

Health Assessment



Contents

- a. Characteristics of a Healthy Individual
- b. Health Assessment of infant, Preschool, School going, adolescent, adult, antenatal woman, postnatal woman and elderly.



Learning Outcomes/Objectives

After completion of the unit, the students are able to:

1. Define and understand the meaning of health assessment.
2. Understand the techniques and skills used during the assessment different category of people.
3. Learn the methods of Health Assessment.



Key Points to Remember

1. **Assessment:** It involves collecting data or evidence about a subject or person.
2. **Characteristics:** A quality that is typical of somebody/something and that makes them different from other people or things.
3. **Physical:** Things that are real, tangible, and perceptible to the senses, existing in the real world and not just in the mind
4. **Mental:** Connected with or happening in the mind; involving the process of thinking.
5. **Spiritual:** Concerning deep thoughts, feelings or emotions rather than the body or physical things
6. **Social:** Connected with society and the way it is organized

Health assessment is a plan of care that identifies the specific needs of a person and how those needs will be addressed by the healthcare system or skilled nursing facility. Health assessment is the evaluation of the health status by performing a physical exam after taking the health history. It is done to detect diseases early in people that may look and feel well.

Characteristics of a Healthy Individual

According to the WHO the health is defined as a complete state of physically, mentally, socially and spiritually wellbeing not merely the absence of disease or infirmity. So the person or individual is called to be healthy when he/she must show the following healthy characteristics:

1. Characteristics of physically healthy individual: The state of physical health implies the notion of “Perfect Functioning” of the body. It conceptualizes health biologically as a state in which every cell and every organ is functioning at optimum capacity and in perfect harmony with the rest of the body. The physical characteristics of a healthy are as follows:

- a. A good complexion
- b. Clear skin
- c. Bright and clear eyes with even pupils that track together
- d. Lustrous hair with a body well clothed with firm flesh, not too fat, a sweet breath, a good appetite and sound sleep.
- e. Regular activity of bowel and bladder.
- f. Smooth and easy coordinated bodily movements and appropriate flexibility in the joints
- g. Steady heartbeat that's neither too fast nor too slow
- h. Blood pressure in range
- i. Symmetrical features and expected reflex responses
- j. Weight in the expected ranges, neither too high nor too low
- k. A reasonable amount of endurance and strength

2. Characteristics of Mentally Healthy Individual:

The mental health of an individual is abstract to others than that individual and cannot be determined or easily judged by the common man. Psychologists have mentioned the following characteristics of a mentally health person.

- a. A mentally healthy person is free from internal conflicts which means he is not at war with himself.

- b. He is well adjusted, i.e. he is able to get along with others. He accepts criticism and not easily upset.
- c. He searches for his identity.
- d. He has a strong sense of self esteem.
- e. He knows himself, his needs, problems and goals.
- f. He has good self-control; balance rationality and emotionality.
- g. He faces problems and tries to solve them intelligently i.e. coping with stress and anxiety.

Based on the above given characteristics of mentally healthy person, we can generally draw the following common characteristics of mentally healthy person:

- Emotionally healthy people are connected:
- They have a conscience:
- They can be quiet:
- Their self-talk is affirming:
- They are self-disciplined:
- They are self-aware:
- They have strong values:
- They are flexible:
- They have a big picture view:
- They are able to love:
- They can set boundaries:
- They use language to truly communicate:
- They take care of their bodies:
- They are responsible:
- They have a work ethic:
- They have purpose and meaning:
- They are proactive rather than reactive:
- They can delay gratification and control their impulses:
- They can plan, organize and prioritize:
- They are resilient:

3. Characteristics of a Socially Healthy Individual:

So the characteristics of socially healthy person include:

- Access to the resources to meet daily needs (e.g., safe housing and local food markets)
- Access to educational, economic, and job opportunities
- Access to health care services
- Access to Quality of education and job training

- Access to community-based resources in support of community living and opportunities for recreational and leisure-time activities
- Using variety of transportation options
- Seeking Public safety
- Seeking Social support
- Respecting social norms and attitudes (e.g., discrimination, racism, and distrust of government)
- Trying to improve socioeconomic conditions (e.g., concentrated poverty and the stressful conditions that accompany it)
- Using common language/Literacy to communicate with others
- Access to mass media and emerging technologies (e.g., cell phones, the Internet, and social media)
- Respects culture, tradition and religion.

