



Professional Ultrasound Services

244 20th Avenue

San Francisco, CA 94121-2203

www.jimbaun.com

(415) 751-4090

Basic Fetal Biometry

A variety of techniques exist for determining gestational age in the second and third trimesters. The most accurate sonographic method is measurement of the crown-rump length in the first trimester (± 4 days). In the second and third trimesters, all of the following techniques have a range of approximately ± 2 weeks.

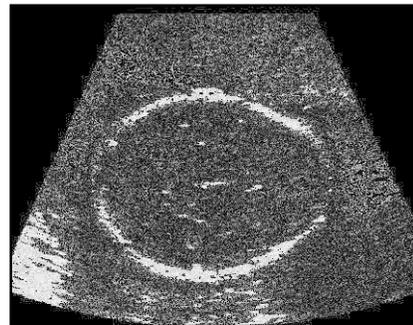
At least two separate measurements should be made of each parameter used. When a significant disparity in those two measurements occurs, additional measurements should be taken.

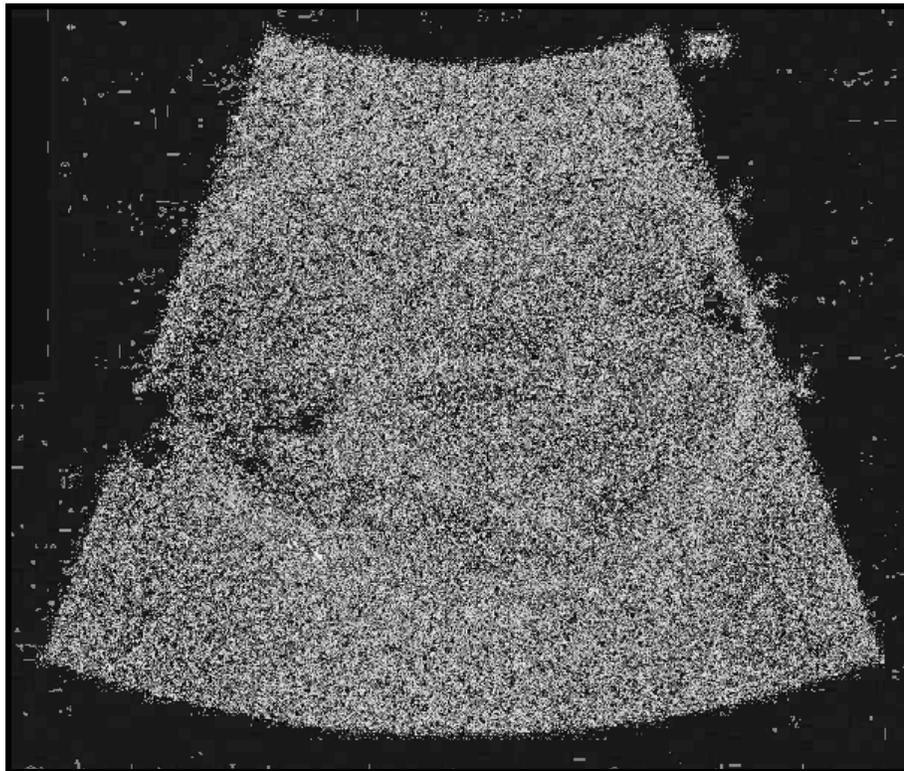
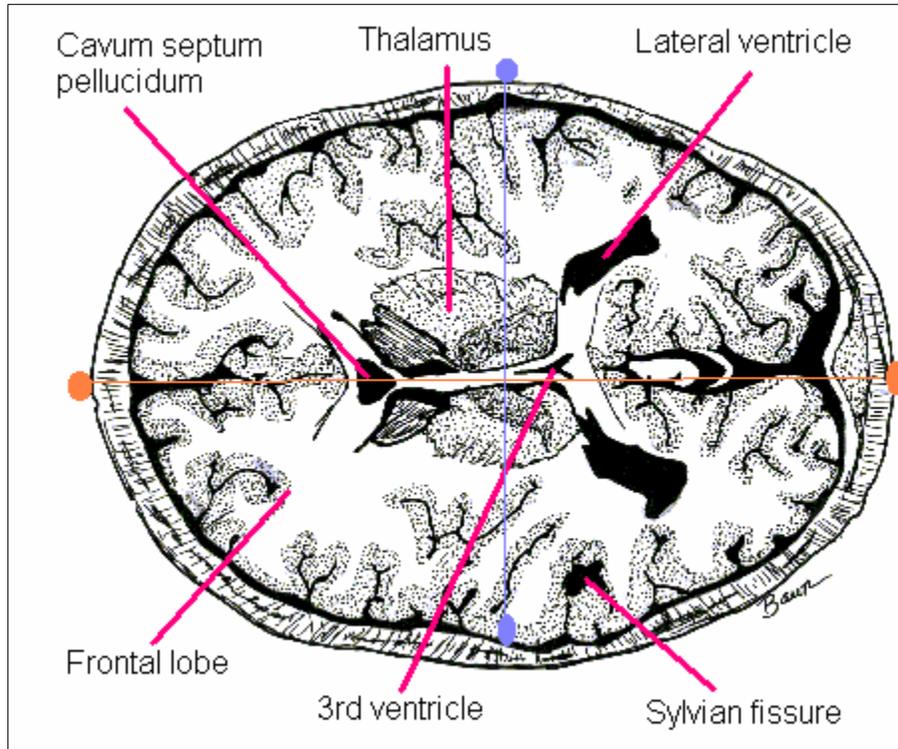
Some rules of thumb for establishing gestational age in the second and third trimesters include:

