				

1-2-92 Middle Cerebral Artery Pulsatility Index (MCA PI) BAHLMAN

Reference: *Bahlmann F, Reinhard I, Krummenauer F, Neubert S, Macchiella D, Wellek S. Blood flow velocity waveforms of the fetal middle cerebral artery in a normal population: reference values from 18 weeks to 42 weeks of gestation. J.Perinat.Med. 2002;30:490-501*

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	MCA PI		
	5%	50%	95%
18	1.01	1.51	2.02
19	1.13	1.59	2.11
20	1.19	1.67	2.18
21	1.26	1.73	2.25
22	1.31	1.78	2.30
23	1.35	1.83	2.35
24	1.39	1.87	2.40
25	1.41	1.90	2.43
26	1.43	1.92	2.45
27	1.44	1.93	2.47
28	1.45	1.94	2.48
29	1.44	1.94	2.48
30	1.43	1.92	2.47
31	1.40	1.90	2.45
32	1.37	1.88	2.43
33	1.33	1.84	2.39
34	1.29	1.80	2.35
35	1.23	1.74	2.30
36	1.17	1.68	2.24
37	1.09	1.61	2.17
38	1.01	1.53	2.10
39	0.92	1.45	2.02
40	0.83	1.35	1.92
41	0.72	1.25	1.82
42	0.61	1.14	1.72

1-2-93 Middle Cerebral Artery Pulsatility Index (MCA PI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$MCAPI = -5{,}60 \times 10^{-3} \times GA^2 + 3{,}31 \times 10^{-1} \times GA - 2{,}39$
50%	$MCAPI = -5{,}20 \times 10^{-3} \times GA^2 + 3{,}10 \times 10^{-1} \times GA - 2{,}68$
5%	$MCAPI = -3{,}10 \times 10^{-3} \times GA^2 + 1{,}74 \times 10^{-1} \times GA - 9{,}69 \times 10^{-1}$

Input Unit: weeks
Output Unit: index
Range: 20 ... 41 weeks
The table values are calculated from the equations above.

GA (weeks)	MCAPI		
	5%	50%	95%
20	1,271	1,440	1,990
21	1,318	1,537	2,091
22	1,359	1,623	2,182
23	1,393	1,699	2,261
24	1,421	1,765	2,328
25	1,444	1,820	2,385
26	1,459	1,865	2,430
27	1,469	1,899	2,465
28	1,473	1,923	2,488
29	1,470	1,937	2,499
30	1,461	1,940	2,500
31	1,446	1,933	2,489
32	1,425	1,915	2,468
33	1,397	1,887	2,435
34	1,363	1,849	2,390
35	1,324	1,800	2,335
36	1,277	1,741	2,268
37	1,225	1,671	2,191
38	1,167	1,591	2,102
39	1,102	1,501	2,001
40	1,031	1,400	1,890
41	0,954	1,289	1,767

1-2-94 Middle Cerebral Artery Peek Velocity (MCA PV) MARI

Reference: Mari,G., et. al. "Noninvasive diagnosis by Doppler ultrasonography of fetal anemia due to maternal red-cell alloimmunization. Collaborative Group for Doppler Assessment of the Blood Velocity in Anemic Fetuses", N.Engl.J Med. Vol. 342 No. 1, 2000, pages 9-14

Input Unit: weeks
Output Unit: cm/sec
Range: 18 ... 40 weeks

GA (weeks)	MCA PS		
	Mild (1.29 x Median)	Moderate (1.50 x Median)	Severe (1.55 x Median)
18	29.9	34.8	36.0
20	32.8	38.2	39.5
22	36.0	41.9	43.3
24	39.5	46.0	47.5
26	43.3	50.4	52.1
28	47.6	55.4	57.2
30	52.2	60.7	62.8
32	57.3	66.6	68.9
34	62.9	73.1	75.6
36	69.0	80.2	82.9
38	75.7	88.0	91.0
40	83.0	96.6	99.8

1-2-95 Middle Cerebral Artery Resistance Index (MCA RI) BAHLMAN

Reference: Bahlmann F, Reinhard I, Krummenauer F, Neubert S, Macchiella D, Wellek S. Blood flow velocity waveforms of the fetal middle cerebral artery in a normal population: reference values from 18 weeks to 42 weeks of gestation. J.Perinat.Med. 2002;30:490-501.

Input Unit: weeks
Output Unit: cm/sec
Range: 18 ... 40 weeks

GA (weeks)	MCA RI		
	5%	50%	95%
18	0.544	0.687	0.787
19	0.574	0.708	0.808
20	0.592	0.727	0.828
21	0.608	0.744	0.846
22	0.622	0.758	0.861
23	0.633	0.771	0.874
24	0.643	0.782	0.886
25	0.651	0.790	0.895
26	0.656	0.796	0.902
27	0.659	0.801	0.907
28	0.661	0.803	0.910
29	0.660	0.803	0.911
30	0.657	0.801	0.910
31	0.652	0.798	0.907
32	0.645	0.792	0.902
33	0.636	0.783	0.894
34	0.625	0.773	0.885
35	0.612	0.761	0.873
36	0.597	0.747	0.860
37	0.579	0.730	0.844
38	0.560	0.712	0.826
39	0.539	0.692	0.807
40	0.515	0.669	0.785
41	0.489	0.644	0.761
42	0.462	0.618	0.735

1-2-96 Middle Cerebral Artery Resistance Index (MCA RI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$MCARI = -7{,}00 \times 10^{-4} \times GA^2 + 4{,}09 \times 10^{-2} GA + 3{,}33 \times 10^{-1}$
50%	$MCARI = -9{,}00 \times 10^{-4} \times GA^2 + 5{,}40 \times 10^{-2} \times GA + 5{,}54 \times 10^{-2}$
5%	$MCARI = -9{,}00 \times 10^{-4} \times GA^2 + 5{,}06 \times 10^{-2} \times GA + 6{,}48 \times 10^{-2}$

Input Unit: weeks

Output Unit: index

Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	MCARI		
	5%	50%	95%
20	0,717	0,775	0,871
21	0,731	0,793	0,883
22	0,742	0,808	0,894
23	0,753	0,821	0,903
24	0,761	0,833	0,911
25	0,767	0,843	0,918
26	0,772	0,851	0,923
27	0,775	0,857	0,927
28	0,776	0,862	0,929
29	0,775	0,865	0,930
30	0,773	0,865	0,930
31	0,769	0,865	0,928
32	0,762	0,862	0,925
33	0,755	0,857	0,920
34	0,745	0,851	0,914
35	0,733	0,843	0,907
36	0,720	0,833	0,898
37	0,705	0,821	0,888
38	0,688	0,808	0,876
39	0,669	0,793	0,863
40	0,649	0,775	0,849
41	0,627	0,757	0,833

1-2-97 Middle Abdominal Diameter (MAD) EIK-NES

Reference: Eik-Nes SH, Jorgensen NP, Grottum P, Lokvik B "Normal range curves for the intrauterine growth of the fetal abdominal diameters" Submitted JCU

GA (Age)	MAD (cm)		
	-2SD	Mean	+2SD
20	3.81	4.55	5.35
21	4.10	4.85	5.60
22	4.30	5.15	5.90
23	4.60	5.45	6.25
24	4.90	5.75	6.60
25	5.20	6.10	6.90
26	5.55	6.50	7.40
27	5.90	6.90	7.85
28	6.25	7.30	8.30
29	6.65	7.65	8.70
30	7.00	8.00	9.05
31	7.35	8.35	9.40
32	7.70	8.70	9.75
33	8.05	9.00	10.05
34	8.35	9.35	10.35
35	8.65	9.65	10.65
36	8.90	9.90	10.90
37	9.15	10.15	11.15
38	9.40	10.40	11.40
39	9.65	10.65	11.65
40	9.85	10.85	11.80

1-2-98 Abdominal Diameter (MAD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	AD (cm)		
	5%	50%	95%
12	1,45	1,81	2,18
13	1,79	2,19	2,58
14	2,14	2,55	2,97
15	2,48	2,92	3,36
16	2,82	3,29	3,75
17	3,16	3,65	4,14
18	3,49	4,01	4,52
19	3,82	4,36	4,90
20	4,15	4,71	5,28
21	4,47	5,06	5,65
22	4,80	5,41	6,02
23	5,11	5,75	6,39
24	5,43	6,09	6,75
25	5,74	6,42	7,11
26	6,04	6,75	7,47
27	6,34	7,08	7,82
28	6,64	7,40	8,16
29	6,93	7,72	8,50
30	7,22	8,03	8,84
31	7,50	8,34	9,17
32	7,78	8,64	9,50
33	8,05	8,94	9,82
34	8,32	9,23	10,14
35	8,58	9,51	10,45
36	8,84	9,79	10,75
37	9,09	10,07	11,05
38	9,33	10,34	11,34
39	9,57	10,60	11,63
40	9,80	10,85	11,91
41	10,02	11,10	12,18
42	10,24	11,34	12,45

1-2-99 Nasal Bone Length (NBL) BUNDUKI

Reference: Bunduki,V., Ruano,R.; Miguelez,J., Yoshizaki,C.T., Kahhale,S., Zugaib,M.," Fetal nasal bone length: reference range and clinical application in ultrasound screening for trisomy 21", Ultrasound Obstet Gynecol., Vol. 21 No. 2, 2003, pages 156-160

50%: $NBL = 0{,}27 \times GA + 1{,}41$

+/-1SD = +/- 1.13mm

Input Unit: weeks
Output Unit: mm
Range: 16 ... 24 weeks

GA (weeks)	NBL (mm)		
	-1SD	Mean	+1SD
16	4,60	5,73	6,86
17	5,87	6,00	7,13
18	5,14	6,27	7,40
19	5,41	6,54	7,67
20	5,68	6,81	7,94
21	5,95	7,08	8,21
22	6,22	7,35	8,48
23	6,49	7,62	8,75
24	6,76	7,89	9,02

1-2-100 Nasal Bone Length (NBL) SONEK

Reference: Sonek,J.D., McKenna,D., Webb,D., Croom,C., Nicolaides,K.," Nasal bone length throughout gestation: normal ranges based on 3537 fetal ultrasound measurements", Ultrasound Obstet Gynecol., Vol. 21 No. 2, 2003, pages 152-155.

Input Unit: weeks
Output Unit: mm
Range: 11 ... 40 weeks

GA (weeks)	NBL		
	5%	50%	95%
11	1.4	2.3	3.3
12	1.8	2.8.	4.2
13	2.3	3.1	4.6
14	2.5	3.8	5.3
15	3.0	4.3	5.7
16	3.4	4.7	6.2
17	4.0	5.3	6.6
18	4.3	5.7	7.0
19	5.0	6.3	7.9
20	5.2	6.7	8.3
21	5.6	7.1	9.0
22	5.8	7.5	9.3
23	6.4	7.9	9.6
24	6.8	8.3	10.0
25	6.5	8.5	10.7
26	7.4	8.9	10.9
27	7.5	9.2	11.3
28	7.6	9.8	12.1
29	7.7	9.8	11.8
30	7.9	10.0	12.6
31	8.2	10.4	12.6
32	8.6	10.5	13.6
33	8.7	10.8	12.8
34	9.1	10.9	12.8
35	8.5	11.0	14.1
36	7.8	10.8	12.8
37	8.7	11.4	14.5
38	9.3	11.7	15.7
39	9.2	10.9	14.0
40	10.4	12.1	14.5

1-2-101 Occipital Frontal Diameter (OFD) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	OFD (cm)		GA (week)	OFD (cm)	
	mean	±2SD		mean	±2SD
11	2,10	0,20	27	8,60	0,45
12	2,40	0,20	28	9,50	0,50
13	2,90	0,30	29	9,70	0,55
14	3,40	0,30	30	9,80	0,55
15	3,80	0,30	31	10,10	0,50
16	4,60	0,30	32	10,20	0,50
17	5,00	0,30	33	10,70	0,55
18	5,40	0,35	34	10,80	0,55
19	5,70	0,35	35	10,90	0,55
20	6,10	0,35	36	11,20	0,55
21	6,30	0,40	37	11,30	0,60
22	6,80	0,35	38	11,60	0,55
23	7,60	0,40	39	11,90	0,60
24	7,90	0,40	40	12,00	0,60
25	8,20	0,45	41	12,20	0,60
26	8,40	0,45			

1-2-102 Occipital Frontal Diameter (OFD) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101 No. 1, 1994, pages 35-43

GA (Week)	OFD (mm)		
	-1SD	Mean	+1SD
12	23,8	26,2	28,6
13	26,9	29,7	32,5
14	33,2	35,8	38,4
15	35,6	38,6	41,6
16	41,6	43,9	46,2
17	43,6	47,2	50,8
18	49,4	52,9	56,4
19	55,0	58,1	61,2
20	57,0	61,0	65,0
21	63,6	66,6	69,6
22	65,2	68,8	72,4
23	69,0	73,2	77,4
24	75,7	79,0	82,3
25	78,9	82,2	85,5
26	82,3	86,8	91,3
27	87,0	90,8	94,6
28	91,2	94,8	98,4
29	96,1	99,6	103,1
30	98,0	101,6	105,2
31	100,9	105,5	110,1
32	102,0	106,8	111,6
33	105,0	109,8	114,6
34	106,3	110,9	115,5
35	106,5	112,4	118,3
36	111,1	117,2	123,3
37	112,6	116,7	120,8
38	108,0	117,4	126,8
39	113,4	118,0	122,6
40	111,9	120,7	129,5
41	117,0	124,1	131,2
42	114,3	120,6	126,9

1-2-103 Occipital Frontal Diameter (OFD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986,p.433

GA (weeks)	OFD (cm)		
	5%	50%	95%
14	3.10	3.10	3.10
15	3.20	3.80	4.20
16	3.60	4.10	4.60
17	4.10	4.60	5.10
18	4.50	5.00	5.50
19	4.90	5.40	6.00
20	5.30	5.80	6.40
21	5.70	6.30	6.90
22	6.10	6.70	7.30
23	6.50	7.20	7.80
24	6.90	7.60	8.20
25	7.30	8.00	8.70
26	7.60	8.40	9.10
27	8.00	8.80	9.50
28	8.30	9.10	9.80
29	8.70	9.50	10.10
30	8.90	9.80	10.50
31	9.20	10.00	10.70
32	9.50	10.30	11.00
33	9.70	10.50	11.20
34	9.90	10.70	11.50
35	10.10	10.90	11.70
36	10.30	11.10	11.80
37	10.40	11.20	12.00
38	10.50	11.30	12.10
39	10.60	11.40	12.30
40	10.70	11.50	12.40

1-2-104 Occipital Frontal Diameter (OFD) JEANTY

Reference: *Jeanty P., Cousaert E., Hobbins J.C., Tack B., Bracken M., Cantraine F*
"A longitudinal study of fetal head biometry"
American Journal of Perinatology; Volume 1; Number 2; January 1984

$$OFD = -2{,}6934 + 0{,}37701 \times GA + 0{,}0046395 \times GA^2 - 0{,}00012939 \times GA^3$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 10.0 weeks
Max Range: 40.0 weeks

GA (weeks)	OFD (cm)		
	5%	50%	95%
10	0.70	1.40	2.10
11	1.10	1.80	2.50
12	1.60	2.30	3.00
13	2.00	2.70	3.40
14	2.40	3.10	3.80
15	2.90	3.60	4.30
16	3.30	4.00	4.70
17	3.70	4.40	5.10
18	4.10	4.80	5.50
19	4.60	5.30	6.00
20	5.00	5.70	6.40
21	5.40	6.10	6.80
22	5.80	6.50	7.20
23	6.20	6.90	7.60
24	6.50	7.20	7.90
25	6.90	7.60	8.30
26	7.30	8.00	8.70
27	7.60	8.30	9.00
28	8.00	8.70	9.40
29	8.30	9.00	9.70
30	8.60	9.30	10.00
31	8.90	9.60	10.30
32	9.20	9.90	10.60
33	9.50	10.20	10.80
34	9.70	10.40	11.10
35	9.90	10.60	11.30
36	10.20	10.90	11.60
37	10.40	11.10	11.80
38	10.50	11.20	11.90
39	10.70	11.40	12.10
40	10.80	11.50	12.20