4. Characteristics of Spiritually Healthy Individual:

The spiritually mature have the courage and desire to face the truth about themselves and their lives, instead of running away from it. They are motivated on their own to seek God, and they care more about their inside than their outward appearance. Spiritual maturity is something God desires for us:

- a. They are motivated to seek God without prompting:** Spiritually mature people believe that God is the source of all their joy, and they turn to God without prompting from other people. How much do you need others to push you to pray daily, pray often, or pray more honestly about what you are feeling and thinking? While help from spiritual friends is always something we need, we will stay immature if our relationship with God relies on other people's convictions more than our own.
- b. They are more concerned about the inside than the outside:** The scripture above talks about those who do not practice what they preach; they take the easy road and compromise regularly instead of doing the hard spiritual work of living out their faith. As a result, their entire effort becomes focused on looking good on the outside and desiring people's attention instead of desiring to please God. Spiritually mature people know that, if they make the effort to care for their insides (their heart, their emotions, their guilt, their faith), then their outward actions will be right too.
- c. They search for the truth:** Do you want to see the truth? In many areas of our lives it seems easier to be in denial; have you ever wanted to ignore

how you really feel about your job, your relationships, your health, or your marriage? We can be passionate about a lot of things, but we are not always passionate about wanting to see the truth. Why? Because sometimes it feels stressful to admit the truth, or we feel life is so busy we don't have time to face difficult truths. But biblically, truth is freeing (John 8:31-32) and we will actually be stronger internally and spiritually when we don't have to hide what we really think and feel.

- d. They admit truth to God:** Only God can lift away our guilt and sins. Spiritually mature people understand that no person can relieve our guilt. It is a problem when we would rather go to a person deal with our guilt instead of God. A spiritually mature person also understands that time spent with God is an important time to confess and admit our own sins and lies to God, not just vent our feelings about what might not be going well. When we take responsibility for what we have done wrong, God can lift away the guilt we feel about our choices.
- e. Then admit truth to others:** After admitting truth to God, spiritually mature people own up to their sins with others. They are not consumed by how they look and how people think of them, nor are they looking for relief from their guilt. Rather, they have the humility to admit their mistakes and understand that they need other people's help and prayers in order to change.
- f. They train themselves daily:** Spiritual maturity takes constant training. Our daily decisions may not seem like a big deal, but they are – every time we decide to hide our real thoughts because we are afraid of the consequences we become a little more immature. Likewise, every time we make a small decision to be honest – even when it hurts – we grow a little more mature. We may not see the effects of our decisions until much later, but the Bible promises that those who constantly work at being righteous and honest will reap the benefits of spiritual maturity.

Finally we can conclude the characteristics of spiritually healthy person as;

- A spiritual person demonstrate continuous striving towards perfection, perseverance and stability in his own drama.
- A spiritual person has a wholehearted dedication to his labors without giving them up in difficult situation
- A spiritual person lives in his conscience, in the light of the teaching and in the presence of the hierarchy.

- The spiritual person has an inclusive and expanding approach to all issues of life.
- A spiritual person carries all his activities, speech and thoughts in the sphere of three major laws i.e. Cause and effect, Recreation and Synthesis, Attraction and Economy.
- The spiritual person is aware that his victory is measured by the joy that he has in his heart.



ASSESS YOURSELF

Multiple Choice Questions

1. **Physically healthy individuals are** _____
 - a. Effective communicators
 - b. Flexible in nature
 - c. Process coping skills
 - d. All of the above
2. **Clear skin is a sign of** _____
 - a. Mentally healthy individual
 - b. Socially healthy individual
 - c. Physically healthy individual
 - d. None of the above
3. **A mentally healthy individual is free from** _____
 - a. Internal conflicts
 - b. Social Conflicts
 - c. External conflicts
 - d. None of the above
4. **The individual who searches for his identity is** _
 - a. Spiritually healthy
 - b. Mentally healthy
 - c. Physically healthy
 - d. All of the above

5. **Spiritually healthy individuals are more concerned about the** _____
 - a. Social justice
 - b. Political justice
 - c. Inside than the out-side
 - d. None of the above

Short Answers

1. Define health assessment
2. Physical wellbeing
3. Social wellbeing
4. Mental wellbeing
5. Spiritual wellbeing

Short Essays

1. Characteristics of physically healthy individual
2. Characteristics of mentally healthy individual
3. Characteristics of socially healthy individual
4. Characteristics of spiritually healthy individual
5. Planning of data collection

Health Assessment of Different Category People

CHAPTER

9

Health Assessment of Infant, Toddler, Preschool, School Going and Adolescents

Health professionals encounter families with infants and young children in a broad variety of settings and circumstances. Consideration of physical health, mental health, social and emotional issues should be a necessary part of all health and welfare assessments. The extent to which mental health is the focus will be determined by the setting and the purpose of contact with the infant, toddler, preschooler and family.

Anatomic and Physiologic Characteristics of Infants and Children:

Children and infants are not only smaller than adults, but also significantly different physiologically. Knowledge of pediatric anatomic and physiologic differences will aid in recognizing normal variations found during the physical examination. It also assists with understanding the different physiologic responses children have to illness and injury. The illustration in “As Children Grow” provides an overview of important anatomic and physiologic differences between children and adults.

Obtaining the Child's History

Communication Strategies: The health history interview is a very personal conversation with a parent, caretaker, or adolescent during which private concerns and feelings are shared. Try to ensure that this exchange of information with the parent or the child is clearly understood by both parties and that it is an effective communication. Effective communication is difficult to accomplish because parents and children often do not correctly interpret what the nurse says, just as the nurse may not understand completely what the parent or child says. People's interpretation of information is based on their life experiences, culture, and education.

