

1  **Fetal Growth Assessment**

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2  **Estimated Fetal Weight**

3  **Intrauterine Growth Restriction**

- Decreased rate of fetal growth
- Fetal weight below 10% for gest. Age
- Greater risk for:
 - Antepartum death
 - Perinatal asphyxia
 - Neonatal morbidity
 - Developmental problems
- Asymmetric
- Symmetric

4  **Asymmetric Intrauterine Growth Restriction**

- Appropriate head dimensions, but small abdominal size
- More common
- Usually caused by placental problems
 - Maternal diseases
 - ✦ Diabetes
 - ✦ Hypertension
 - ✦ Cardiac or renal disease
 - ✦ Abruptio placentae
 - ✦ Drug use/smoking
 - No maternal problems at all-idiopathic

5  **Symmetric Intrauterine Growth Restriction**

- All indices of fetus are small
 - Head, abdomen, and long bones
- Typically from insult in early first trimester

6  **IUGR-Sonographic Parameters**

- BPD not a good predictor
 - Head sparing theory
 - Head shape may be abnormal
- Abdominal Circumference very reliable
 - Liver size changes with restriction
 - Not good at determining gestational age
- Femur Length
 - Correlates to neonatal crown-heel length
- HC/AC
 - Useful for asymmetric IUGR

7  **Biophysical Profile**

- Fetal Breathing Movements
 - Simultaneous inward movement of the chest wall with outward movement of the abdominal wall during inspiration
- Fetal Body Movements

- Three definite extremity or trunk movements within 30 min
- Fetal Tone
 - One episode of extension and immediate return to flexion of an extremity or the spine
- Amniotic Fluid Volume
 - Evaluate four quadrants- 2 of the pockets measure at least 2cm

8  **Doppler Study**

- Umbilical artery
 - S/D ratio should be <3.0
 - Want continuous diastolic flow
- Middle Cerebral Artery
 - S/D ratio should be >3.0
- Maternal Uterine Artery
 - S/D ratio should be below 2.6

9  **Ductus Venosus Study**

- First trimester screening for aneuploidic anomalies
- Second trimester
 - IUGR
 - Cardiac compromise
- Triphasic Waveform is normal-always forward
 - S=ventricular systolic contraction
 - D= early ventricular diastole (second peak)
 - A= atrial contraction, (lowest point)

10  **Macrosomia**

- Birth weight $>90^{\text{th}}$ percentile or >4000 grams
- Maternal diabetes mellitus
 - Increased levels of glucose and result in fetal hyperinsulinemia
- Head and shoulder injuries, cord compression
- Mechanical macrosomia
 - Generally large
 - Generally large and with big shoulders
 - Normal size trunk but big heads
- Metabolic macrosomia
 - Diabetic pregnancies

11  **Which is which Doppler?**