

From womb to tomb

Study of physical, mental, and social changes throughout the human lifespan

Life is sexually transmitted...

- 1 egg, 200 million sperm

Conception

- the moment at which a female becomes pregnant.
- Ovum - the female sex cell, or egg.
- Sperm - the male sex cell
- Fertilization - the union of the ovum and sperm.
- egg cells and sperm cells each have 23 chromosomes.
- Fertilized cell contains the full set of 23 chromosome pairs
- The 23rd pair determines the sex
- Genetic female: 23rd pair contains two X chromosomes
- Genetic male: 23rd pair contains an X and a Y chromosome

Prenatal Development

- Stage 1 = Zygote (the fertilized egg)
 - o 2 week period of rapid cell division (undifferentiated blastocyst; stem cell)

- o Ends with implantation to uterine wall
 - about half do not successfully implant
- Stage 2 = Embryo
 - o prenatal period from 2 weeks through 8 weeks
 - o Begins with implantation to the uterine wall
 - o Placenta and major organs form, arms and legs emerge, heart beats, liver makes red blood cells
- Stage 3 = Fetus
 - o Prenatal period from 8 weeks to birth
 - o Bone cells form; neural migration begins
 - o rapid growth of brain and body in final 3 months

Prenatal Development

- Nature AND nurture matter in utero
 - o Critical periods (nurture) – particular stages of development when certain environmental influences strongly impact development
 - o Teratogen – substances (e.g. chemicals; viruses) that reach the embryo or fetus and cause a birth defect
 - The earlier this happens the worse the birth defect
- neural migration is a critical period
 - o Neural migration – movement of neurons from early parts of the fetal CNS to their appropriate final locations
 - Occurs during months 3-5 of the fetal stage

Prenatal Programming

- Teratogen - substances (e.g., chemicals, viruses) that reach the embryo or fetus and cause a birth defect
- The earlier in pregnancy a woman is exposed, the more severe the defects
- Teratogens
 - o Nicotine - low birth weight, learning disabilities
 - o Marijuana - irritability, nervousness, tremors
 - o Cocaine - respiratory problems, learning disabilities, seizures
 - o Prescription drugs - antidepressants can cause respiratory problems, premature birth, early motor deficits
 - o Flu and viruses - associated with psychological disorders
 - o Stress hormones - associated with increased risk of premature birth
 - o STD's - can pass from mother to fetus, causing brain damage, deafness, or blindness

Prenatal Development

- Fetal Alcohol Spectrum Disorder (FASD)
 - o physical and cognitive abnormalities in children caused by a pregnant woman's drinking alcohol
 - o symptoms include facial mis-proportions and other physical abnormalities, and behavior problems
 - o Leading cause of mental retardation in U.S.
 - o No known safe amount of alcohol