1-2-105 Occipital Frontal Diameter (OFD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	OFD (cm)		
	5%	50%	95%
12	2,02	2,46	2,91
13	2,49	2,96	3,43
14	2,96	3,45	3,94
15	3,43	3,93	4,44
16	3,88	4,41	4,94
17	4,32	4,87	5,42
18	4,76	5,32	5,89
19	5,18	5,77	6,35
20	5,59	6,20	6,81
21	5,99	6,62	7,24
22	6,37	7,02	7,67
23	6,75	7,41	8,08
24	7,11	7,79	8,48
25	7,45	8,16	8,87
26	7,78	8,51	9,24
27	8,09	8,84	9,59
28	8,39	9,16	9,93
29	8,67	9,46	10,25
30	8,93	9,74	10,55
31	9,18	10,01	10,84
32	9,41	10,25	11,10
33	9,61	10,48	11,35
34	9,80	10,69	11,58
35	9,97	10,88	11,78
36	10,11	11,04	11,97
37	10,24	11,19	12,13
38	10,34	11,31	12,28
39	10,42	11,41	12,40
40	10,47	11,48	12,49
41	10,51	11,53	12,56
42	10,51	11,56	12,61

1-2-106 Occipital Frontal Diameter (OFD) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones" Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	OFD (cm)			GA (weeks)	OFD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	2.60	3.00	3.40	27.5	8.40	9.00	9.50
13.0	2.80	3.20	3.60	28.0	8.60	9.10	9.70
13.5	2.90	3.40	3.80	28.5	8.70	9.30	9.80
14.0	3.10	3.50	4.00	29.0	8.90	9.40	10.00
14.5	3.30	3.70	4.10	29.5	9.00	9.60	10.10
15.0	3.50	3.90	4.30	30.0	9.20	9.70	10.30
15.5	3.70	4.10	4.60	30.5	9.30	9.90	10.40
16.0	3.90	4.30	4.80	31.0	9.40	10.00	10.60
16.5	4.10	4.50	5.00	31.5	9.60	10.10	10.70
17.0	4.30	4.70	5.20	32.0	9.70	10.20	10.80
17.5	4.50	5.00	5.40	32.5	9.80	10.40	11.00
18.0	4.70	5.20	5.60	33.0	9.90	10.50	11.10
18.5	4.90	5.40	5.90	33.5	10.00	10.60	11.20
19.0	5.10	5.60	6.10	34.0	10.10	10.70	11.30
19.5	5.40	5.80	6.30	34.5	10.20	10.80	11.40
20.0	5.60	6.00	6.50	35.0	10.30	10.90	11.50
20.5	5.80	6.30	6.70	35.5	10.30	11.00	11.60
21.0	6.00	6.50	6.90	36.0	10.40	11.00	11.60
21.5	6.20	6.70	7.20	36.5	10.50	11.10	11.70
22.0	6.40	6.90	7.40	37.0	10.50	11.20	11.80
22.5	6.60	7.10	7.60	37.5	10.60	11.20	11.90
23.0	6.80	7.30	7.80	38.0	10.60	11.30	11.90
23.5	7.00	7.50	8.00	38.5	10.70	11.30	12.00
24.0	7.20	7.70	8.20	39.0	10.70	11.40	12.00
24.5	7.40	7.90	8.40	39.5	10.80	11.40	12.00
25.0	7.50	8.10	8.60	40.0	10.80	11.40	12.10
25.5	7.70	8.20	8.80	40.5	10.80	11.40	12.10
26.0	7.90	8.40	9.00	41.0	10.80	11.50	12.10
26.5	8.10	8.60	9.10	41.5	10.80	11.50	12.10
27.0	8.20	8.80	9.30				

1-2-107 Occipital Frontal Diameter (OFD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	OFD (cm)		
	5th centile	Median	95th centile
14	3.50	3.90	4.20
15	3.90	4.20	4.60
16	4.20	4.60	5.00
17	4.60	5.00	5.40
18	5.00	5.40	5.90
19	5.40	5.80	6.30
20	5.70	6.20	6.80
21	6.10	6.70	7.20
22	6.50	7.10	7.70
23	6.90	7.50	8.20
24	7.30	7.90	8.60
25	7.70	8.30	9.00
26	8.10	8.70	9.50
27	8.40	9.10	9.90
28	8.70	9.50	10.30
29	9.10	9.80	10.70
30	9.40	10.20	11.00
31	9.60	10.50	11.30
32	9.90	10.70	11.60
33	10.10	11.00	11.90
34	10.30	11.20	12.10
35	10.50	11.30	12.30
36	10.60	11.50	12.40
37	10.70	11.60	12.50
38	10.70	11.60	12.60
39	10.70	11.60	12.60

1-2-108 Radius (RAD) JEANTY

Reference: Jeanty,P., "Fetal Limb Biometry" Radiology, Vol. 147 No. 2, 1983, pages 601-602

Note: The table listed here is calculted by the formula

$$RAD = 32{,}018781 + 3{,}800812 \cdot GA - 0{,}043570568 \bullet GA^2$$

(This formula was given to us by Dr. Jeanty personally, and the results are more accurate than the rounded results listed in the publication referenced above.)

GA (weeks)	RAD (mm)		
	5%	50	95%
11	4,5	4,5	4,5
12	7,3	7,3	7,3
13	4,4	10,0	15,6
14	7,1	12,7	18,3
15	9,6	15,2	20,8
16	12,0	17,6	23,2
17	14,4	20,0	25,6
18	16,7	22,3	27,9
19	18,9	24,5	30,1
20	21,0	26,6	32,2
21	23,0	28,6	34,2
22	24,9	30,5	36,1
23	26,8	32,4	38,0
24	28,5	34,1	39,7
25	30,2	35,8	41,4
26	31,7	37,3	42,9
27	33,2	38,8	44,4
28	34,6	40,2	45,8
29	36,0	41,6	47,2
30	37,2	42,8	48,4
31	38,3	43,9	49,5
32	39,4	45,0	50,6
33	40,4	46,0	51,6
34	41,2	46,8	52,4
35	42,0	47,6	53,2
36	42,7	48,3	53,9
37	43,4	49,0	54,6
38	43,9	49,5	55,1
39	44,3	49,9	55,5
40	44,7	50,3	55,9

1-2-109 Radius (RAD) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	RAD (cm)			GA (weeks)	RAD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.10	0.40	0.70	27.5	3.60	3.90	4.30
13.0	0.30	0.60	0.90	28.0	3.60	4.00	4.40
13.5	0.50	0.80	1.10	28.5	3.70	4.10	4.50
14.0	0.60	1.00	1.30	29.0	3.80	4.20	4.50
14.5	0.80	1.10	1.40	29.5	3.90	4.20	4.60
15.0	1.00	1.30	1.60	30.0	3.90	4.30	4.70
15.5	1.10	1.40	1.70	30.5	4.00	4.40	4.80
16.0	1.20	1.60	1.90	31.0	4.10	4.40	4.80
16.5	1.40	1.70	2.00	31.5	4.10	4.50	4.90
17.0	1.50	1.80	2.20	32.0	4.20	4.60	5.00
17.5	1.60	2.00	2.30	32.5	4.30	4.60	5.00
18.0	1.70	2.10	2.40	33.0	4.30	4.70	5.10
18.5	1.90	2.20	2.50	33.5	4.40	4.80	5.20
19.0	2.00	2.30	2.60	34.0	4.40	4.80	5.20
19.5	2.10	2.40	2.80	34.5	4.50	4.90	5.30
20.0	2.20	2.50	2.90	35.0	4.50	4.90	5.30
20.5	2.30	2.60	3.00	35.5	4.60	5.00	5.40
21.0	2.40	2.80	3.10	36.0	4.60	5.00	5.40
21.5	2.50	2.90	3.20	36.5	4.70	5.10	5.50
22.0	2.60	3.00	3.30	37.0	4.70	5.10	5.50
22.5	2.70	3.10	3.40	37.5	4.80	5.20	5.60
23.0	2.80	3.20	3.50	38.0	4.80	5.20	5.60
23.5	2.90	3.20	3.60	38.5	4.80	5.20	5.70
24.0	3.00	3.30	3.70	39.0	4.90	5.30	5.70
24.5	3.10	3.40	3.80	39.5	4.90	5.30	5.70
25.0	3.20	3.50	3.90	40.0	4.90	5.30	5.80
25.5	3.20	3.60	4.00	40.5	4.90	5.40	5.80
26.0	3.30	3.70	4.10	41.0	5.00	5.40	5.80
26.5	3.40	3.80	4.10	41.5	5.00	5.40	5.80
27.0	3.50	3.90	4.20				

1-2-110 Transverse Abdominal Diameter (TAD) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstet Fértil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 16 weeks
Max Range: 40 weeks

GA (Week)	TAD (mm)				
	3%	10%	50%	90%	97%
11	9,68	11,00	13,50	16,00	17,25
12	12,68	14,00	17,00	20,00	21,46
13	15,60	17,25	20,56	24,00	25,51
14	18,69	20,41	24,00	27,84	29,56
15	21,76	23,64	27,69	31,74	33,61
16	25,00	27,00	31,21	35,53	37,48
17	28,23	30,34	34,70	39,21	41,39
18	31,54	33,64	38,31	42,89	45,14
19	34,78	37,00	41,69	46,42	48,59
20	38,16	40,26	45,21	50,00	52,20
21	41,14	43,46	48,34	53,22	55,63
22	44,21	46,61	51,57	56,75	59,08
23	47,00	49,47	54,72	60,00	62,46
24	49,77	52,39	57,88	63,43	66,00
25	52,54	55,18	61,00	66,74	69,44
26	55,17	58,00	64,00	70,12	72,89
27	57,72	60,73	67,11	73,42	76,42
28	60,43	63,58	70,27	76,80	79,87
29	63,13	66,36	73,27	80,17	83,33
30	65,80	69,17	76,17	83,45	86,75
31	68,35	71,88	79,25	86,68	90,13
32	70,90	74,43	82,10	89,76	93,36
33	73,08	76,75	84,78	92,89	96,64
34	75,25	79,08	87,55	95,89	99,86
35	77,00	81,10	90,00	99,00	103,00
36	78,48	82,90	92,36	102,00	106,31
37	79,79	84,60	94,81	105,00	109,67
38	80,92	86,10	97,00	108,19	113,29
39	81,85	87,41	99,33	111,34	117,00
40	82,58	88,59	101,64	114,52	120,70
41	82,80	89,20	103,00	117,00	123,00

1-2-111 Transverse Abdominal Diameter (TAD) MERZ

Reference: Merz E., Wellek S
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA	TAD (cm)			GA	TAD (cm)		
(weeks)	5%	50%	95%	(weeks)	5%	50%	95%
12.5	1.70	2.00	2.40	27.5	6.50	7.10	7.80
13.0	1.80	2.20	2.60	28.0	6.70	7.30	7.90
13.5	2.00	2.40	2.80	28.5	6.80	7.50	8.10
14.0	2.10	2.50	2.90	29.0	7.00	7.60	8.30
14.5	2.30	2.70	3.10	29.5	7.10	7.80	8.40
15.0	2.50	2.90	3.30	30.0	7.30	7.90	8.60
15.5	2.60	3.10	3.50	30.5	7.40	8.10	8.80
16.0	2.80	3.20	3.70	31.0	7.60	8.20	8.90
16.5	3.00	3.40	3.80	31.5	7.70	8.40	9.10
17.0	3.10	3.60	4.00	32.0	7.80	8.50	9.20
17.5	3.30	3.80	4.20	32.5	8.00	8.70	9.40
18.0	3.50	3.90	4.40	33.0	8.10	8.80	9.60
18.5	3.60	4.10	4.60	33.5	8.30	9.00	9.70
19.0	3.80	4.30	4.80	34.0	8.40	9.10	9.90
19.5	3.90	4.40	4.90	34.5	8.50	9.30	10.00
20.0	4.10	4.60	5.10	35.0	8.70	9.40	10.20
20.5	4.30	4.80	5.30	35.5	8.80	9.60	10.30
21.0	4.40	5.00	5.50	36.0	8.90	9.70	10.50
21.5	4.60	5.10	5.70	36.5	9.10	9.80	10.60
22.0	4.80	5.30	5.80	37.0	9.20	10.00	10.80
22.5	4.90	5.50	6.00	37.5	9.30	10.10	10.90
23.0	5.10	5.60	6.20	38.0	9.40	10.20	11.00
23.5	5.20	5.80	6.40	38.5	9.50	10.40	11.20
24.0	5.40	6.00	6.50	39.0	9.70	10.50	11.30
24.5	5.60	6.10	6.70	39.5	9.80	10.60	11.40
25.0	5.70	6.30	6.90	40.0	9.90	10.70	11.60
25.5	5.90	6.50	7.10	40.5	10.00	10.80	11.70
26.0	6.00	6.60	7.20	41.0	10.10	10.90	11.80
26.5	6.20	6.80	7.40	41.5	10.20	11.00	11.90
27.0	6.30	7.00	7.60				

1-2-112 Transverse Cerebellar Diameter (CEREB) GOLDSTEIN

Reference: Goldstein I.; Reece A.; Pilu G.; Bovicelli L.; Hobbins J.C. "Cerebellar measurement with ultrasonography in the evaluation of fetal growth and development." Am J Obstet Gynecol; May 1987; 1065-1069

GA (weeks)	Cereb (cm)		
	10%	50%	90%
15	1.00	1.40	1.60
16	1.40	1.60	1.70
17	1.60	1.70	1.80
18	1.70	1.80	1.90
19	1.80	1.90	2.20
20	1.80	2.00	2.20
21	1.90	2.20	2.40
22	2.10	2.30	2.40
23	2.20	2.40	2.60
24	2.20	2.50	2.80
25	2.30	2.80	2.90
26	2.50	2.90	3.20
27	2.60	3.00	3.20
28	2.70	3.10	3.40
29	2.90	3.40	3.80
30	3.10	3.50	4.00
31	3.20	3.80	4.30
32	3.30	3.80	4.20
33	3.20	4.00	4.40
34	3.30	4.00	4.40
35	3.10	4.05	4.70
36	3.60	4.30	5.50
37	3.70	4.50	5.50
38	4.00	4.85	5.50
39	5.20	5.20	5.50

1-2-113 Transverse Cerebellar Diameter (CEREB) HILL

Reference: Hill L. M. Guzick D. Fries J. Hixson J. Rivello D. "The Transverse Cerebellar Diameter in Estimating Gestational Age in the Large for Gestational Age Fetus" Obstetrics and Gynecology Vol. 75; No 6; June 1990; pages 981-985

GA (weeks)	Cereb (cm)	
	Mean	±2SD
15	1.50	0.30
16	1.60	0.20
17	1.70	0.20
18	1.80	0.20
19	2.00	0.20
20	2.00	0.30
21	2.20	0.30
22	2.30	0.30
23	2.40	0.30
24	2.60	0.40
25	2.80	0.40
26	3.00	0.40
27	3.00	0.40
28	3.30	0.40
29	3.40	0.40
30	3.70	0.40
31	3.90	0.40
32	4.10	0.50
33	4.30	0.50
34	4.60	0.90
35	4.70	0.70
36	4.90	0.90
37	5.10	1.10
38	5.10	1.20
39	5.20	1.00
40	5.20	0.80

1-2-114 Transverse Cerebellar Diameter (CEREB) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	TCD (cm)		
	5th centile	Median	95th centile
14	1.20	1.40	1.50
15	1.30	1.50	1.70
16	1.40	1.60	1.80
17	1.50	1.70	1.90
18	1.60	1.80	2.10
19	1.70	2.00	2.20
20	1.90	2.10	2.40
21	2.00	2.20	2.50
22	2.10	2.40	2.70
23	2.20	2.50	2.80
24	2.40	2.60	3.00
25	2.50	2.80	3.10
26	2.60	2.90	3.30
27	2.70	3.10	3.40
28	2.90	3.20	3.60
29	3.00	3.30	3.70
30	3.10	3.50	3.90
31	3.20	3.60	4.00
32	3.40	3.70	4.20
33	3.50	3.90	4.30
34	3.60	4.00	4.40
35	3.70	4.10	4.60
36	3.80	4.20	4.70
37	3.90	4.30	4.80
38	4.00	4.40	4.90
39	4.10	4.50	5.10

1-2-115 Tibia (TIB) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$TIB = -0{,}5555 - 0{,}091554 \times GA + 0{,}023359 \times GA^2 - 6{,}387 \times GA^3 \times 10^{-4} + 5{,}5801 \times GA^4 \times 10^{-6}$$

