

Prenatal Period to 1 Year

Two factors that have a large influence on the health of the developing baby are heredity and environment

Heredity

- The new entity is called a zygote
- Each sperm and ovum contribute 23 chromosomes
- The sex of the zygote is determined by the combination of the x and y chromosomes

Heredity

- Chromosomes carry the genes
- Genes transmit all the genetic information from the parents to the child
- Dominant genes are capable of expressing their traits over other genes
- Recessive genes can only transmit their traits only if they exist in like pairs

Environment

- Good health practices contribute to the development of a healthy baby
- The quality of the mother's diet affects her health and that of her baby
- A balance of rest and exercise is crucial for a healthy pregnancy
- Teratogens are chemical substances that can adversely affect the unborn

The Prenatal Period

- The time period from fertilization to birth
- Pregnancy begins with the union of the female ovum and the male sperm cell
- The zygote undergoes a series of cell divisions and forms a cell mass known as a morula

The Prenatal Period

- When the morula implants itself in the uterine wall it is called a blastocyst
- After implantation the multicelled structure is called an embryo
- At the end of the eighth week of development the embryo is termed a fetus

The Prenatal Period

- Approximately 280 days after conception labor begins
- Mother and fetus are linked by the placenta that produces hormones, transports nutrients and wastes and protects the baby from harmful substances

The Prenatal Period

- The umbilical cord is the connecting link between the fetus and the placenta – oxygen and nutrients reach the fetus by way of the umbilical vein and waste and deoxygenated blood returns to the placenta by way of the umbilical arteries

Apgar Scale

- Gives immediate clinical picture of the newborn's overall status
- Heart rate, respiratory rate, muscle tone, response to catheter in nostril, slap to sole of foot and color are assessed
- These assessments are conducted at 1 and 5 minute intervals

Apgar Scale

- Each factor is scored 0, 1 or 2
- The maximum total score is 10
- Interpretation of scores: 7 to 10 good to excellent; 4 to 6 fair; less than 4 poor condition
- See table 6-1 page 84

Head and Skull

- Newborns head is large, one quarter of the total body length
- Average circumference is 13-14 in
- The skull consists of six bones and are separated by bands of cartilage called sutures and two spaces (fontanel) that allow the skull to accommodate the rapid brain growth
- Elongation of the head as a result of molding as the head passes through the narrow birth canal may be noted

Length and Weight

- The average length is 20in (range from 19 to 21 in)
- The average weight is 7.5 lb (range from 5.5 to 10 lb)
- Newborn loses 5 to 10 percent of their weight (Normal physiological weight loss) because NPO first few hours and output exceeds its intake

Skin

- Newborn's skin at birth is thin and appears pale
- Acrocyanosis (blueness of the hands and feet)
- Lanugo – fine covering of hair
- Vernix caseosa –white cheeselike oily covering
- Milia – small clusters of pearly white spots on the infant's nose, chin and forehead
- Physiological jaundice – yellow tinge

Genitals

- Breasts of neonates may be swollen
- The scrotum of male neonates may appear large and edematous
- The newborn's penis is inspected for the location of the urethral opening
- Circumcision, the surgical removal of the foreskin may be performed
- The labia in the newborn female may appear swollen or a blood-tinged mucous vaginal discharge known as pseudomenstruation may be noted

Face

- Newborn's face may small and the eyes may appear swollen
- Eye color varies from slate gray to dark blue
- The neonate's mouth is closely examined for any abnormalities

Abdomen

- Appears large and flabby
- Bowel movements of healthy infants vary
- Within 10 hours after birth the newborn passes its first thick, green-black, tarry and odorless stool called meconium

Extremities

- Short in proportion to the rest of their body and kept in a tightly flexed position
- They are examined for ROM, symmetry and reflexes

Neurological Characteristics

- Assessment focuses on reflexes, posture, movement, and muscle tone
- Newborn responds to its environment through a series of reflexes
- Spinal cord is inspected
- The five senses are examined

Vital Signs

- Temperature – normal axillary temperatures range from 97.7 to 99.5 degrees F
- Apical heart rate – 120 to 160 BPM
- Average BP – 65/40 mm Hg
- Respirations – 30-60 breaths per minute

Every infant has his or her own growth timetable. Growth and development should be assessed based on the infant's own individual progress

Gross Motor Skills

- Head control develops by 2 months
- By three months the infant can briefly hold its head up
- At 4 months the infant can raise the head to a 90-degree angle from the prone position

