

Saladin 7E
Answer Key
Chapter 29, Human Development

Testing Your Comprehension

1. It would likely make her infertile because the blastocyst would be unable to implant on the uterine wall and the embryoblast would have no room for growth.
2. In principle, and discounting conceivably undesirable side effects, such a drug might slow the progress of atherosclerosis, presbyopia, hearing loss, reduced cardiac stroke volume, restrictive pulmonary disease, and joint stiffness.
3. SOD, like any other enzyme, is a protein and would almost certainly be digested if it were swallowed. Therefore it is unlikely to have any enzymatic activity in the body.
4. A patent ductus arteriosus allows blood to flow from the aorta, where blood pressure is high, into the pulmonary trunk, where it is lower. Thus, some of the systemic blood is misdirected into the pulmonary circuit, raising pulmonary blood pressure (a). Systemic diastolic pressure is reduced because of the blood diverted from the systemic to the pulmonary circuit (b). The diversion of blood to the pulmonary circuit raises the afterload in the pulmonary trunk, thus putting a stress on the right ventricle that can eventually lead to right ventricular hypertrophy and right-sided congestive heart failure (c).
5. Most sperm never reach the vicinity of the egg. They drain out of the vagina, die during migration, or migrate into the wrong uterine tube. Of those that do reach the egg, hundreds may be needed to dig a path for the one sperm that fertilizes it. If 300 million sperm are normally ejaculated and only 3,000 of them reach the egg, then the chance of reaching the egg is about 1 in 100,000. With these odds, if a man ejaculated only 10 million sperm, approximately 100 of them would reach the egg. Even in the unlikely event that they all attacked the same point on the egg (or on the corona radiata), this might not be enough to create a path for a sperm to fertilize the egg.