Input Unit: weeks
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	TIB (cm)		
	5%	50%	95%
12	0.30	0.70	1.20
13	0.50	1.00	1.40
14	0.80	1.20	1.60
15	1.00	1.50	1.90
16	1.30	1.70	2.10
17	1.50	2.00	2.40
18	1.80	2.20	2.70
19	2.10	2.50	2.90
20	2.30	2.70	3.20
21	2.60	3.00	3.40
22	2.80	3.20	3.70
23	3.10	3.50	3.90
24	3.30	3.70	4.20
25	3.50	4.00	4.40
26	3.70	4.20	4.60
27	4.00	4.40	4.80
28	4.20	4.60	5.00
29	4.40	4.80	5.20
30	4.60	5.00	5.40
31	4.70	5.20	5.60
32	4.90	5.40	5.80
33	5.10	5.50	6.00
34	5.30	5.70	6.10
35	5.40	5.80	6.30
36	5.60	6.00	6.40
37	5.70	6.10	6.60
38	5.90	6.30	6.70
39	6.00	6.40	6.90
40	6.10	6.60	7.00

1-2-116 Tibia (TIB) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	TIB (cm)			GA (weeks)	TIB (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.40	0.70	1.00	27.5	4.20	4.60	5.00
13.0	0.60	0.90	1.20	28.0	4.30	4.70	5.10
13.5	0.70	1.00	1.30	28.5	4.40	4.80	5.20
14.0	0.90	1.20	1.50	29.0	4.50	4.90	5.30
14.5	1.10	1.40	1.70	29.5	4.60	5.00	5.40
15.0	1.20	1.50	1.80	30.0	4.60	5.10	5.50
15.5	1.40	1.70	2.00	30.5	4.70	5.10	5.60
16.0	1.50	1.80	2.10	31.0	4.80	5.20	5.60
16.5	1.60	2.00	2.30	31.5	4.90	5.30	5.70
17.0	1.80	2.10	2.40	32.0	5.00	5.40	5.80
17.5	1.90	2.20	2.60	32.5	5.10	5.50	5.90
18.0	2.10	2.40	2.70	33.0	5.10	5.60	6.00
18.5	2.20	2.50	2.90	33.5	5.20	5.60	6.10
19.0	2.30	2.60	3.00	34.0	5.30	5.70	6.20
19.5	2.40	2.80	3.10	34.5	5.40	5.80	6.20
20.0	2.60	2.90	3.20	35.0	5.40	5.90	6.30
20.5	2.70	3.00	3.40	35.5	5.50	5.90	6.40
21.0	2.80	3.10	3.50	36.0	5.60	6.00	6.50
21.5	2.90	3.30	3.60	36.5	5.60	6.10	6.50
22.0	3.00	3.40	3.70	37.0	5.70	6.20	6.60
22.5	3.10	3.50	3.90	37.5	5.80	6.20	6.70
23.0	3.30	3.60	4.00	38.0	5.80	6.30	6.70
23.5	3.40	3.70	4.10	38.5	5.90	6.30	6.80
24.0	3.50	3.80	4.20	39.0	5.90	6.40	6.90
24.5	3.60	4.00	4.30	39.5	6.00	6.40	6.90
25.0	3.70	4.10	4.40	40.0	6.00	6.50	7.00
25.5	3.80	4.20	4.50	40.5	6.10	6.50	7.00
26.0	3.90	4.30	4.70	41.0	6.10	6.60	7.10
26.5	4.00	4.40	4.80	41.5	6.10	6.60	7.10
27.0	4.10	4.50	4.90				

1-2-117 Transverse Trunk Diameter (TTD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986; p.435

NOTE: concerning DICOM-SR:
TTD Value is transferred as TAD value (Transverse Abdominal Diameter)
(because no TTD item present in DICOM standard)

GA (weeks)	TTD (cm)		
	5%	50%	95%
12	1.70	1.70	1.70
13	2.00	2.00	2.00
14	2.00	2.40	2.80
15	2.30	2.70	3.10
16	2.70	3.10	3.50
17	3.00	3.40	3.80
18	3.30	3.70	4.20
19	3.60	4.00	4.60
20	3.90	4.40	4.90
21	4.20	4.70	5.30
22	4.50	5.00	5.60
23	4.80	5.30	6.00
24	5.00	5.60	6.30
25	5.30	5.90	6.70
26	5.60	6.20	7.00
27	5.90	6.50	7.30
28	6.20	6.90	7.70
29	6.40	7.20	8.00
30	6.70	7.40	8.30
31	7.00	7.80	8.60
32	7.30	8.10	8.90
33	7.50	8.30	9.30
34	7.80	8.60	9.60
35	8.00	8.90	9.90
36	8.30	9.20	10.20
37	8.50	9.40	10.50
38	8.70	9.70	10.80
39	8.90	9.90	11.10
40	9.10	10.10	11.40
41	9.20	10.20	11.70

1-2-118 Ulna (ULNA) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$ULNA = -3{,}4313 + 0{,}38685 \times GA - 0{,}0036949 \times GA^2$$

Input Unit: weeks
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	ULNA (cm)		
	5%	50%	95%
12	0.30	0.70	1.10
13	0.50	1.00	1.40
14	0.80	1.30	1.70
15	1.10	1.50	2.00
16	1.40	1.80	2.20
17	1.60	2.10	2.50
18	1.90	2.30	2.80
19	2.20	2.60	3.00
20	2.40	2.80	3.30
21	2.60	3.10	3.50
22	2.90	3.30	3.70
23	3.10	3.50	3.90
24	3.30	3.70	4.20
25	3.50	3.90	4.40
26	3.70	4.10	4.60
27	3.90	4.30	4.70
28	4.10	4.50	4.90
29	4.30	4.70	5.10
30	4.40	4.80	5.30
31	4.60	5.00	5.40
32	4.70	5.20	5.60
33	4.90	5.30	5.70
34	5.00	5.50	5.90
35	5.20	5.60	6.00
36	5.30	5.70	6.10
37	5.40	5.80	6.30
38	5.50	5.90	6.40
39	5.60	6.00	6.50
40	5.70	6.10	6.60

1-2-119 Ulna (ULNA) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	ULNA (cm)			GA (weeks)	ULNA (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.30	0.50	0.80	27.5	4.10	4.40	4.80
13.0	0.50	0.80	1.10	28.0	4.10	4.50	4.90
13.5	0.70	1.00	1.30	28.5	4.20	4.60	5.00
14.0	0.80	1.10	1.40	29.0	4.30	4.70	5.10
14.5	1.00	1.30	1.60	29.5	4.40	4.80	5.20
15.0	1.20	1.50	1.80	30.0	4.50	4.90	5.20
15.5	1.30	1.60	1.90	30.5	4.60	4.90	5.30
16.0	1.50	1.80	2.10	31.0	4.60	5.00	5.40
16.5	1.60	1.90	2.20	31.5	4.70	5.10	5.50
17.0	1.70	2.10	2.40	32.0	4.80	5.20	5.60
17.5	1.90	2.20	2.50	32.5	4.90	5.30	5.60
18.0	2.00	2.30	2.70	33.0	4.90	5.30	5.70
18.5	2.10	2.50	2.80	33.5	5.00	5.40	5.80
19.0	2.30	2.60	2.90	34.0	5.10	5.50	5.90
19.5	2.40	2.70	3.10	34.5	5.10	5.50	5.90
20.0	2.50	2.80	3.20	35.0	5.20	5.60	6.00
20.5	2.60	3.00	3.30	35.5	5.20	5.70	6.10
21.0	2.70	3.10	3.40	36.0	5.30	5.70	6.10
21.5	2.90	3.20	3.50	36.5	5.40	5.80	6.20
22.0	3.00	3.30	3.70	37.0	5.40	5.80	6.30
22.5	3.10	3.40	3.80	37.5	5.50	5.90	6.30
23.0	3.20	3.50	3.90	38.0	5.50	5.90	6.40
23.5	3.30	3.60	4.00	38.5	5.60	6.00	6.40
24.0	3.40	3.70	4.10	39.0	5.60	6.00	6.50
24.5	3.50	3.80	4.20	39.5	5.70	6.10	6.50
25.0	3.60	3.90	4.30	40.0	5.70	6.10	6.60
25.5	3.70	4.00	4.40	40.5	5.70	6.20	6.60
26.0	3.80	4.10	4.50	41.0	5.80	6.20	6.60
26.5	3.90	4.20	4.60	41.5	5.80	6.20	6.70
27.0	4.00	4.30	4.70				

1-2-120 Umbilical Artery Pulsatility Index (UmbArt PI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$UmAPI = 1{,}00 \times 10^{-3} \times GA^2 - 8{,}76 \times 10^{-2} \times GA + 3{,}04$
50%	$UmAPI = 1{,}30 \times 10^{-3} \times GA^2 - 1{,}03 \times 10^{-1} \times GA \times 2{,}93$
5%	$UmAPI = 1{,}10 \times 10^{-3} \times GA^2 - 8{,}81 \times 10^{-2} \times GA + 2{,}44$

Input Unit: weeks

Output Unit: index

Min Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	UmbArt PI		
	5%	50%	95%
20	1,118	1,390	1,688
21	1,075	1,340	1,641
22	1,034	1,293	1,597
23	0,996	1,249	1,554
24	0,959	1,207	1,514
25	0,925	1,168	1,475
26	0,893	1,131	1,438
27	0,863	1,097	1,404
28	0,836	1,065	1,371
29	0,810	1,036	1,341
30	0,787	1,010	1,312
31	0,766	0,986	1,285
32	0,747	0,965	1,261
33	0,731	0,947	1,238
34	0,716	0,931	1,218
35	0,704	0,918	1,199
36	0,694	0,907	1,182
37	0,686	0,899	1,168
38	0,681	0,893	1,155
39	0,677	0,890	1,145
40	0,676	0,890	1,136
41	0,677	0,892	1,129

1-2-121 Umbilical Artery Pulsatility Index (UmbArt PI) MERZ

Reference: Uteroplacental Circulation In: Merz E, editor. Volume: 1 Ultrasound in Obstetrics and Gynecology Stuttgart, New York: Thieme; 2005. p. 469 -480, 613.

Input Unit: weeks
Output Unit: index
Min Range: 18 ... 42 weeks

GA (weeks)	UmbArt PI		
	5%	50%	95%
18	1,018	1.361	1.652
19	0.972	1.250	1.539
20	0.940	1.216	1.505
21	0.913	1.189	1.476
22	0.890	1.165	1.450
23	0.869	1.142	1.427
24	0.849	1.122	1.405
25	0.831	1.102	1.385
26	0.813	1.084	1.365
27	0.797	1.065	1.346
28	0.780	1.048	1.327
29	0.764	1.031	1.308
30	0.748	1.014	1.290
31	0.732	0.997	1.272
32	0.716	0.980	1.254
33	0.700	0.963	1.236
34	0.684	0.946	1.218
35	0.668	0.928	1.199
36	0.651	0.910	1.180
37	0.634	0.891	1.160
38	0.615	0.872	1.139
39	0.595	0.851	1.117
40	0.573	0.828	1.093
41	0.547	0.801	1.065
42	0.513	0.765	1.028

*) GA entered dictly, GA by LMP or GA by EDD

1-2-122 Umbilical Artery Resistance Index (UmbArt RI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$UmARI = 1{,}00 \times 10^{-4} \times GA^2 - 1{,}42 \times 10^{-2} \times GA + 1{,}09$
50%	$UmARI = 3{,}00 \times 10^{-4} \times GA^2 - 2{,}71 \times 10^{-2} \times GA + 1{,}20$
5%	$UmARI = 3{,}00 \times 10^{-4} \times GA^2 - 3{,}01 \times 10^{-2} \times GA + 1{,}18$

Input Unit: weeks
Output Unit: index
Min Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	UmbArt RI		
	5%	50%	95%
20	0,698	0,778	0,846
21	0,680	0,763	0,836
22	0,663	0,749	0,826
23	0,646	0,735	0,816
24	0,630	0,722	0,807
25	0,615	0,710	0,798
26	0,600	0,698	0,788
27	0,586	0,687	0,780
28	0,572	0,676	0,771
29	0,559	0,666	0,762
30	0,547	0,657	0,754
31	0,535	0,648	0,746
32	0,524	0,640	0,738
33	0,513	0,632	0,730
34	0,503	0,625	0,723
35	0,494	0,619	0,716
36	0,485	0,613	0,708
37	0,477	0,608	0,702
38	0,469	0,603	0,695
39	0,462	0,599	0,688
40	0,456	0,596	0,682
41	0,450	0,593	0,676

1-2-123 Umbilical Artery Resistance Index (UmbArt RI) KURMANAVICIUS

Reference: Kurmanavicius J, Florio I, Wisser J, Hebisch G, Zimmermann R, Müller R.u.Huch R. et al. Reference resistance indices of the umbilical, fetal middle cerebral and uterine arteries at 24-42 weeks of gestation. Ultrasound Obstet.Gynecol. 1997;10:112-120.

95%	$UmARI = 1{,}034 - 0{,}0086 \times GA$
50%	$UmARI = 0{,}952 - 0{,}0098 \times GA$
5%	$UmARI = 0{,}872 - 0{,}0107 \times GA$

Input Unit: weeks

Output Unit: index

Range: 24 ... 42 weeks

The table values are calculated from the equations above.

GA (weeks)	UmbArt RI		
	5%	50%	95%
24	0.62	0.72	0.83
25	0.60	0.71	0.82
26	0.59	0.70	0.81
27	0.58	0.69	0.80
28	0.57	0.68	0.79
29	0.56	0.67	0.78
30	0.55	0.66	0.78
31	0.54	0.65	0.77
32	0.53	0.64	0.76
33	0.52	0.63	0.75
34	0.51	0.62	0.74
35	0.50	0.61	0.73
36	0.49	0.60	0.72
37	0.48	0.59	0.72
38	0.47	0.58	0.71
39	0.45	0.57	0.70
40	0.44	0.56	0.69
41	0.43	0.55	0.68
42	0.42	0.54	0.67

1-2-124 Umbilical Artery Resistance Index (UmbArt RI) MERZ

Reference: Merz,E., "Ultrasound in Obstetrics and Gynecology", Vol.1 , Thieme Stuttgart, New York, 2005, p.469-480,613

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	UmbArt RI		
	5%	50%	95%
18	0.591	0.713	0.825
19	0.577	0.700	0.812
20	0.567	0.690	0.802
21	0.557	0.680	0.793
22	0.548	0.671	0.784
23	0.539	0.663	0.776
24	0.530	0.655	0.768
25	0.522	0.646	0,760
26	0.514	0.639	0.752
27	0.506	0.631	0.745
28	0.498	0.623	0.737
29	0.490	0.615	0.730
30	0.082	0.608	0.723
31	0.474	0.600	0.715
32	0.465	0.592	0.707
33	0.457	0.584	0.700
34	0.449	0.576	0.692
35	0.440	0.567	0.684
36	0.431	0.559	0.675
37	0.422	0.550	0.667
38	0.412	0.540	0.657
39	0.402	0.530	0.648
40	0.390	0.519	0.637
41	0.377	0.506	0.624
42	0.360	0.490	0.608

1-2-125 Uterine Artery Pulsatility Index (UtArt PI) MERZ

Reference: Merz,E., "Ultrasound in Obstetrics and Gynecology", Vol.1 , Thieme Stuttgart, New York, 2005, p.469-480,613

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	UtArt PI		
	5%	50%	95%
18	0.509	0.888	1.407
19	0.460	0.838	1.356
20	0.436	0.812	1.328
21	0.420	0.795	1.309
22	0.407	0.781	1.293
23	0.397	0.769	1.280
24	0.388	0.759	1.268
25	0.381	0.751	1.258
26	0.374	0.743	1.248
27	0.369	0.736	1.239
28	0.363	0.729	1.230
29	0.358	0.722	1.222
30	0.354	0.716	1.214
31	0.349	0.711	1.207
32	0.345	0.705	1.999
33	0.341	0.700	1.192
34	0.337	0.695	1.185
35	0.333	0.690	1.178
36	0.330	0.684	1.171
37	0.326	0.679	1.164
38	0.322	0.674	1.157
39	0.318	0.669	1.150
40	0.313	0.663	1.143
41	0.308	0.657	1.134
42	0.302	0.649	1.125

1-2-126 Uterine Artery Resistance Index (UtArt RI) MERZ

Reference: Merz,E., "Ultrasound in Obstetrics and Gynecology", Vol.1 , Thieme Stuttgart, New York, 2005, p.469-480,613