- Multiple measurements should be used, such as, BPD, HC, FL and AC
- If the AC falls more than 2 SD from the mean, look for signs of IUGR
- If the FL falls short more than 2 SD, look for other signs of skeletal dysplasia
- If the head measurements and/or the AC fall short, use a ratio of HC/AC
- The cephalic index helps determine accuracy of BPD measurement. (Normal = 71-89%). Lower indicated dolicocephaly; higher indicates brachycephaly.

Biparietal Diameter (BPD)

- Axial section through fetal head at the level of the thalami and cavum septum pellucidum.
- Measure outer surface of near parietal bone to inner surface of far parietal bone (leading edge to leading edge)
- First measurable between 10 - 12 weeks.
- Angle of asynclitism: derived from clinical obstetrics. Sonographically it refers to the relationship between the fetal cranial sagittal suture and the central portion of the ultrasound beam. For an exact BPD, it should be 90°



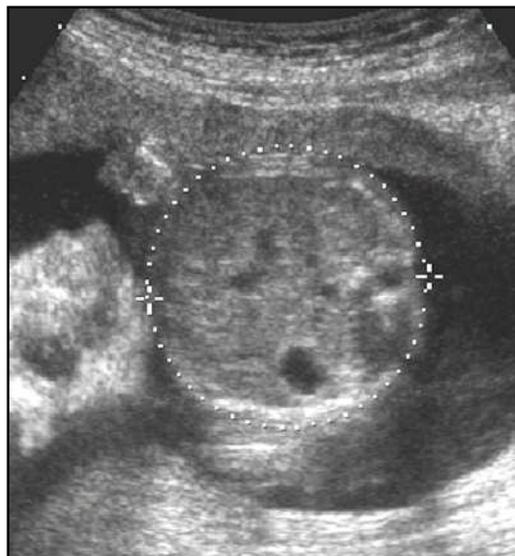
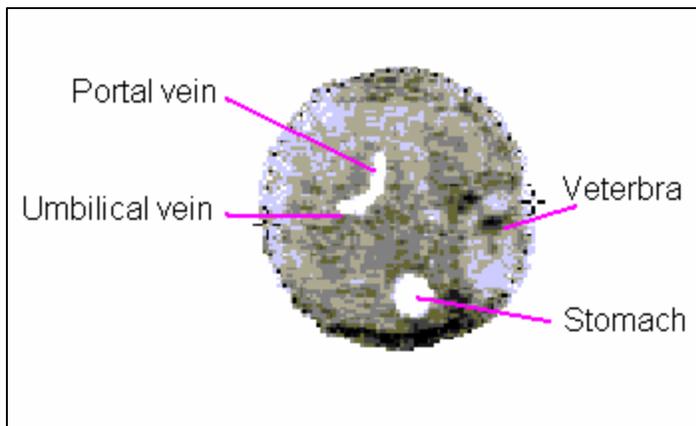


Head Circumference (HC)

- Measured at same level as BPD.
- Circumference should include scalp echoes when using electronic ellipse software.
- When occipito-frontal (OFD) measurements are used in conjunction with BPD, the OFD should be measured outer edge to outer edge.
- More accurate than BPD when the fetal head is dolichocephalic or brachycephalic.