Gross Motor Skills

- Rolling over from abdomen occurs at 4 months
- By 6 months old, the baby can roll both ways, sit with support, and hold the head erect
- Sitting alone occurs at the seventh month

Gross Motor Skills

- The 10 month old infant can change position from prone to a sitting position
- Crawling is achieved by about 9 months
- Creeping, raising up on all four limbs, is accomplished by 10 or 11 months

Gross Motor Skills

- At about 8 months babies can pull themselves up to a standing position
- Stepping while holding on to objects follows (cruising)
- Walking unassisted is achieved between 12 and 15 months
- See figure 6-13

Fine Motor Skills

- Fine motor skills are the movement of the hands and fingers
- Grasp is at first a reflex action of the whole arm
- Palmer grasp reflex is exhibited (grabbing any object placed in their hands)

Fine Motor Skills

- Purposeful reaching occurs by 5 months
- Hand preference appears by the 7th or 8th month
- At this time babies like to grasp and release objects having adults retrieve
- By 9 months they are able to drink from a cup and attempt to use a spoon
- By 12 months a child can hold a writing object and make scribbling marks on paper and build a tower of blocks

Psychosocial Development

- According to Erickson the infant is working on completing the task of trust
- Depriving the infant of basic needs can result in the development of mistrust and hinder further development
- Emotional bonds with the mother are known as attachment
- Bonding with the father is referred to as engrossment

Each baby has his or her own unique temperament which determines their moods and their responses to stimulation

As infants begin to develop their means of locomotion the need for discipline increases - with focus on praising the positive

Cognitive Development

- Piaget states that the infant begins life with no understanding of the world
- Infants respond to stimuli in the environment by reflex action

Cognitive Development

- At about eight months they begin to plan and coordinate actions (shake a toy and produce a sound)
- By the end of the first year they are able to form bonds with certain people and recognize and attach meaning to objects
- They begin to be able to understand some repeated actions (mother to refrigerator she gets something to eat)

Moral Development

Infants do what pleases them and are not aware that their acts can affect others

Communication

- The infant at birth communicates mainly by crying to make their needs known
- At 2 months the infant responds to familiar voices with pleasure and a smile
- Babbling occurs between 3 and 6 months

Communication

- The 8 month old child is able to imitate simple sounds such as da-da
- One year old children have an expressive vocabulary of about 4 to 6 words
- They understand the meaning of many more words by association with the objects or by tone of voice
- Talking and reading to infants helps increase their language comprehension and verbal ability

Signs That Should Be Discussed With the Physician

- Moro reflex persists after 4 months
- Infant does not smile in response to mother's voice after 3 months
- Infant does not respond to loud sounds
- Infant still has tonic reflex after 5 months

Signs That Should Be Discussed With the Physician

- Infant does not reach or grasp by 4 months
- Infant cannot sit without help by 6 months
- Infant does not roll over in either direction by 5 months
- Infant does not stand by 11 months
- Infant can't learn simple gestures by 1 year
- Infant cannot point to objects or pictures by 1 year

Nutrition

Infants' sucking, swallowing and rooting reflexes enable them to search for and secure their food

Although bottle fed and breast fed infants thrive equally well there are advantages and disadvantages of both feeding methods

See table 6-4

Breast Feeding

- Promotes bonding between mother and child
- Hastens involution (return of the uterus to its nonpregnant state)
- Contains immunoglobulins to help protect the newborn until its own immune system is more developed
- Many pediatricians recommend the introduction of solid foods after the fifth month

Sleep and Rest

- The neonate sleeps as much as 20 out of 24 hours
- By 1 year the baby will need only 12 hours
- A bedtime routine will help to establish a night-time sleeping pattern
- During the first year most infants require a morning and an afternoon nap to replenish their stamina

Play

- Helps an infant gain information about objects
- Play during infancy is solitary
- See table 6-7 for play and playthings during infancy

Safety

- Because the newborn is totally helpless, the caregiver must meet all of its needs for safety and protection

Health Promotion

- Early assessment can lead to early diagnosis and treatment of any abnormality
- Seek medical attention with:
 - Fever > 101 F
 - Difficult, labored breathing

Health Promotion

- Unexplained rash
- Absence of stools or urine
- Persistent vomiting and/or diarrhea
- Extreme lethargy or hyperirritability
- Regular visits to the health center promote good health practices and health screening and allow the administration of necessary immunizations