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	UtArt RI		
	5%	50%	95%
18	0.222	0.447	0.659
19	0.204	0.429	0.641
20	0.194	0.419	0.630
21	0.186	0.411	0.622
22	0.180	0.405	0.615
23	0.175	0.400	0.610
24	0.171	0.395	0.605
25	0.167	0.391	0.601
26	0.163	0.387	0.597
27	0.160	0.384	0.593
28	0.157	0.380	0.590
29	0.154	0.378	0.587
30	0.152	0.375	0.584
31	0.150	0.372	0.581
32	0.147	0.370	0.578
33	0.145	0.368	0.576
34	0.144	0.366	0.574
35	0.142	0.364	0.571
36	0.140	0.362	0.569
37	0.139	0.360	0.567
38	0.137	0.358	0.566
39	0.136	0.357	0.564
40	0.135	0.355	0.562
41	0.134	0.354	0.561
42	0.133	0.353	0.559

Section 1-3
Fetal Weight Estimation (Equations and Tables)

1-3-1 EFW Campbell (AC)

$$FW = e^{-4,564 + 0,282 \times AC - 0,00331 \times AC^2} \times 1000$$

Input:	AC (cm)	Range: 21.0 ... 40.0 cm
Output:	FW (g)	Range: 903 ... 4137 g

Reference: *Campbell S., Wilkin D.*
„Ultrasonic measurement of fetal abdomen circumference in the estimation of fetal weight."
British Journal Obstetrics and Gynecology; Sept. 1975; 82(9); 689-97

Deviation: 14.6%
(= mean value of deviations given in Table I found in the reference on page 694)

1-3-2 EFW Hadlock (AC, BPD)

$$FW = 10^{1,1134 + 0,05845 \times AC - 0,000604 \times AC^2 - 0,007365 \times BPD^2 + 0,000595 \times BPD \times AC + 0,1694 \times BPD}$$

Inputs:	AC (cm)	Range: 21.8 ... 36.5 cm
	BPD (cm)	Range: 7.0 ... 10.5 cm
Output:	FW (g)	Range: 100 ... 4500 g

Reference: *Hadlock FP, et al, "Sonographic Estimation of Fetal Weight"*
Radiology 1984:150:535-540

1-3-3 EFW Hadlock 1 (AC, FL)

$$FW = 10^{1,304 + 0,05281 \times AC + 0,1938 \times FL - 0,004 \times AC \times FL}$$

Inputs:	AC, FL in (cm)
Output:	FW in (g)
Deviation:	SD 15.4%

Reference: *Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337*

Deviation: SD 15.4 %
(=double the value (2SD) given in Table I in the given reference)

1-3-4 EFW Hadlock 2 (BPD, AC, FL)

$$FW = 10^{1,335 - 0,0034 \times AC \times FL + 0,0316 \times BPD + 0,0457 \times AC + 0,1623 \times FL}$$

Inputs: BPD, AC, FL in (cm)
Output: FW in (g)

Reference: Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337

Deviation: 14.6%
(=double the value (2SD) given in Table I in the given reference)

1-3-5 EFW Hadlock 3 (HC, AC, FL)

$$FW = 10^{1,326 - 0,00326 \times AC \times FL + 0,0107 \times HC + 0,0438 \times AC + 0,158 \times FL}$$

Inputs: HC, AC, FL in (cm)
Output: FW in (g)
Deviation: SD 14.8%

Reference: Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337

Deviation: 14.8 %
(=double the value (2SD) given in Table I in the given reference)

1-3-6 EFW Hadlock 4 (BPD, HC, AC, FL)

$$FW = 10^{1,3596 - 0,00386 \times AC \times FL + 0,0064 \times HC + 0,00061 \times BPD \times AC + 0,0424 \times AC + 0,174 \times FL}$$

Inputs: BPD, HC, AC, FL in (cm)
Output: FW in (g)
Deviation: SD 14.6%

Reference: Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337

Deviation: SD 14.6 %
(=double the value (2SD) given in Table I in the given reference)

1-3-7 EFW Hansmann (BPD, TTD)

$$FW = (-1,05775 \times BPD + 0,649145 \times TTD + 0,0930707 \times BDP^2 - 0,020562 \times TTD^2 + 0,515263) \times 1000$$

Reference: Hansmann, Hackeloer, Staudach, Wittmann, "Ultrasound Diagnosis in Obstetrics and Gynecology," Springer-Verlag, New York, 1986, page 154

1-3-8 EFW Merz (AC, BPD)

Inputs: AC (cm) Range: 21,8 - 36,5 [cm]
BPD (cm) Range: 7 - 10,5 [cm]
Output: FW (g)

$$FW = -3200{,}40479 + 157{,}07186 \times AC + 15{,}90391 \times BPD^2$$

Reference: *E. Merz, "Ultrasound in Obstetrics and Gynecology" Vol.1: Obstetrics, Second edition,* 2005 Georg Thieme Verlag, 603-608

1-3-9 EFW Osaka (BPD, FTA, FL)

$$FW = 6{,}3 + 1{,}25647 \times BPD^3 + 3{,}50665 \times FTA \times FL$$

Inputs: BPD, FL in (cm) FTA in (cm^2)
Output: FW in (g)

Reference: *Perinatal care Vol. 9 No. 5, 44(414)*

1-3-10 EFW Persson 1 (BPD, MAD, FL)

$$FW = (BPD \times 10)^{0{,}972} \times (MAD \times 10)^{1{,}743} \times (FL \times 10)^{0{,}367} \times 10^{-2{,}646}$$

Inputs: BPD, MAD, FL in (cm)
Output: FW in (g)

Reference: *Intrauterine growth curves based on ultrasonically estimated foetal weights;*
K Marsal, P-H Persson, T Larsen, H Lilja, A Selbing and B Sultan;
Acta Paediatr 85: 843-8.1996;

1-3-11 EFW Persson 2 (BPD, MAD)

$$FW = (BPD \times 10)^{1{,}321} \times (MAD \times 10)^{1{,}833} \times 10^{-2{,}830}$$

Inputs: BPD, MAD in (cm)
Output: FW in (g)

Reference: Intrauterine growth curves based on ultrasonically estimated foetal weights;
K Marsal, P-H Persson, T Larsen, H Lilja, A Selbing and B Sultan;
Acta Paediatr 85: 843-8.1996;

1-3-12 EFW Schild (HC, AC, FL)

$$FW = 5381{,}193 + 150{,}324 \times HC + 2{,}069 \times FL^3 + 0{,}0232 \times AC^3 - 6235{,}478 \times \log(HC)$$

Inputs: HC, AC, FL in [cm]
Output: FW in [g]

Reference: A new formula for calculating weight in the fetus of <=1600 g;
R. L. SCHILD, K. FELL, R. FIMMERS, U. GEMBRUCH and M. HANSMANN
Ultrasound Obstet Gynecol (in press)
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.1741

1-3-13 EFW Shepard (AC, BPD)

$$FW = 10^{-1{,}7492 + 0{,}166 \times BPD + 0{,}046 \times AC - 0{,}002646 \times AC \times BPD} \times 1000$$

Inputs:	AC (cm)	Range: 15.5 ... 40.0 cm
	BPD (cm)	Range: 3.1 ...10.0 cm
Output:	FW (g)	Range: 224 ... 4900 g

Reference: Shepard MJ, et al, "An Evaluation of Two Equations for Predicting Fetal Weight by Ultrasound",
American Journal of OB & Gyn, January 1982; 142(1):47-54

1-3-14 EFW Shinozuka 1 (BPD, APTD, TTD, FL)

$$FW = 1{,}07 \times BPD^3 + 3{,}42 \times APTD \times TTD \times FL$$

Inputs: BPD, APTD, TTD, FL in (cm)
Output: FW in (g)

Reference: Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al
"Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes"
American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987

1-3-15 EFW Shinozuka 2 (BPD, FL, AC)

$$FW = 1{,}07 \times BPD^3 + 0{,}30 \times AC^2 \times FL$$

Inputs: BPD, FL in (cm) AC in (cm^2)

Output: FW in (g)

Reference: N.Shinozuka et al. Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes, Am J Obstet Gynecol 1987;157:1140-5

1-3-16 EFW Shinozuka 3 (BPD, APTD, TTD, LV)

$$FW = 1{,}07 \times BPD^3 + 2{,}91 \times APTD \times TTD \times LV$$

Inputs: BPD, APTD, TTD, LV (SL) in (cm)

Output: FW in (g)

Reference: Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al "Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes" American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987

1-3-17 EFW Tokyo (BPD, APTD, TTD, FL)

$$FW = 1{,}07 \times BPD^3 + 3{,}42 \times APTD \times TTD \times FL$$

Inputs: BPD, APTD, TTD, FL in (cm)

Output: FW in (g)

Reference: Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al "Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes" American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987

Section 1-4
Gestational Age by EFW

1-4-1 EFW (age) Hadlock

Reference: *Hadlock F.P., Harrist R. B, Martinez-Poyer J.*
"In utero analysis of fetal growth: a sonographic weight standard"
Radiology.1991, 181:129-133

NOTE: EFW and GA Values are taken from Fetal Growth Table; EFW (mean values) are used as Input and GA as Output! (Growth table see: Section 1-5-4 on page 1-270)

EFW (g)	GA (weeks)
35	10
45	11
58	12
73	13
93	14
117	15
146	16
181	17
223	18
273	19
331	20
399	21
478	22
568	23
670	24
785	25
913	26
1055	27
1210	28
1379	29
1559	30
1751	31
1953	32
2162	33
2377	34
2595	35
2813	36
3028	37
3236	38
3435	39
3619	40

1-4-2 EFW (age) JSUM 2001

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee Ultrasound Fetal measurement standardization & Japanese standard proposals J Med Ultrasonics Vol. 28 No.5 (2001)

NOTE: EFW and GA Values are taken from Fetal Growth Table; EFW (mean values) are used as Input and GA as Output! ((Growth table see chapter 1.1.5.5)

EFW (g)	GA (weeks)
187	18
247	19
313	20
387	21
469	22
560	23
660	24
771	25
892	26
1023	27
1163	28
1313	29
1470	30
1635	31
1805	32
1980	33
2156	34
2333	35
2507	36
2676	37
2838	38
2989	39
3125	40
3244	41

1-4-3 EFW (age) OSAKA

Reference: Perinatal care Vol. 9 No. 5

NOTE: EFW and GA Values are taken from Fetal Growth Table; EFW (50% values) are used as Input and GA as Output! (Growth table see: Section 1-5-8 on page 1-274)

EFW (g)	GA (w+d)	EFW (g)	GA (w+d)	EFW (g)	GA (w+d)	EFW (g)	GA (w+d)	EFW (g)	GA (w+d)
137	16w0d	413	20w6d	930	25w5d	1663	30w4d	2502	35w3d
142	16w1d	425	21w0d	949	25w6d	1687	30w5d	2527	35w4d
147	16w2d	436	21w1d	968	26w0d	1711	30w6d	2551	35w5d
153	16w3d	449	21w2d	987	26w1d	1735	31w0d	2576	35w6d
158	16w4d	461	21w3d	1007	26w2d	1759	31w1d	2600	36w0d
164	16w5d	474	21w4d	1026	26w3d	1783	31w2d	2624	36w1d
170	16w6d	486	21w5d	1046	26w4d	1808	31w3d	2648	36w2d
176	17w0d	499	21w6d	1066	26w5d	1832	31w4d	2672	36w3d
182	17w1d	513	22w0d	1086	26w6d	1857	31w5d	2696	36w4d
188	17w2d	526	22w1d	1106	27w0d	1881	31w6d	2720	36w5d
195	17w3d	540	22w2d	1127	27w1d	1906	32w0d	2744	36w6d
202	17w4d	553	22w3d	1147	27w2d	1930	32w1d	2767	37w0d
209	17w5d	568	22w4d	1168	27w3d	1955	32w2d	2791	37w1d
216	17w6d	582	22w5d	1189	27w4d	1980	32w3d	2814	37w2d
223	18w0d	596	22w6d	1210	27w5d	2005	32w4d	2837	37w3d
231	18w1d	611	23w0d	1232	27w6d	2029	32w5d	2860	37w4d
238	18w2d	626	23w1d	1253	28w0d	2054	32w6d	2883	37w5d
246	18w3d	641	23w2d	1275	28w1d	2079	33w0d	2906	37w6d
254	18w4d	656	23w3d	1296	28w2d	2104	33w1d	2928	38w0d
263	18w5d	672	23w4d	1318	28w3d	2129	33w2d	2950	38w1d
271	18w6d	688	23w5d	1340	28w4d	2154	33w3d	2973	38w2d
280	19w0d	704	23w6d	1363	28w5d	2179	33w4d	2995	38w3d
289	19w1d	720	24w0d	1385	28w6d	2204	33w5d	3016	38w4d
298	19w2d	736	24w1d	1407	29w0d	2229	33w6d	3038	38w5d
308	19w3d	753	24w2d	1430	29w1d	2254	34w0d	3059	38w6d
317	19w4d	770	24w3d	1453	29w2d	2279	34w1d	3080	39w0d
327	19w5d	787	24w4d	1476	29w3d	2304	34w2d	3101	39w1d
337	19w6d	804	24w5d	1499	29w4d	2329	34w3d	3121	39w2d
347	20w0d	822	24w6d	1522	29w5d	2354	34w4d	3142	39w3d
358	20w1d	839	25w0d	1545	29w6d	2379	34w5d	3162	39w4d
368	20w2d	857	25w1d	1568	30w0d	2403	34w6d	3182	39w5d
379	20w3d	875	25w2d	1592	30w1d	2428	35w0d	3201	39w6d
390	20w4d	893	25w3d	1615	30w2d	2453	35w1d	3220	40w0d
401	20w5d	912	25w4d	1639	30w3d	2478	35w2d		

1-4-4 EFW (age) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

EFW	GA (w+d/d)		EFW	GA (w+d/d)	
(g)	mean	±dev	(g)	mean	±dev
250	19w3d	7	1650	31w2d	10
300	20w7d	7	1700	31w4d	11
350	20w4d	7	1750	31w6d	11
400	21w2d	7	1800	32w1d	11
450	21w5d	7	1850	32w3d	11
500	22w2d	7	1900	32w5d	12
550	22w6d	7	1950	32w7d	12
600	23w2d	7	2000	33w1d	12
650	23w6d	7	2050	33w3d	12
700	24w2d	7	2100	33w5d	13
750	24w5d	7	2150	34w7d	13
800	25w2d	8	2200	34w2d	13
850	25w5d	8	2250	34w4d	13
900	26w1d	8	2300	34w6d	14
950	26w4d	8	2350	35w1d	14
1000	26w6d	8	2400	35w3d	14
1050	27w2d	8	2450	35w5d	14
1100	27w5d	8	2500	35w7d	15
1150	28w7d	9	2550	36w2d	15
1200	28w3d	9	2600	36w4d	15
1250	28w5d	9	2650	36w6d	16
1300	29w1d	9	2700	37w2d	16
1350	29w3d	9	2750	37w4d	16
1400	29w5d	9	2800	37w6d	17
1450	30w7d	10	2850	38w1d	17
1500	30w2d	10	2900	38w4d	17
1550	30w5d	10	2950	38w6d	18
1600	30w7d	10	3000	39w2d	18

1-4-5 EFW (age) TOKYO

Reference: *Norio Shinozuk, M.D., Takashi Okai, M.D.,Shiro Kohzuma, M.D., Masaaki Mukuba , M.D., Chen-Ting Shin, M.D.,Tsugio Maeda, M.D., Yoshinori Kuwabara, M.D. and Masahiko Mizuni, M.D.*
Formulas for fetal weight estimation by ultrasound measurements based on neonatal specific gravities and volumes
American Journal of Obstetrics and Gynecology, St Louis; Vol. 157, No. 5, pp. 1140-1145, Nov., 1987

NOTE: EWF and GA Values are taken from Fetal Growth Table; EFW (mean values) are used as Input and GA as Output! (Growth table see: Section 1-5-11 on page 1-276)

EFW (g)	GA (days)	EFW (g)	GA (days)	EFW (g)	GA (days)	EFW (g)	GA (days)
642	161	1063	193	1849	225	2765	257
649	162	1083	194	1877	226	2792	258
656	163	1103	195	1906	227	2817	259
664	164	1123	196	1934	228	2843	260
672	165	1144	197	1963	229	2868	261
681	166	1165	198	1992	230	2893	262
689	167	1187	199	2021	231	2917	263
699	168	1209	200	2050	232	2941	264
708	169	1231	201	2080	233	2965	265
719	170	1253	202	2109	234	2988	266
729	171	1276	203	2138	235	3010	267
740	172	1299	204	2168	236	3032	268
751	173	1323	205	2197	237	3053	269
763	174	1347	206	2226	238	3074	270
775	175	1371	207	2256	239	3095	271
788	176	1395	208	2285	240	3114	272
801	177	1420	209	2314	241	3133	273
814	178	1445	210	2343	242	3152	274
828	179	1470	211	2373	243	3169	275
842	180	1496	212	2402	244	3186	276
857	181	1521	213	2431	245	3202	277
872	182	1547	214	2460	246	3218	278
887	183	1574	215	2488	247	3232	279
903	184	1600	216	2517	248	3246	280
919	185	1627	217	2545	249	3259	281
936	186	1654	218	2574	250	3271	282
953	187	1681	219	2602	251	3283	283
970	188	1709	220	2630	252	3293	284
988	189	1736	221	2657	253	3302	285
1006	190	1764	222	2685	254	3311	286
1025	191	1792	223	2712	255	3318	287
1044	192	1820	224	2739	256		