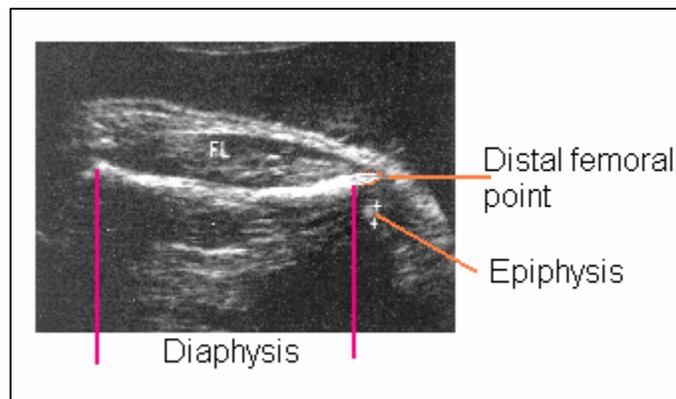
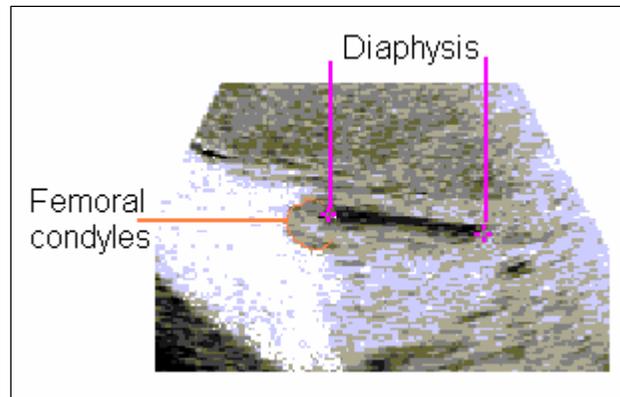
Abdominal Circumference (AC)

- Measured at the level of the portal sinus and stomach.
- Circumference measurements (both ellipse and linear) should include soft tissue.
- The least reliable in establishing gestational age due to significant genetic and physiologic variations in size after 25 weeks.



Femur Length (FL)

- Best obtained with a linear array (eliminates artifactual bowing due to sector beam geometry)
- Includes only ossified diaphysis, excludes epiphyseal cartilage and distal femoral point. (see below)
- If femur length falls below 2 SD of the mean, short limb dysplasia may be present. Other long bones should be measured





