

Table 20-1

## Effects of Obesity on Reproduction Across the Lifetime

### *Childhood*

#### **Advanced puberty**

- Delayed puberty in a subset of males

#### **Reproductive Years**

- Increased anovulatory cycles
- Decreased conception per ovulation
- Increased time to conception
- $\pm$  Altered sperm integrity
- Altered testosterone-to-estrogen ratio

### *Maternal Effects During Pregnancy*

#### **Increased risk of:**

- Early miscarriage
- Fetal demise
- Recurrent miscarriages
- Hypertension
- Preeclampsia
- Gestational diabetes
- Venous thrombosis
- Genital/urinary tract infections
- Induction of labor
- Failure to progress
- Instrumental delivery
- Transition to emergent cesarean section
- Failed trial of labor after prior cesarean section
- Wound infection
- Difficulties with lactation

### *Fetal Effects During Pregnancy*

#### **Increases risk of:**

- Large-for-gestational-age infant
  - Abnormal presentation
  - Dystocia
  - Injury during delivery
  - Neonatal hypoglycemia
- Congenital anomalies
  - Cardiovascular
  - Renal
  - Neural tube
- Elective premature delivery

### *Infancy*

#### **Increased lifetime risk of obesity**

Similar to females, obese males have lower SHBG levels related to hyperinsulinemia. The paucity of SHBG results in lower total testosterone and free testosterone. Peripheral conversion of unbound testosterone to estradiol can shift the testosterone:estradiol ratio. A decreased testosterone:estradiol ratio is associated with infertility. Although only a subgroup of obese males have hypogonadotropic hypogonadism (central inability to produce gonadotropins), mild increases in estradiol may interrupt the hypothalamic-pituitary-testis axis by dampening luteinizing hormone pulses and bioactivity.