Section 1-5
Fetal Weight Growth (Equations and Tables)

1-5-1 FWg Brenner

Reference: Brenner W.E., Edelman D.A., Hendricks C.H.
„A standard of fetal growth for the United States of America“
American Journal of Obstetrics and Gynecology; November 1; 1976; pp. 555-564

GA (weeks)	FW (grams)		
	10%	50%	90%
21	280	410	860
22	320	480	920
23	370	550	990
24	420	640	1080
25	490	740	1180
26	570	860	1320
27	660	990	1470
28	770	1150	1660
29	890	1310	1890
30	1030	1460	2100
31	1180	1630	2290
32	1310	1810	2500
33	1480	2010	2690
34	1670	2220	2880
35	1870	2430	3090
36	2190	2650	3290
37	2310	2870	3470
38	2510	3030	3610
39	2680	3170	3750
40	2750	3280	3870
41	2800	3360	3980
42	2830	3410	4060
43	2840	3420	4100
44	2790	3390	4110

1-5-2 FWg Doubilet

Reference: *Doubilet, P.M., MD. PhD., Benson, C.B.,MD , Nadel, A.S., MD, Ringer, St. A., MD. PhD.„Improved birth weight table for neonates developed from gestations dated by early ultrasonography "J Ultrasound Med; December 4; 1996; 16:241-249*

Input Unit: weeks
Output Unit: grams
Min. Range: 25.0 weeks
Max. Range: 43.0 weeks

GA (weeks)	EFW (grams)		
	5%	50%	95%
25	450	660	968
26	523	760	1103
27	609	875	1257
28	707	1005	1430
29	820	1153	1623
30	947	1319	1836
31	1090	1502	2070
32	1249	1702	2321
33	1422	1918	2587
34	1608	2146	2865
35	1804	2383	3148
36	2006	2622	3428
37	2210	2859	3698
38	2409	3083	3947
39	2595	3288	4164
40	2762	3462	4340
41	2900	3597	4462
42	3002	3685	4523
43	3061	3717	4515

1-5-3 FWg Hadlock

Reference: *Hadlock F.P., Harrist R.B., Martinez-Poyer J.*
„In Utero Analysis of Fetal Growth: A Sonographic Weight Standard“
Radiology.1991, 181: 129-133

$$FW = e^{0,578 + 0,332 \times GA - 0,00354 \times GA^2}$$

Input Unit: weeks
Output Unit: gram
Min. Range: 10.0 weeks
Max. Range: 40.0 weeks

GA (weeks)	FW (gram)				
	3%	10%	50%	90%	97%
10	26	29	35	41	44
11	34	37	45	53	56
12	43	48	58	68	73
13	55	61	73	85	91
14	70	77	93	109	116
15	88	97	117	137	146
16	110	121	146	171	183
17	136	150	181	212	226
18	167	185	223	261	279
19	205	227	273	319	341
20	248	275	331	387	414
21	299	331	399	467	499
22	359	398	478	559	598
23	426	471	568	665	710
24	503	556	670	784	838
25	589	652	785	918	981
26	685	758	913	1068	1141
27	791	876	1055	1234	1319
28	908	1004	1210	1416	1513
29	1034	1145	1379	1613	1724
30	1169	1294	1559	1824	1949
31	1313	1453	1751	2049	2189
32	1465	1621	1953	2285	2441
33	1622	1794	2162	2530	2703
34	1783	1973	2377	2781	2971
35	1946	2154	2595	3036	3244
36	2110	2335	2813	3291	3516
37	2271	2513	3028	3543	3785
38	2427	2686	3236	3786	4045
39	2576	2851	3435	4019	4294
40	2714	3004	3619	4234	4524

1-5-4 FWg Hansmann

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p. 431

GA (weeks)	FW (gram)
13	14
14	25
15	50
16	80
17	100
18	150
19	200
20	250
21	300
22	350
23	450
24	530
25	700
26	850
27	1000
28	1100
29	1250
30	1400
31	1600
32	1800
33	2000
34	2250
35	2550
36	2750
37	2950
38	3100
39	3250
40	3400

1-5-5 FWg Hansmann (86)

Reference: Hansmann, Hackeloer, Staudach, Wittmann. Ultrasound Diagnosis in Obstetrics and Gynecology. Springer Verlag, New York, 1986, p. 186

AGE (weeks)	FW (Gram)		
	-1 SD	mean	+1 SD
9	44	45	46
10	46	48	50
11	51	54	57
12	59	63	67
13	70	77	84
14	85	96	107
15	106	122	138
16	133	155	177
17	167	197	227
18	207	247	287
19	255	307	359
20	311	377	443
21	375	456	537
22	447	545	643
23	527	644	761
24	614	753	892
25	709	871	1033
26	813	1000	1187
27	925	1139	1353
28	1045	1288	1531
29	1173	1448	1723
30	1311	1618	1925
31	1455	1798	2141
32	1605	1984	2363
33	1759	2176	2593
34	1915	2369	2823
35	2066	2557	3048
36	2208	2734	3260
37	2333	2890	3447
38	2432	3016	3600
39	2494	3099	3704
40	2509	3131	3753

1-5-6 FWg Hobbins/Persutte

Reference: *Persutte,W.H., Schmidt,K., Hobbins,J.C.*
„Prenatal and neonatal estimations of weight percentile are very different“
American Journal of Obstetrics & Gynecology, 178(1),p165

Input Unit: weeks
Output Unit: grams
Min. Range: 25weeks
Max. Range: 41 weeks

GA (weeks	EFW (grams)		
	-1 SD	mean	+1 SD
25		632	
26	126	810	1496
27	316	1002	1687
28	505	1186	1872
29	679	1364	2050
30	851	1536	2222
31	1017	1703	2388
32	1179	1864	2549
33	1335	2020	2705
34	1486	2171	2857
35	1647	2333	3018
36	1776	2461	3146
37	1915	2600	3286
38	2037	2722	3408
39	2183	2875	3554
40	2325	2980	3673
41		3071	

1-5-7 FWg JSUM 2001

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee Ultrasound Fetal measurement standardization & Japanese standard proposals J Med Ultrasonics Vol. 28 No.5 (2001)

NOTE: Note: The system uses 1.5 SD (calculated from the table below)

GA (weeks)	FW (gram)		
	- 2SD	mean	+ 2SD
18	126	187	247
19	166	247	328
20	211	313	416
21	262	387	512
22	320	469	617
23	386	560	733
24	461	660	859
25	546	771	996
26	639	892	1144
27	742	1023	1304
28	853	1163	1474
29	972	1313	1653
30	1098	1470	1842
31	1231	1635	2039
32	1368	1805	2243
33	1508	1980	2451
34	1650	2156	2663
35	1790	2333	2875
36	1927	2507	3086
37	2059	2676	3294
38	2181	2838	3494
39	2292	2989	3685
40	2388	3125	3862
41	2465	3244	4023

1-5-8 FWg Osaka

Reference: Vol. 37. No. 10. 1988

GA	EFW (g)		GA	EFW (g)		GA	EFW (g)		GA	EFW (g)		GA	EFW (g)	
(w+d)	mean	±1SD	(w+d)	mean	±1SD	(w+d)	mean	±1SD	(w+d)	mean	±1SD	(w+d)	mean	±1SD
16w0d	137	29	20w6d	413	58	25w5d	930	120	30w4d	1663	197	35w3d	2502	285
16w1d	142	29	21w0d	425	60	25w6d	949	123	30w5d	1687	200	35w4d	2527	288
16w2d	147	29	21w1d	436	61	26w0d	968	125	30w6d	1711	202	35w5d	2551	290
16w3d	153	29	21w2d	449	63	26w1d	987	127	31w0d	1735	204	35w6d	2576	293
16w4d	158	30	21w3d	461	65	26w2d	1007	129	31w1d	1759	207	36w0d	2600	296
16w5d	164	30	21w4d	474	66	26w3d	1026	131	31w2d	1783	209	36w1d	2624	299
16w6d	170	30	21w5d	486	68	26w4d	1046	133	31w3d	1808	212	36w2d	2648	302
17w0d	176	31	21w6d	499	69	26w5d	1066	135	31w4d	1832	214	36w3d	2672	305
17w1d	182	31	22w0d	513	71	26w6d	1086	138	31w5d	1857	217	36w4d	2696	308
17w2d	188	32	22w1d	526	73	27w0d	1106	140	31w6d	1881	219	36w5d	2720	311
17w3d	195	33	22w2d	540	74	27w1d	1127	142	32w0d	1906	222	36w6d	2744	314
17w4d	202	33	22w3d	553	76	27w2d	1147	144	32w1d	1930	224	37w0d	2767	317
17w5d	209	34	22w4d	568	78	27w3d	1168	146	32w2d	1955	227	37w1d	2791	320
17w6d	216	35	22w5d	582	80	27w4d	1189	149	32w3d	1980	229	37w2d	2814	323
18w0d	223	35	22w6d	596	81	27w5d	1210	151	32w4d	2005	232	37w3d	2837	326
18w1d	231	36	23w0d	611	83	27w6d	1232	153	32w5d	2029	234	37w4d	2860	329
18w2d	238	37	23w1d	626	85	28w0d	1253	155	32w6d	2054	237	37w5d	2883	332
18w3d	246	38	23w2d	641	87	28w1d	1275	158	33w0d	2079	239	37w6d	2906	335
18w4d	254	39	23w3d	656	89	28w2d	1296	160	33w1d	2104	242	38w0d	2928	339
18w5d	263	40	23w4d	672	91	28w3d	1318	162	33w2d	2129	244	38w1d	2950	342
18w6d	271	41	23w5d	688	92	28w4d	1340	164	33w3d	2154	247	38w2d	2973	345
19w0d	280	42	23w6d	704	94	28w5d	1363	167	33w4d	2179	250	38w3d	2995	348
19w1d	289	43	24w0d	720	96	28w6d	1385	169	33w5d	2204	252	38w4d	3016	352
19w2d	298	44	24w1d	736	98	29w0d	1407	171	33w6d	2229	255	38w5d	3038	355
19w3d	308	45	24w2d	753	100	29w1d	1430	174	34w0d	2254	257	38w6d	3059	358
19w4d	317	46	24w3d	770	102	29w2d	1453	176	34w1d	2279	260	39w0d	3080	362
19w5d	327	48	24w4d	787	104	29w3d	1476	178	34w2d	2304	263	39w1d	3101	365
19w6d	337	49	24w5d	804	106	29w4d	1499	181	34w3d	2329	265	39w2d	3121	369
20w0d	347	50	24w6d	822	108	29w5d	1522	183	34w4d	2354	268	39w3d	3142	372
20w1d	358	51	25w0d	839	110	29w6d	1545	185	34w5d	2379	271	39w4d	3162	376
20w2d	368	53	25w1d	857	112	30w0d	1568	188	34w6d	2403	274	39w5d	3182	379
20w3d	379	54	25w2d	875	114	30w1d	1592	190	35w0d	2428	276	39w6d	3201	383
20w4d	390	56	25w3d	893	116	30w2d	1615	192	35w1d	2453	279	40w0d	3220	387
20w5d	401	57	25w4d	912	118	30w3d	1639	195	35w2d	2478	282			

1-5-9 FWg Persson

Reference: Intrauterine growth curves based on ultrasonically estimated foetal weights;
K Marsal, P-H Persson, T Larsen, H Lilja, A Selbing and B Sultan;
Acta Paediatr 85: 843-8.1996;

Mean curve:

$$FW = -2,278843 \times 10^{-6} \times GA^4 + 1,402168 \times 10^{-3} \times GA^3 - 0,2008726 \times GA^2 + 9,284121 \times GA - 4,125956$$

Input Unit: GA (in days)
Output Unit: FW (in g)
Min. Range: 175 days
Max. Range: 300 days

ヂ 2SD ヂ 24% of the mean

1-5-10 FWg Tokyo/Shinozuka

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry "
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA (weeks)	FW (gram)			GA (weeks)	FW (gram)		
	- 1.64SD	mean	+ 1.64SD		- 1.64SD	mean	+ 1.64SD
18	158	216	274	30	1234	1552	1870
19	204	279	355	31	1375	1720	2064
20	256	349	442	32	1520	1892	2265
21	314	427	539	33	1667	2068	2469
22	381	513	645	34	1814	2244	2675
23	456	609	761	35	1960	2420	2880
24	541	714	888	36	2102	2592	3083
25	634	830	1026	37	2236	2758	3280
26	737	956	1175	38	2360	2915	3469
27	849	1092	1334	39	2471	3059	3647
28	970	1237	1504	40	2565	3187	3809
29	1099	1391	1683	41	2639	3296	3952

1-5-11 FWg Tokyo

Reference: Norio Shinozuk, M.D., Takashi Okai, M.D.,Shiro Kohzuma, M.D., Masaaki Mukuba, M.D., Chen-Ting Shin, M.D.,Tsugio Maeda, M.D., Yoshinori Kuwabara, M.D. and Masahiko Mizuni, M.D. "Formulas for fetal weight estimation by ultrasound measurements based on neonatal specific gravities and volumes"; American Journal of Obstetrics and Gynecology, St. Louis; Vol. 157, No. 5, pp. 1140-1145, Nov., 1987

95%	$Y = -323,7 \times G + 1,586 \times G^2 - 2,326 \times G^3 \times 10^{-3} + 21584,32$
50%	$Y = -0,1448 \times G^2 + 6,050 \times G^4 \times 10^{-6} - 1,421 \times G^5 \times 10^{-8} + 1867,83$
5%	$Y = 4,615 \times G^2 - 4,137 \times G^3 \times 10^{-2} + 1,384 \times G^4 \times 10^{-4} - 1,625 \times G^5 \times 10^{-7} - 22104,91$

G: GA - Gestational Age (days) derivered from LMP; range: 161 ~ 287 (23 ... 41 weeks)
Y: FBW - Fetal Birth Weight (gram)

NOTE: FWg is implemented as table below, values derived from 95%, 50% and 5% formulas above!

GA	FW (gram)			GA	FW (gram)			GA	FW (gram)			GA	FW (gram)			GA	FW (gram)		
(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%
161	284	642	872	187	831	953	1303	213	1121	1521	2114	239	1582	2256	3060	265	2265	2965	3895
162	317	649	879	188	844	970	1329	214	1133	1547	2149	240	1606	2285	3095	266	2291	2988	3921
163	348	656	886	189	856	988	1355	215	1146	1574	2185	241	1629	2314	3131	267	2316	3010	3947
164	379	664	895	190	867	1006	1382	216	1160	1600	2221	242	1654	2343	3166	268	2340	3032	3973
165	408	672	904	191	879	1025	1409	217	1174	1627	2257	243	1679	2373	3201	269	2364	3053	3998
166	436	681	914	192	890	1044	1437	218	1188	1654	2293	244	1704	2402	3236	270	2387	3074	4022
167	463	689	925	193	901	1063	1465	219	1202	1681	2329	245	1729	2431	3271	271	2410	3095	4046
168	489	699	937	194	912	1083	1494	220	1217	1709	2365	246	1755	2460	3305	272	2432	3114	4069
169	514	708	950	195	923	1103	1523	221	1232	1736	2402	247	1781	2488	3340	273	2453	3133	4091
170	538	719	963	196	933	1123	1553	222	1248	1764	2438	248	1807	2517	3374	274	2473	3152	4113
171	561	729	977	197	944	1144	1583	223	1264	1792	2475	249	1833	2545	3407	275	2493	3169	4135
172	583	740	992	198	954	1165	1614	224	1281	1820	2512	250	1860	2574	3441	276	2511	3186	4155
173	605	751	1008	199	965	1187	1645	225	1298	1849	2548	251	1887	2602	3474	277	2528	3202	4175
174	625	763	1025	200	975	1209	1676	226	1315	1877	2585	252	1914	2630	3506	278	2544	3218	4194
175	645	775	1042	201	986	1231	1708	227	1333	1906	2622	253	1941	2657	3539	279	2559	3232	4213
176	664	788	1060	202	996	1253	1740	228	1351	1934	2659	254	1968	2685	3571	280	2572	3246	4230
177	682	801	1079	203	1006	1276	1773	229	1370	1963	2696	255	1996	2712	3602	281	2584	3259	4247
178	700	814	1098	204	1017	1299	1806	230	1389	1992	2732	256	2023	2739	3633	282	2595	3271	4264
179	716	828	1119	205	1028	1323	1839	231	1409	2021	2769	257	2051	2765	3664	283	2604	3283	4279
180	733	842	1139	206	1039	1347	1872	232	1429	2050	2806	258	2078	2792	3695	284	2611	3293	4294
181	748	857	1161	207	1050	1371	1906	233	1449	2080	2842	259	2105	2817	3725	285	2617	3302	4308
182	763	872	1183	208	1061	1395	1940	234	1470	2109	2879	260	2132	2843	3754	286	2620	3311	4321
183	778	887	1206	209	1072	1420	1974	235	1492	2138	2915	261	2159	2868	3783	287	2622	3318	4333
184	792	903	1229	210	1084	1445	2009	236	1514	2168	2951	262	2186	2893	3812				
185	805	919	1253	211	1096	1470	2044	237	1536	2197	2988	263	2213	2917	3840				
186	818	936	1278	212	1108	1496	2079	238	1559	2226	3024	264	2239	2941	3868				

1-5-12 FWg Williams

Reference: Ronald Williams, Robert Creasy, George Cunningham, Warren Hawes, Rank Norris, Michiko Tashiro „Fetal Growth and Perinatal Viability in California“
Obstetric & Gynecology Vol. 59, NO. 5, May 1982

The weight values of this table are arithmetic mean values of the male- and female values from the reference. Separated male/female weight values are not supported by the system.