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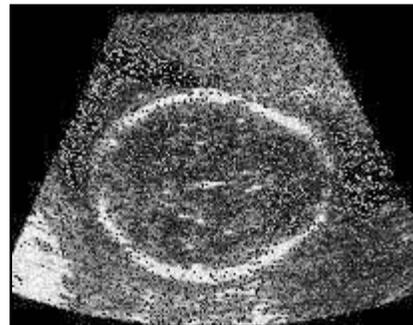
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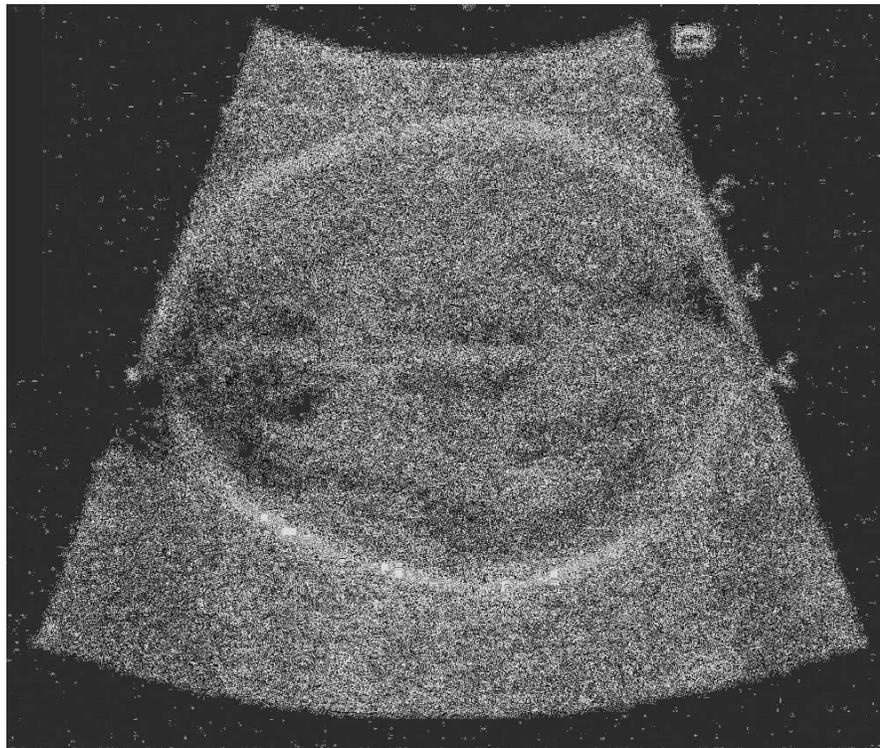
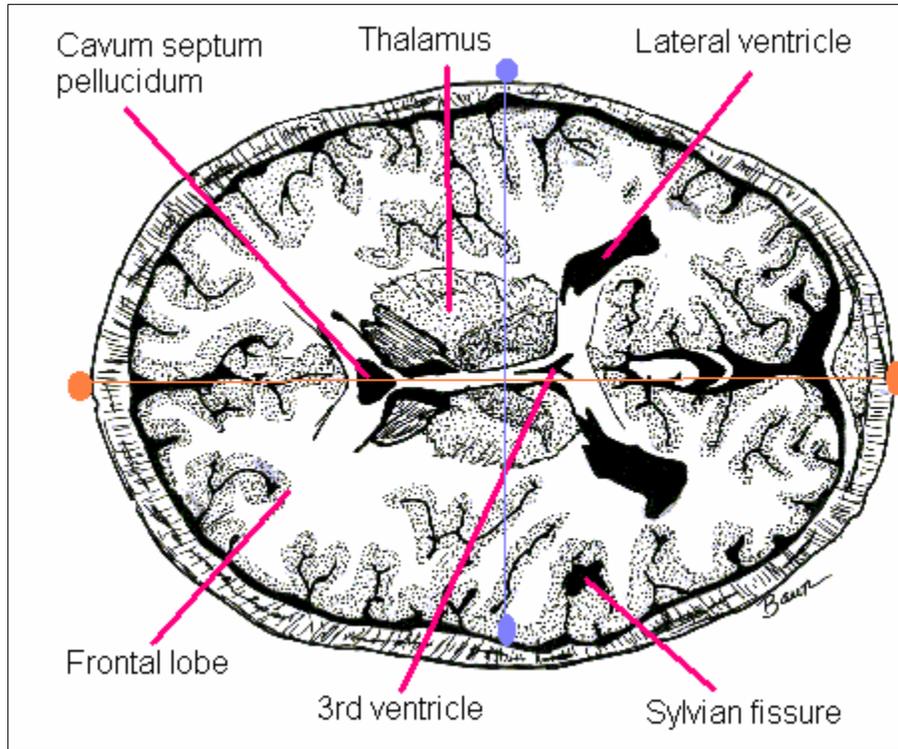
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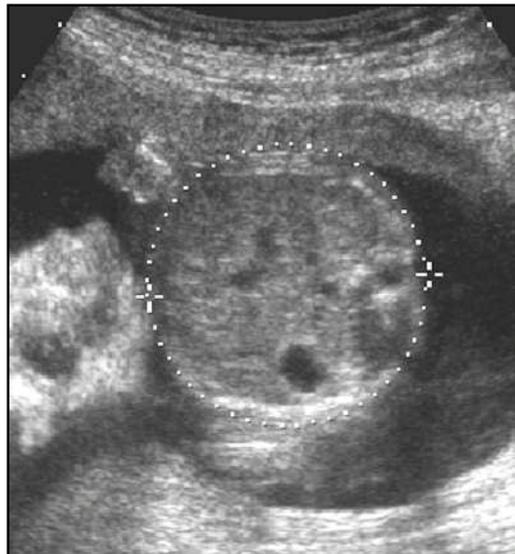
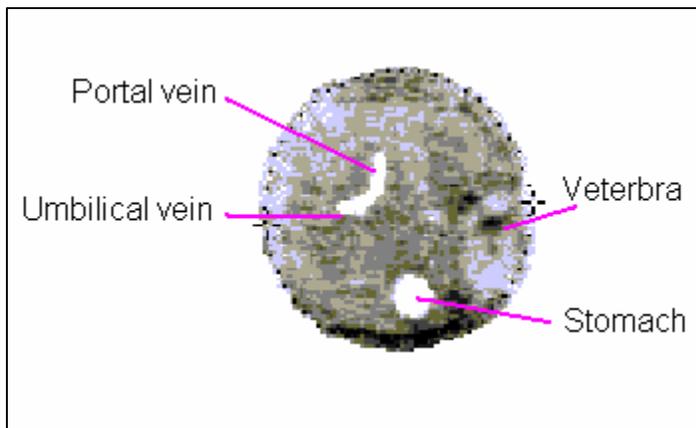


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