

Section 15.2: Review Answers

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1. The embryonic period (first eight weeks of pregnancy) is a time of morphogenesis, when the organs are forming. During the fetal period, the existing structures are refined and grow. The fetus looks human, structures such as the arms and legs develop further, and the organs are present and continue to develop.
2. Events and corresponding trimester:
 - (a) heart starts beating: 1
 - (b) the body is larger in proportion to the head: 2
 - (c) fatty tissues are deposited beneath the skin: 3
 - (d) brain cells are connecting to form more intricate networks: 3
 - (e) external reproductive organs are distinguishable as male or female: 1
 - (f) eyelashes form: 2
 - (g) contractions felt by the mother signal the onset of labour: 3
 - (h) skin appears wrinkled: 3
 - (i) nervous system starts to function: 2
 - (j) external reproductive organs are present but not distinguishable as male or female: 1
 - (k) the fetus produces urine: 1
 - (l) the fetus adopts the “fetal position”: 2
 - (m) blood cells and major blood vessels start to form: 1
 - (n) the head is larger in proportion to the body: 1
3. (a) Folic acid is not a teratogen. (Students may also suggest that HIV is not a teratogen because it does not lead to structural abnormalities.)
(b) Folic acid is not a teratogen because it does not cause a structural abnormality; in fact it protects the embryo/fetus by ensuring that the neural tube closes.
4. Parturition is the process of giving birth.
5. (a) There are three stages of parturition: dilation, expulsion, and the placental stages.
(b)
 - *Dilation* stage begins with uterine contractions. The hormone oxytocin causes the cervix to dilate. The amnion breaks, and the amniotic fluid is released through the vagina. This stage usually lasts from 2 to 20 hours.
 - The *expulsion* stage occurs when forceful contractions begin to push the baby through the cervix to the birth canal and the head will rotate to make it easier to pass through the birth canal. This stage lasts from 0.5 to 2 hours.
 - The *placental stage* occurs about 10 to 15 minutes after the baby is born. During this stage the placenta and umbilical cord are expelled from the uterus. The expelled placenta is called the afterbirth.
6. As parturition begins, estrogen and progesterone levels drop dramatically. Prostaglandins cause the release of oxytocin, and these two hormones cause the uterus to contract.
7. Lactation is the formation and secretion of breast milk in the mother. Prolactin is required for milk production, and it is not secreted until the birth has occurred. Once estrogen and progesterone levels decline, the anterior pituitary begins to produce prolactin, which stimulates milk production. The suckling action of the baby allows milk production to continue. The suckling results in a nerve impulse in the hypothalamus, which stimulates the posterior pituitary to release oxytocin, causing contractions in the mammary lobules. These contractions cause milk to be produced in the mammary lobules and milk to flow to the ducts where the infant can draw it out by suckling. Increased suckling by the infant results in increased milk production, while decreased suckling results in decreased milk production.
8. Inferences will include: the consumption of higher levels of fresh protein sources and fat will likely result in increased bodily reserves for the mother during breastfeeding. The fats consumed are high in Omega-3 fatty acids, the “good fats.” The diet may also ensure that needed amino acids are available for the developing child. It is possible that aged food is avoided because of the bacterial counts causing stillbirth. It is also possible that these food choices are based upon the cultural belief that these foods are beneficial to both the mother and fetus during pregnancy.