GA (weeks)	FW (gram)		
	10%	50%	90%
22	320	513	746
23	365	589	861
24	417	675	989
25	477	773	1132
26	546	882	1289
27	627	1005	1463
28	720	1143	1653
29	829	1298	1859
30	955	1484	2136
31	1100	1695	2402
32	1284	1920	2673
33	1499	2155	2910
34	1728	2394	3132
35	1974	2628	3333
36	2224	2849	3521
37	2455	3052	3706
38	2642	3227	3867
39	2790	3364	3994
40	2881	3462	4080
41	2946	3524	4127
42	3011	3589	4185
43	3044	3626	4221
44	3043	3633	4233
45	3009	3611	4224
46	2941	3560	4191
47	2844	3482	4136
48	2720	3377	4059

1-5-13 FWg Yarkoni (TWINS)

Reference: Yarkoni S., Reece EA, Holford T, O'Connor TZ, Hobbins JC: Estimated fetal weight in the evaluation of growth in twin gestations: a prospective longitudinal study. Obtet. Gynecol. 69:636, 1987

Age (weeks	FW (gram)		
	5%	50%	95%
16	132	154	207
17	173	215	249
18	214	276	291
19	223	300	412
20	232	324	534
21	275	432	705
22	319	540	876
23	347	598	880
24	376	656	885
25	549	793	1118
26	722	931	1352
27	755	1087	1563
28	789	1244	1774
29	900	1395	1883
30	1011	1546	1992
31	1198	1693	2392
32	1385	1840	2793
33	1491	2032	3000
34	1597	2224	3208
35	1703	2427	3336
36	1809	2631	3465
37	2239	2824	3679
38	2669	3017	3894

Section 1-6
Fetal Ratios

The Fetal Ratios are displayed in the OB Patient Report, if:
- required measurements are done and
- ratio display is enabled in “Measurement Setup”

Other conditions (e.g., GA by LMP necessary, etc.) see Ratio descriptions!

1-6-1 CI (BPD/OFD) Hadlock

Reference: *Hadlock, F., Deter, R., Carpenter, R., Park, D.*
“Estimating Fetal Age: effect of Head Shape on BIP”.
American Journal of Roentgenology, 137: 83-85, July 1981

Inputs:	BPD, OFD (cm)
Output:	Ratio (%)
Norm value range:	(70 - 86%)

$$CI = \frac{BPD}{OFD} \times 100$$

1-6-2 FL/AC Hadlock

Reference: *Hadlock F., Deter R., Harrist R., Roecker E., Park S., “A Date-Independent Predictor of Intrauerine Growth Retardation: Femur Length/Abdominal Circumference Ratio”.*
American Journal of Roentgenology, 141:979-984, November 1983.

Inputs:	FL, AC (cm)
Output:	Ratio (%)
Norm value range:	(20 - 24%)

$$FL\backslash\mathrm{AC} = \frac{FL}{AC} \times 100$$

1-6-3 FL/BPD Hohler

Reference: *Hohler C.W., Quetel, T:A:*
"Comparison of Ultrasound Femur Length and Biparietal Diameter in Late pregnancy. American Journal of Obstetrics and Gynecology, volume 14, No. 7: 759-762, 1-Dec.-1981

Inputs:	FL, BPD (cm)
Output:	Ratio (%)
Range of GA *):	Min: 22 week
	Max. 40 week
Norm value range:	(71 - 87%)

$$FL\backslash\mathrm{BPD} = \frac{FL}{BPD} \times 100$$

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: FL/BPD xxx% (GA OOR)

1-6-4 FL/HC Hadlock

Reference: *Hadlock,F.P.,Harrist,R.B.,Shah,Y.,Park,S.K.," The femur length/head circumference relation in obstetric sonography" J Ultrasound Med 1984, 3: 439-442 (Fetal Growth)*

Inputs:	FL, HC (cm)
Output:	Ratio (%)
Range of GA *):	Min: 15 week
	Max. 42 week

± 1SD

$$FL\backslash\mathrm{HC} = \frac{FL}{HC} \times 100$$

GA (weeks)	FL/HC (%)		GA (weeks)	FL/HC (%)		GA (weeks)	FL/HC (%)	
	Min	Max		Min	Max		Min	Max
<15	n/a	——	24	18.7	20.9	34	19.4	21.8
15	15.3	17.1	25	18.7	20.3	35	20.1	22.3
16	13.3	16.5	26	18.6	20.4	36	20.1	22.1
17	14.6	17.6	27	18.6	20.4	37	20.8	22.6
18	15.8	18.0	28	18.8	20.6	38	20.9	22.7
19	16.1	18.3	29	19.6	20.8	39	20.6	23.4
20	16.8	19.8	30	19.2	21.4	40	20.7	22.5
21	15.9	20.3	31	19.3	21.3	41	21.6	23.2
22	18.4	20.2	32	19.1	21.3	42	20.1	23.9
23	19.2	20.8	33	19.9	21.5	>42	n/a	n/a

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: FL/HC xxx% (GA OOR)

1-6-5 HC/AC Campbell

Reference: Campbell S., "Ultrasound Measurement of Fetal Head and Abdomen Circumference Ratio in the Assessment of Growth Retardation".
Obstetrics and Gynaecology, Vol 84, 165- 174, March 1977.

Inputs:	HC, AC (cm)
Output:	Ratio (%)
Valid Range:	Min: 13week - Max: 42week
Norm value range:	see table (dependent on GA (LMP)

$$HC\backslash\mathrm{AC} = \frac{HC}{AC}$$

GA (weeks)	HC/AC Ratio		
	5%	50%	95%
13	1.14	1.23	1.31
14	1.14	1.23	1.31
15	1.05	1.22	1.39
16	1.05	1.22	1.39
17	1.07	1.18	1.29
18	1.07	1.18	1.29
19	1.09	1.18	1.26
20	1.09	1.18	1.26
21	1.06	1.15	1.25
22	1.06	1.15	1.25
23	1.05	1.13	1.21
24	1.05	1.13	1.21
25	1.04	1.13	1.22
26	1.04	1.13	1.22
27	1.05	1.13	1.22
28	1.05	1.13	1.22
29	0.99	1.10	1.21
30	0.99	1.10	1.21
31	0.96	1.07	1.17
32	0.96	1.07	1.17
33	0.96	1.04	1.11
34	0.96	1.04	1.11
35	0.93	1.02	1.11
36	0.93	1.02	1.11
37	0.92	0.98	1.05
38	0.92	0.98	1.05
39	0.87	0.97	1.06
40	0.87	0.97	1.06
41	0.93	0.96	1.0
42	0.93	0.96	1.0

1-6-6 Va/Hem Hansmann

Reference: *Hansmann M, Hackelöer BJ, Staudach A. Ultrasound Diagnosis in Obstetrics and Gynecology. Berlin, Heidelberg, New York, Tokyo: Springer, 1986*

Inputs:	Va, Hem (cm)
Output:	Ratio (%)
Range of GA *):	Min: 12 week
	Max. 40 week
Value range:	see table [dependent on GA *)]

$$Va\backslash\mathrm{Hem} = \frac{Va}{Hem} \times 100$$

Table: Normal range for anterior cerebral ventricle to hemisphere diameter ratio.

GA (weeks)	Va/Hem (%)			GA (weeks)	Va/Hem (%)		
	10%	50%	90%		10%	50%	90%
12	77	85	94	27	26	31	37
13	69	78	86	28	25	31	37
14	62	71	79	29	25	31	36
15	54	64	74	30	25	31	36
16	47	59	70	31	25	31	36
17	42	54	65	32	25	31	36
18	38	49	61	33	25	31	37
19	35	46	56	34	25	31	37
20	32	42	52	35	25	31	36
21	29	40	51	36	26	31	36
22	26	37	49	37	26	31	36
23	26	36	45	38	25	30	35
24	26	34	42	39	25	30	35
25	27	33	39	40	24	29	34
26	27	32	37				

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: Va/Hem xxx% (GA OOR)

1-6-7 Va/Hem Nicolaides

Reference: *R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-*

Inputs:	Va, Hem (cm)
Output:	Ratio (%)
Range of GA *):	Min: 14 week
	Max. 39 week
Value range:	see table [dependent on GA *)]

$$Va\backslash\mathrm{Hem} = \frac{Va}{Hem}$$

Table: Normal range for anterior cerebral ventricle to hemisphere diameter ratio.

GA (weeks)	Va/Hem (%)			GA (weeks)	Va/Hem (%)		
	5%	50%	95%		5%	50%	95%
14	0.39	0.47	0.56	27	0.19	0.23	0.28
15	0.36	0.43	0.51	28	0.19	0.23	0.27
16	0.33	0.40	0.48	29	0.19	0.22	0.27
17	0.31	0.37	0.44	30	0.18	0.22	0.26
18	0.29	0.35	0.41	31	0.18	0.21	0.26
19	0.27	0.32	0.39	32	0.18	0.21	0.26
20	0.26	0.31	0.37	33	0.18	0.21	0.25
21	0.24	0.29	0.35	34	0.17	0.21	0.25
22	0.23	0.28	0.33	35	0.17	0.21	0.25
23	0.22	0.27	0.32	36	0.17	0.21	0.25
24	0.21	0.26	0.31	37	0.17	0.21	0.25
25	0.21	0.25	0.30	38	0.17	0.21	0.25
26	0.20	0.24	0.29	39	0.17	0.21	0.25

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: Va/Hem xxx% (GA OOR)

1-6-8 Vp/Hem Nicolaides

Reference: *R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48*

Inputs:	Vp, Hem (cm)
Output:	Ratio (%)
Range of GA *):	Min: 14 week
	Max. 39 week
Value range:	see table [dependent on GA *)]

$$Vp\backslash\mathrm{Hem} = \frac{Vp}{Hem}$$

Table: Normal range for anterior cerebral ventricle to hemisphere diameter ratio.

GA (weeks)	Vp/Hem (%)			GA (weeks)	Vp/Hem (%)		
	5%	50%	95%		5%	50%	95%
14	0.36	0.45	0.56	27	0.18	0.22	0.27
15	0.34	0.42	0.52	28	0.17	0.21	0.26
16	0.31	0.39	0.48	29	0.17	0.21	0.26
17	0.29	0.36	0.45	30	0.16	0.20	0.25
18	0.27	0.34	0.42	31	0.16	0.20	0.24
19	0.26	0.32	0.40	32	0.16	0.19	0.24
20	0.24	0.30	0.37	33	0.15	0.19	0.24
21	0.23	0.29	0.35	34	0.15	0.19	0.24
22	0.22	0.27	0.34	35	0.15	0.19	0.24
23	0.21	0.26	0.32	36	0.15	0.19	0.24
24	0.20	0.25	0.31	37	0.15	0.19	0.24
25	0.19	0.24	0.29	38	0.15	0.19	0.24
26	0.18	0.23	0.28	39	0.15	0.19	0.24

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: Vp/Hem xxx% (GA OOR)

1-6-9 VCAD/Z-Scores Baschart

Reference: *Schneider C. et al., "Development of Z-scores for fetal cardiac dimensions from echo-cardiography", Ultrasound Obstet Gynecol. Vol. 26, 2005, pages 599-605.*

Inputs	FL, GA or BPD
Output	Z-scores

ln (predicted cardiac dimension) = m*ln(FL, GA or BPD) + c

Z-score = (ln(actual) - ln(predicted cardiac dimension))/ root MSE

Section 1-7
CUA Reference & Formulas

1-7-1 CUA: References and Formulas

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$CUA(BPD) = 9{,}54 + 1{,}482 \cdot BPD + 0{,}1676 \cdot BPD^2$$

$$CUA(HC) = 8{,}96 + 0{,}540 \cdot HC + 0{,}0003 \cdot HC^3$$

$$CUA(AC) = 8{,}14 + 0{,}753 \cdot AC + 0{,}0036 \cdot AC^2$$

$$CUA(FL) = 10{,}35 + 2{,}460 \cdot FL + 0{,}170 \cdot FL^2$$

$$CUA(BPD, HC) = 10{,}32 + 0{,}009 \cdot HC^2 + 1{,}3200 \cdot BPD + 0{,}00012 \cdot HC^3$$

$$CUA(BPD, AC) = 9{,}57 + 0{,}524 \cdot AC + 0{,}1220 \cdot BPD^2$$

$$CUA(BPD, FL) = 10{,}50 + 0{,}197 \cdot BPD \cdot FL + 0{,}9500 \cdot FL + 0{,}7300 \cdot BPD$$

$$CUA(HC, AC) = 10{,}31 + 0{,}012 \cdot HC^2 + 0{,}3850 \cdot AC$$

$$CUA(HC, FL) = 11{,}19 + 0{,}070 \cdot HC \cdot FL + 0{,}2630 \cdot HC$$

$$CUA(AC, FL) = 10{,}47 + 0{,}442 \cdot AC + 0{,}3140 \cdot FL^2 - 0{,}0121 \bullet FL^3$$

$$CUA(BPD, HC, AC) = 10{,}58 + 0{,}005 \cdot HC^2 + 0{,}3635 \cdot AC + 0{,}02864 \cdot BPD \cdot AC$$

$$CUA(BPD, HC, FL) = 11{,}38 + 0{,}070 \cdot HC \cdot FL + 0{,}9800 \cdot BPD$$

$$CUA(BPD, AC, FL) = 10{,}61 + 0{,}175 \cdot BPD \cdot FL + 0{,}2970 \cdot AC + 0{,}7100 \cdot FL$$

$$CUA(HC, AC, FL) = 10{,}33 + 0{,}031 \cdot HC \cdot FL + 0{,}3610 \cdot HC + 0{,}0298 \cdot AC \cdot FL$$

$$CUA(BPD, HC, AC, FL) = 10{,}85 + 0{,}060 \cdot HC \cdot FL + 0{,}6700 \cdot BPD + 0{,}1680 \cdot AC$$

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Chapter 2
Cardiac References

Section 2-1
Cardiology 2D-Mode

2-1-1 BSA (Body Surface Area)

BSA is calculated by entering the patient´s weight and height by using the “Patient Information” window.

$$BSA = H^{0,725} \times W^{0,425} \times 0,007184$$

H	Height	(cm)
W	Weight	(kg)
BSA	Body Surface Area	(m^2)

Reference: Grossman W."Cardiac Catheterization and Angiography." Blood Flow Measurement: Hemodynamic Principles, 1980. Chapter8, page90..

2-1-2 Simpson´s Method

Simpson’s protocol is used for calculation left ventricular volume from measurements taken in one or two scan planes. The calculation of volume for both methods (2-chamber or the 4-chamber view) results from summation of areas from diameters of 20 cylinders or discs of equal height, apportioned over the left ventricular length.

2-1-2-1 LV Single Plane (Simpson)

$$EDV_{A4C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2 \qquad ESV_{A4C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2$$

$$SV_{A4C} = EDV_{A4C} - ESV_{A4C} \qquad EF_{A4C} = \frac{EDV_{A4C} - ESV_{A4C}}{EDV_{A4C}} \cdot 100$$

$$CO_{A4C} = \frac{SV_{A4C} \times HR}{1000}$$

$$EDV_{A2C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2 \qquad ESV_{A2C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2$$

$$SV_{A2C} = EDV_{A2C} - ESV_{A2C} \qquad EF_{A2C} = \frac{EDV_{A2C} - ESV_{A2C}}{EDV_{A2C}} \cdot 100$$

$$CO_{A2C} = \frac{SV_{A2C} \times HR}{1000}$$

LVLD	Left ventricle long axis diastole	(cm)
EDV_{A4C}	End diastolic volume (4 camber view)	(ml)
ESV_{A4C}	End systolic volume (4 camber view)	(ml)
EDV_{A2C}	End diastolic volume (2 chamber view)	(ml)
ESV_{A2C}	End systolic volume (2 chamber view)	(ml)
SV_{A4C}	Stroke Volume (4 camber view)	(ml)
SV_{A2C}	Stroke Volume (2 camber view)	(ml)
EF_{A4C}	Ejection Fraction (4 camber view)	[%]
EF_{A2C}	Ejection Fraction (2 camber view)	[%]
HR	Heart Rate	[bpm]
CO_{A4C}	Cardiac output (4 camber view)	[l/min]
CO_{A2C}	Cardiac output (4 camber view)	[l/min]

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-1-2-2 LV Bi Plane (Simpson)

$$EDV_{BiPlane} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i \cdot b_i$$

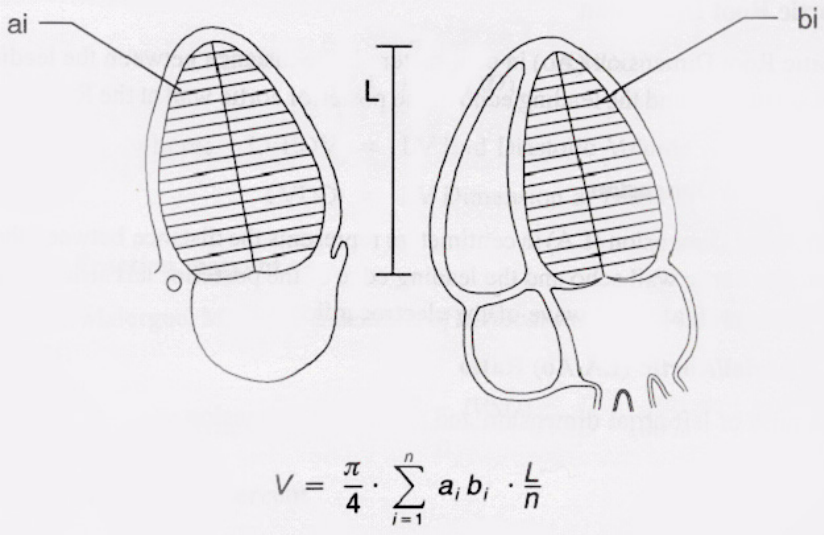
$$ESV_{BiPlane} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i \cdot b_i$$

$$SV_{BiPlane} = EDV_{BiPlane} - ESV_{BiPlane}$$

$$EF_{BiPlane} = \frac{EDV_{BiPlane} - ESV_{BiPlane}}{EDV_{BiPlane}} \cdot 100$$

$$CO_{BiPlane} = \frac{SV_{BiPlane} \times HR}{1000}$$

LVLD	Left ventricle long axis diameter	(cm)
$EDV_{BiPlane}$	End diastolic volume derived from EDV_{A4C} and EDV_{A2C}	(ml)
$ESV_{BiPlane}$	End systolic volume derived from ESV_{A4C} and ESV_{A2C}	(ml)
$SV_{BiPlane}$	Stroke volume	[ml]
$EF_{BiPlane}$	Ejection fraction	[%]
$CO_{BiPlane}$	Cardiac output	[l/min]
HR	Heart Ratr	[bpm]



Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-1-3 LV Single Plane, Area/Length (Vol A/L)

$$EDV = \frac{8}{3 \cdot \pi} \cdot \frac{LVAd^2}{LVLD} \qquad ESV = \frac{8}{3 \cdot \pi} \cdot \frac{LVAs^2}{LVLS}$$

$$SV = EDV - ESV \qquad EF = \frac{EDV - ESV}{EDV} \cdot 100$$

$$CO = \frac{SV \times HR}{1000}$$

LVLD	Left ventricle long axis, diastole[cm]	cm]
LVAd	Left ventricle area long axis, diastole	[cm²]
LVLS	Left ventricle long axis, systole	[cm]
LVAs	Left ventricle area long axis, systole	[cm²]
EDV	End diastolic volume	[ml]
ESV	End systolic volume	[ml]
SV	Stroke volume	[ml]
EF	Ejektion fraction	[%]
CO	Cardiac output	[l/min]
HR	Heart Rate	[bpm]

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-1-4 LV Single Plane

2-1-4-1 LV Single Plane (Teichholz)

$$EDV_{Teich} = \frac{7.0}{2.4 + LVDd} \cdot LVDd^3$$

$$ESV_{Teich} = \frac{7.0}{2.4 + LVDs} \cdot LVDs^3$$

$$SV_{Teich} = EDV_{Teich} - ESV_{Teich}$$

$$EF_{Teich} = \frac{EDV_{Teich} - ESV_{Teich}}{EDV_{Teich}} \cdot 100$$

$$CO_{Teich} = \frac{SV_{Teich} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	[cm]
LVDs	Left ventricle diameter, systole	[cm]
EDV_{Teich}	End diastolic volume	[ml]
ESV_{Teich}	End systolic volume	[ml]
SV_{Teich}	Stroke volume	[ml]
EF_{Teich}	Ejection fraction	[%]
CO_{Teich}	Cardiac output	[l/min]
HR	Heart Rate	[bpm]

Reference: Teichholz L.E., Kreulen T., Hermann M.V., et. al.„Problems in echocardiographic volume Determinations: echocardiographic-angiographic correlations in the presence or absence of asyngery." American Journal of Cardiology, 1976,37:1.

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-1-4-2 LV Single Plane (Cubed)

$$EDV_{Cubed} = LVDd^3 \qquad ESV_{Cubed} = LVDs^3$$

$$SV_{Cubed} = EDV_{Cubed} - ESV_{Cubed} \qquad EF_{Cubed} = \frac{EDV_{Cubed} - ESV_{Cubed}}{EDV_{Cubed}} \cdot 100$$

$$CO_{Cubed} = \frac{SV_{Cubed} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
EDV_{Cubed}	End diastolic volume	(ml)
ESV_{Cubed}	End systolic volume	(ml)
SV_{Cubed}	Stroke volume	(ml)
EF_{Cubed}	Ejection fraction	(%)
CO_{Cubed}	Cardiac output	(l/min)
HR	Heart Rate	(bpm)

Reference: Teichholz L.E., Kreulen T., Hermann M.V., et. al.„Problems in echocardiographic volume Determinations: echocardiographic-angiographic correlations in the presence or absence of asyngery." American Journal of Cardiology, 1976,37:1.

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-1-4-3 Fractional Shortening of Left Ventricle Internal diameter

A percent change in LV cavity dimension with systolic contraction

$$FS = \frac{LVDd - LVDs}{LVDd} \cdot 100$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
FS	Stroke Volume	(%)

Reference: Harvey Feigenbaum, "Echocardiography" , 1995 fifth edition

2-1-4-4 Left ventricular Mass (LV mass)

$$LV_{Mass} = 1.04 * \left[\left(LVDd + LVPWd + IVSd \right)^3 - LVDd^3 \right] - 13.6$$

LVDd	Left ventricle diameter, diastole	(cm)
LVPWd	Left ventricular posterior wall diameter, diastole	(cm)
IVSd	Intraventricular Septum diameter, diastole	(cm)
LV_{Mass}	Left ventricular mass	(g)

Reference: Devereux,R.B.; Reichek,N, "Echocardiographic determination of left ventricular mass in man. Anatomic validation of the method", Circulation 1977; 55; 613-618

2-1-5 Left ventricular Mass (LV mass)

$$Tmy = \sqrt{\frac{Epi_{Area}}{\pi}} - \sqrt{\frac{Endo_{Area}}{\pi}}$$

$$LVM = 1.05 \cdot \left[\left[\frac{5}{6} \cdot Epi_{Area} \cdot (LVL + Tmy) \right] - \left[\frac{5}{6} \cdot Endo_{Area} \cdot LVL \right] \right]$$

LVL	Left ventricle long axis diastole, endocardium	(cm)
Epi_{Area}	Area epicardium, at papillary muscles diastole (short axis)	(cm^2)
End_{Area}	Area endocardium, at papillary muscles diastole (short axis)	(cm^2)
Tmy	Thickness of myocardium (mean wall thickness)	(cm)
LVM	Left ventricular mass	(g)

Reference: Harvey Feigenbaum, " Echocardiography", 1995 fifth edition Chapter3, page 158, Lea&Febige

2-1-6 Left ventricular outflow tract (LVOT)

A percent change in LV cavity dimension with systolic contraction

$$LVOT_{Area} = \pi \cdot \frac{LVOT_{Diameter}^{2}}{4}$$

$LVOT_{Diameter}$	Left ventricular outflow tract diameter	(cm)
$LVOT_{Area}$	Left ventricular outflow tract area	(cm^2)

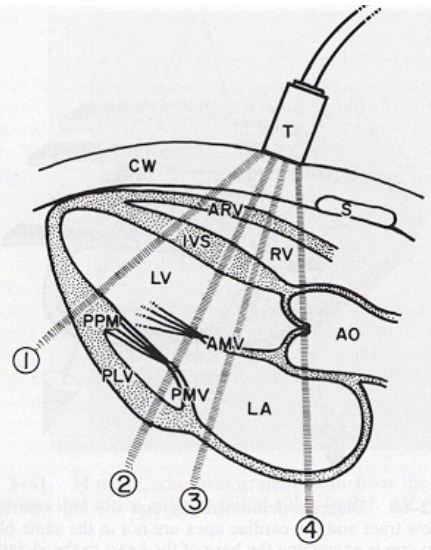
2-1-7 Left ventricular outflow tract (RVOT)

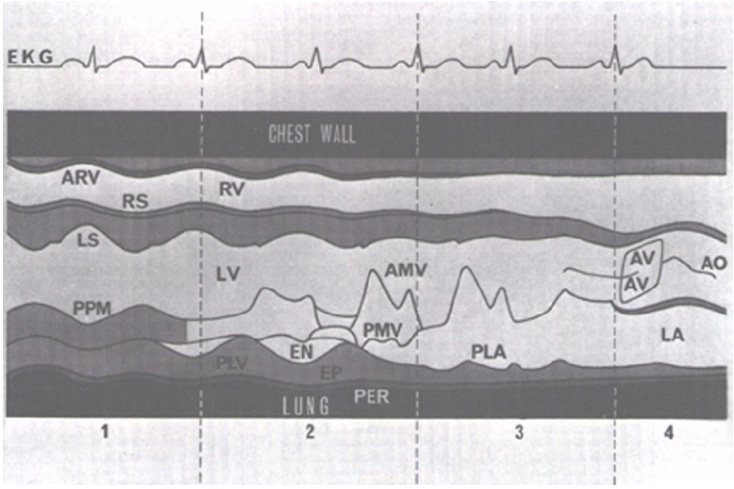
$$RVOT_{Area} = \pi \cdot \frac{RVOT_{Diameter}^{2}}{4}$$

$RVOT_{Diameter}$	Right ventricular outflow tract diameter	(cm)
$RVOT_{Area}$	Right ventricular outflow tract area	(cm^2)

Section 2-2
Cardiology M-Mode

2-2-1 Left Ventricle (LV)





Reference: Harvey Feigenbaum, " Echocardiography", 1995 fifth edition

2-2-1-1 LV-Single Plane (Teichholz)

$$EDV_{Teich} = \frac{7.0}{2.4 + LVDd} \cdot LVDd^3$$

$$ESV_{Teich} = \frac{7.0}{2.4 + LVDs} \cdot LVDs^3$$

$$SV_{Teich} = EDV_{Teich} - ESV_{Teich}$$

$$EF_{Teich} = \frac{EDV_{Teich} - ESV_{Teich}}{EDV_{Teich}} \cdot 100$$

$$CO_{Teich} = \frac{SV_{Teich} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
EDV_{Teich}	End diastolic volume	(ml)
ESV_{Teich}	End systolic volume	(ml)
SV_{Teich}	Stroke volume	(ml)

EF_{Teich}	Ejection fraction	(%)
CO_{Teich}	Cardiac output	(l/min)
HR	Heart Rate[bpm]	(bpm)

Reference: Teichholz L.E., Kreulen T., Hermann M.V., et. al.„Problems in echocardiographic volume Determinations: echocardiographic-angiographic correlations in the presence or absence of asyngery." American Journal of Cardiology, 1976,37:1.

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-2-1-2 LV-Single Plane (Cubed)

$$EDV_{Cubed} = LVDd^{3} \qquad ESV_{Cubed} = LVDs^{3}$$

$$SV_{Cubed} = EDV_{Cubed} - ESV_{Cubed} \qquad EF_{Cubed} = \frac{EDV_{Cubed} - ESV_{Cubed}}{EDV_{Cubed}}$$

$$CO_{Cubed} = \frac{SV_{Cubed} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
EDV_{Cubed}	End diastolic volume	(ml)
ESV_{Cubed}	End systolic volume	(ml)
SV_{Cubed}	Stroke Volume	(ml)
EF_{Cubed}	Ejection fraction	(%)
CO_{Cubed}	Cardiac output	(l/min)
HR	Heart Rate	(bpm)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-2-1-3 Fractional Shortening of Left Ventricle Internal diameter

A percent change in LV cavity dimension with systolic contraction

$$FS = \frac{LVDd - LVDs}{LVDd} \cdot 100$$

LVDd	Left ventricle diameter, diastole	(cm)
LVPDs	Left ventricle diameter, systole	(cm)
IFS	Fractional shortening	(%)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 156

2-2-1-4 Left ventricular Mass (LV mass)

$$LV_{Mass} = 1.04 * \left[\left(LVDd + LVPWd + IVSd \right)^3 - LVDd^3 \right] - 13.6$$

LVDd	Left ventricle diameter, diastole	(cm)
LVPWd	Left ventricular posterior wall diameter, diastole	(cm)
IVSd	Intraventricular Septum diameter, diastole	(cm)
LV_{Mass}	Left ventricular mass	(g)

Reference: Devereux,R.B.; Reichek,N, “Echocardiographic determination of left ventricular mass in man. Anatomic validation of the method”, Circulation 1977; 55; 613-618

2-2-2 Artery Valves/Left Atrium (AV/LA)

2-2-2-1 Aortic Root Diameter (unit:cm) : Ao root dia.

AVLA -AO Diam.: The distance between the leading echo of the anterior aortic wall and the leading echo of the posterior aortic wall at the R wave of theelectrocardiogram.

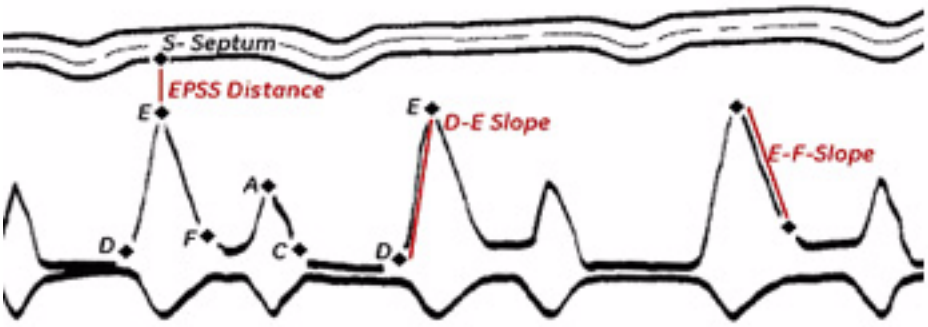
2-2-2-2 Left Atrial Diameter (unit:cm) : LA dia.

AVLA -LA Diam.: The distance between the trailing edge of the posterior aortic wall echo and the leading edge of the posterior left atrial wall echo at the level of the aortic wall at the R wave of the electrocardiogram.

2-2-2-3 Aortic Valve Cusp Separation (unit:cm) : Ao cusp sep.

AVLA-AV Cusp.: The distance between the trailing echo of the anterior aortic valve leaflet and the leading echo of the posterior aortic valve leaflet in early diastole.

2-2-3 Mitral Valve (MV)



Schema of M-Mode: Böhmeke, Th. “Echokardiographie”,Thieme, 2001

A:	In atrial systole, blood is propelled through the mitral orifice and the mitral leaflets reopen the peak of this phase of mitral valve motion is indicated as A
C:	Complete closure occurs after the onset of the ventricular systole.
D:	End of systolic, immediately before the opening of the Mitral Valve.
E:	The anterial leaflet of the mitral valve opens, it peaks at E.
F:	Lowest point of the initial diastolic closing.
EPSS:	E-Point to Septal Separation

2-2-3-1 D-E Slope

MV-DE Slope:	Automatic. calculated from the D-E excursion. The rate of change that exists between two point (D, E). (unit:m/s)
MV-DE Ampl.:	Distance between the onset of the opening of the mitral valve at D and the maximum opening of the anterior mitral valve leaflet at E. (unit: cm)

2-2-3-2 E-F Slope (unit: m/s)

MV-EF Slope:	Indicates the difference between early (E-Point) and mid-diastolic leaflet position (F-Point).

2-2-3-3 A-C time interval (unit : ms)

MV-AC:	The time interval between the A point and the C point.

2-2-3-4 EPSS Distance (unit: cm)

MV-EPSS: Distance between the Mitral Valve E point and the posterior edge of the interventricular septum at the same point in time.

Reference: Böhmeke, Th. "Echokardiographie",Thieme, 2001

2-2-4 Heart Rate (HR)

$$HR = \frac{beats}{t} \times 60$$

beats	Number of beats	(n)
t	Time	(sec)
HR	Heart Rate	(bpm)

Section 2-3
Cardiology D-Mode)

2-3-1 Mitral Valve(MV) / Tricuspid Valve(TV)

2-3-1-1 Peak A+E

$$MV\ E/A = \frac{V_{Peak,E}}{V_{Peak,A}}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
$V_{Peak,A}$	Peak Velocity at A-Point	(m/s)
MV E/A	Ratio between $V_{Peak,E}$ and $V_{Peak,A}$	

2-3-1-2 Pressure Gradient (Peak PG)

$$PG = 4 \cdot V_{Peak,E}^{2}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PG_{Peak}	Pressure Gradient	(mmHg)

2-3-1-3 Pressure Half Time (PHT)

The peak velocity to fall to the velocity corresponding to one half of the peak pressure.
The time in seconds for the velocity to fall off to 0.707of its peak value.
The PHT provides a valuable index of the severity of mitral stenosis.

$$PHT = \frac{V_{Peak,E}}{\sqrt{2}}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PHT	Pressure half time	(ms)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 270

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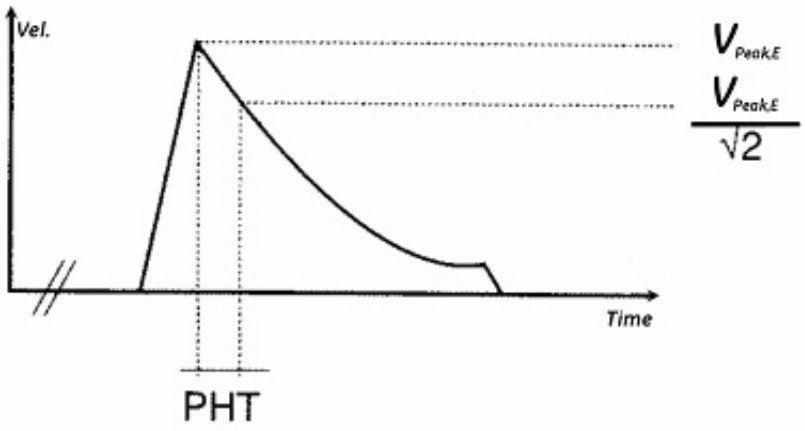


Figure: Fehske, W. “Praxis der konventionellen und farbcodierten Doppler-Echokardiographie”, Verlag Hans Huber, page 129

2-3-1-4 Mitral Valve Area (MVA)

$$MVA = \frac{220}{PHT}$$

PHT	Pressure Half Time	(ms)
MVA	Mitral Valve Area	(cm^2)

Reference: John H. Phillips, " Practical Quantitative Doppler Echocardiography", page 47, Chapter 6, CRC press, 1991

2-3-1-5 Velocity Time Integral (VTI)

$$VTI = \sum V_i \cdot \Delta t$$

VTI	Velocity Time Integral	(m)

2-3-2 Aortic Valve (AV), Pulmonic Valve (PV)

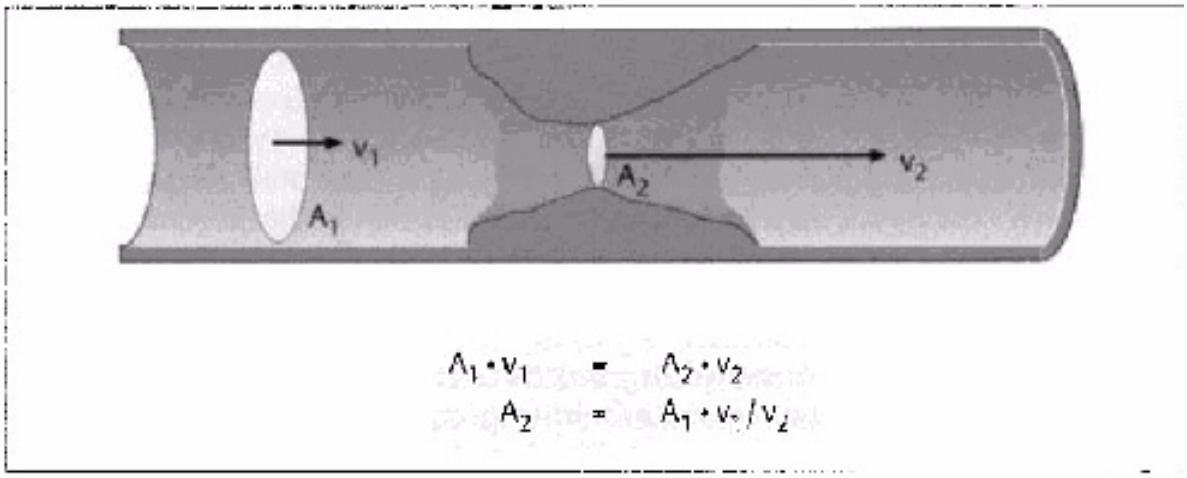
2-3-2-1 Continuity Equation

When there is a constant flow in a flow channel with a stenosis, the flow volume at the stenosis portion equals that at nonstenotic portions.
This equation is valid not only in a constant flow, but also in a pulsatility flow channel.

$$SV1 = SV2$$

SV1 Stroke Volume in the nonstenotic area

SV2 Stroke Volume in the stenotic area



.Continuity Equation

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 17

2-3-2-2 Aortiv Valve Area (AV Area)

$$AV_{Area} = \frac{VTI_{LVOT}}{VTI_{AO}} \cdot LVOT_{Area}$$

VTI_{LVOT}	Velocity time integral of the LVOT	(cm)
VTI_{AO}	Velocity time integral, aortic	(cm)
$LVOT_{Area}$	[Left ventricular outflow tract area[	(cm^2)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 310- 314.

2-3-2-3 Pulmonary Valve Area (PV Area)

$$PV_{Area} = \frac{VTI_{RVOT}}{VTI_{AO}}.$$

VTI_{RVOT}	Velocity time integral of the RVOT	(cm)
VTI_{AO}	Velocity time integral, aortic	(cm)
$RVOT_{Area}$	[Right ventricular outflow tract area[	((cm^2))

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 310- 314.

2-3-2-4 Pressure Gradient (PG)

$$PG = 4 \cdot V_{Peak,E}^{2}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PG	Pressure Gradient	(mmHg)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 18

2-3-2-5 Mean Pressure Gradient (MnG)

$$MnG = \sum PG_i \cdot \Delta t \qquad PG = 4 \cdot V_{Peak,E}^{2}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PG	Pressure Gradient	(mmHg)
MnG	Mean pressure Gradient[	(mmHg)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 18

2-3-3 Left Ventricular outflow tract (LVOT)

2-3-3-1 Stroke Volume (SV)

$$SV = VTI \cdot CSA \qquad CSA = \frac{Dia^2}{4} \cdot \pi$$

CSA	Cross sectional area	(cm^2)
SV	Stroke volume	(ml)
VTI	Velocity Time Integral	(m)
Dia	Diameter	(cm)

The Cross Sectional Area (CSA) may be determined by the M Mode or 2D echo image study (e.g., the left ventricle outflow track, aortic root, pulmonary artery)

Reference: *Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 17*
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-3-4 Right ventricular outflow tract (RVOT)

2-3-4-1 Stroke Volume (SV)

$$SV = VTI \cdot CSA \qquad CSA = \frac{Dia^2}{4} \cdot \pi$$

CSA	Cross sectional area	(cm^2)
SV	Stroke volume	(ml)
VTI	Velocity Time Integral	(m)
Dia	Diameter	(cm)

The Cross Sectional Area (CSA) may be determined by the M Mode or 2D echo image study (e.g., the left ventricle outflow track, aortic root, pulmonary artery)

Reference: *Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 17*
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-3-5 Pulmonary artery pressure (PAP)

$$PAPm = 4 \cdot VPD^2 + 10$$

$$PAPd = 4 \cdot VTD^2 + 10$$

$$PAPs = 3 \cdot PAPm - 2 \cdot PAPd$$

VPD	protodiastolic velocity	(m/s)
VTD	telediastolic velocity	(m/s)
PAP	pulmonary artery pressure	(mmHG)
PAPm	mean pulmonary artery pressure	(mmHG)
PAPd	mean pulmonary artery pressure	(mmHG)
PAPs	peak systolic pulmonary artery pressure	(mmHG)

Reference: Masuyama T., Kodama K., Kitabatake A., Sato H., Nanto S., Inoue M. "Continuous-Wave Doppler Echocardiographic Detection of Pulmonay Regurgitation and its Application to Noninvasive Estimation of Pulmonary Artery Pressure", Circulation 1986; Vol. 74, No. 3:484-492

Reference: Reference:Hatle L., Anglesen B: "Doppler Ultrasound in Cardiology", Philadelphia, Lea & Febiger 1985

2-3-6 Heart Rate (HR)

$$HR = \frac{beats}{t} \cdot 60$$

beats	number of beats	(n)
t	time	(s)
HR	Heart Rate	(bpm)

Section 2-4
Cardiology C-Mode

2-4-1 Cardiology C-Mode

2-4-1-1 Proximal Isovelocity Surface Area (PISA)

$$PISA = 2 \times \pi \times PISA_{Radius^2}$$

PISA	Proximal Isovelocity Surface Area	(cm^2)
$PISA_{Radius}$	Radial distance of the isovelocity	(cm)

2-4-1-2 PISA Radius

PISA-Radius is the radial distance of the PISA orifice.

Reference: Oh, J.K., Seward, J.B., Tajik, A.J. The Echo Manual. Boston: Little, Brownand Company, 1994, S.106.

Reference: Schmailzl K., Omerod O., Hrsg. „Ultrasound in Cardiology". Blackwell Science, 1994, page 125.

2-4-1-3 PISA-Alias Velocity

PISA-Alias velocity is the alias velocity measured with color doppler

Reference: Schmailzl K., Omerod O., Hrsg. „Ultrasound in Cardiology". Blackwell Science, 1994, page 125.

2-4-1-4 Regurgitant Volume Flow Rate (Rate)

Flow per seconds

$$Rate = PISA \cdot Vel_{Alias}$$

Rate	Regurgitation flow per seconds	(ml/s)
PISA	Proximal Isovelocity Surface Area	(cm^2)
Vel_{Alias}	PISA-Alias Velocity from CFM	(cm/s)

Reference: Oh J.B., Seward J.B., Tajik A.J. "The Echo Manual". Boston: Little, Brown and Company,1994, page 106

2-4-1-5 Effective Regurgitant Orifice (ERO)

$$ERO = \frac{Rate}{V_{Peak,E}}$$

ERO	Effective Regurgitant Orifice	((cm²)
Rate	Regurgitation flow per seconds	(ml/s)
$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)

Reference: Oh J.B., Seward J.B., Tajik A.J. "The Echo Manual". Boston: Little, Brown and Company,1994, page 108-109.

2-4-1-6 Regurgitant Volume by PISA (Vol)

$$Vol = ERO \cdot VTI$$

Vol	Regurgitant Volume by PISA	(ml)
VTI	Velocity Time Integral	(m)
ERO	Effective Regurgitant Orifice	(cm²)

Chapter 3
Vascular References

Section 3-1
Vascular References and Formulas

3-1-1 Resistance Index

$$RI = \frac{PSV - EDV}{PSV}$$

PSV	Peak Systolic Velocity	(cm/s)
EDV	End Diastolic Velocity	(cm/s)
RI	Resistance Index	(--)

Reference: Burns Peter N., "The Physical principles of Doppler Spectral Analysis," Journal of Clinical Ultrasound, Nov./Dec. 1987, Vol.15, No.9,p.586

3-1-2 Pulsatility Index

$$PI = \frac{PSV - EDV}{MnV}$$

PSV	Peak Systolic Velocity	(cm/s)
EDV	End Diastolic Velocity	(cm/s)
MnV	Mean Velocity	(cm/s)
PI	Pulsatility Index	(--)

Reference: Burns Peter N., "The Physical principles of Doppler Spectral Analysis," Journal of Clinical Ultrasound, Nov./Dec. 1987, Vol.15, No.9,p.586

3-1-2-1 Pulsatility Index (Ductus Venosus)

$$PI = \frac{PSV - MDV}{MnV}$$

PSV	Peak Systolic Velocity	(cm/s)
MDV	Mid Diastolic Velocity	(cm/s)
MnV	Mean Velocity	(cm/s)
PI	Pulsatility Index	(--)

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

3-1-3 Systolic/Diastolic Ratio (S/D)

$$S\backslash D = \frac{PSV}{EDV}$$

PSV	Peak Systolic Velocity	(cm/s)
EDV	End Diastolic Velocity	(cm/s)
S/D	Systolic/Diastolic Ratio	(--)

Reference: Ameriso S, et al., "Pulseless Transcranial Doppler Finding in Takayasu's Arteritis,"

3-1-4 Pressure Gradient (PG)

$$PG = 4 \times V_{max^2}$$

Vmax	Peak Velocity, Velocity E	(m/s)
PG	Pressure Gradient	(mmHg)

Reference: F. A. Flachskampf; Praxis der Echokardiographie; Thieme Verlag, 2002; S. 18f

3-1-5 Area Reduction (% StA)

The system calculates the percent of area/distance reduction.

$$\%StA = \left(1 - \frac{Ar}{Ao}\right) \cdot 100$$

Ao	Original area of the vessel	(cm^2)
Ar	Reduced area of the vessel	(cm^2)
%StA	Percent of the area reduction	(%)

Reference: Jacob, Normaan M et, al., " Duplex Carotid Sonography : Crieteria for Stenosis, Accuracy and Pitfalls," Radiology 154: 385~391, 1985.

3-1-6 Distance Reduction (% StD)

The system calculates the percent of area/distance reduction.

$$\%StD = \left(1 - \frac{Din}{Dout}\right) \cdot 100$$

Dout	Outer (original) distance	(cm)
Din	Inner (reduced) distance	(cm)
%StD	Percent of the distance reduction	(%)

Reference: Jacob, Normaan M et, al., " Duplex Carotid Sonography : Crieteria for Stenosis, Accuracy and Pitfalls," Radiology 154: 385~391, 1985.

3-1-7 Velocity Time Integral (VTI)

$$VTI = \int \bar{v} * dt$$

VTI Velocity Time Integral (cm)

3-1-8 Stroke Volume (SV)

$$SV = VTI \times CSA \qquad CSA = \frac{Dia^2}{4} \times \pi$$

CSA Cross Sectional Area (cm^2)
SV Stroke Volume (ml)

The Cross Sectional Area (CSA) may be determined by the 2D echo image study.

Chapter 4
Gynecology References

Section 4-1
Gynecology References and Calculation

4-1-1 Residual Urine (ResUr)

Reference: *Haylen, B.T., Residual urine volumes in a normal female population: application of transvaginal ultrasound. British Journal of Urology, 1989. 64(4): p. 347-349.*

Calculations:

+ Residual Urine = x*y*5.9 – 14.9 ml (x = Bladder height, y = Bladder width) (10) - ResUr

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