Strategies to Build a Rapport with the Family: When beginning the history, make sure the parents understand the purpose of the interview and that the information will be used appropriately. To develop rapport, demonstrate interest in and concern for the child and family during the interview. This rapport forms the foundation for the collaborative relationship between the nurse and parent that will provide the best nursing care for the child.

The following strategies help to establish rapport with the child's family during the nursing history:

- Make a self-introduction (name, title or position, and role in caring for the child). To demonstrate respect, ask all family members present what name they prefer you to use when talking with them.
- Explain the purpose of the interview and why the nursing history is different from the information collected by other health professionals. For example, “The nurses will use this information to plan nursing care best suited for your child.”
- Provide privacy and remove as many distractions as possible during the interview. If the patient's room does not offer privacy, attempt to find a vacant quiet room or lounge.
- Assure the parents and the child that the information provided during the assessment is protected under the Health Insurance Portability and Accountability Act (HIPAA), a federal law that requires written consent to be provided before health information can be shared with healthcare providers outside the facility.
- Direct the focus of the interview with open-ended questions. Use close-ended questions or directing statements to clarify information. Open-ended questions are useful to initiate the interview, develop a rapport, and understand the parent's perceptions of the child's problem. Close-ended questions are used to obtain detailed information. For example: “How high was Tommy's fever this morning?”
- Ask one question at a time so that the parent or child understands what piece of information is desired so that it is clear which question the parent is answering. “Does any member of your family have diabetes, heart disease, or sickle cell anemia?” is a multiple question. Ask about each disease separately to ensure the most accurate response.

Data to be collected while Assessment

- **Patient Information:** Obtain the child's name and nickname, age, sex, and ethnic origin. The child's birth date, race, religion, address, and phone number can be obtained from the admission form. Ask the parent for an emergency contact address and phone number, as well as a work phone number. Record the person providing the patient history and that person's relationship with the patient.
- **Physiologic Data:** Collect information about the child's health problems and diseases chronologically in a format similar to the traditional medical history

- **Psychosocial Data:** Obtain information about family composition to establish a socioeconomic and sociologic context for planning the child's care in the hospital, community, and at home.
- **Developmental Data:** Information about the child's motor, cognitive, language, and social development will help to plan nursing care. Ask the parent about the child's milestones and current fine and gross motor skills. Obtain the age at which the child first used words appropriately and the current words used or language ability. For children in school, ask about academic performance to assess cognitive development. Ask the parent about the child's manner of interaction with other children, family members, and strangers.

Developmental Approach to the Examination: The sequence and approach to the examination varies by age. Provide a comfortable atmosphere for the examination with privacy so that modesty is respected. Explain the procedures as you begin to perform them. In young children, a foot-to-head sequence is often used so that the least distressing parts of the examination are completed first. In older cooperative children, the head-to-toe approach is generally used.

Newborns and Infants under 6 Months of Age: Infants are among the easiest children to examine as they do not resist the examination procedure. Keep the parent present to provide security to the infant. Provide physical comfort during the examination by feeding, using a pacifier, cuddling, or changing the diaper to keep the infant calm and quiet. Distraction, such as rocking or clicking noises, may help when the infant begins to get distressed. Observe the infant for general level of activity, overall mood, and responsiveness to handling. Keep the sequence of the examination flexible to take advantage of times the infant is quiet or asleep to auscultate the lungs, heart, and abdomen. If the infant continues to be quiet or can be quieted with a pacifier, palpate the abdomen while the muscles are relaxed. The remainder of the examination can proceed in a head-to-toe sequence. Portions of the examination that will disturb the infant such as the examination of the hips, should be performed at the end.

Infants over 6 Months of Age: Because of developing separation and stranger anxiety, it is often better to keep the older infant with the parent. The infant and toddler can be examined on the parent's lap and then held against the parent's chest for some steps, such as the ear examination. The infant will not object to having clothing removed, but make sure the room is warm for the infant's comfort. Observe the infant's general level of activity, mood, and responsiveness to handling by the parent. Smile and talk soothingly to the infant during the procedure. Use toys to

distract the older infant. Use a pacifier or bottle to quiet the child when necessary. Because the infant may be fearful of being touched by a stranger, begin with the feet and hands before moving to the trunk. However, take the advantage of opportunities presented when the infant is sleeping or quiet to auscultate the heart and lungs.

Toddlers: Toddlers may be active, curious, shy, cautious, or slow to warm up. Because of stranger anxiety, keep toddlers with their parents, often examining them on the parent's lap. It is possible to create a flat surface for the abdominal and genital examination by sitting close to the parent with knees together. For invasive procedures (ear, eye, and mouth exam), the parent can hold the child closely to the chest with legs between the parent's legs. The cranial nerve assessment or developmental assessment can be used as a method to gain cooperation for other procedures. Much of the neurologic and musculoskeletal assessment can be conducted by observing the child play and walk around in the examining room. Tell the child what you will do at each step of the examination, using a confident voice that expects cooperation rather than asking. When a choice is possible, let the child have some control. For example, let the toddler choose which ear to examine first or to stand or sit for a certain part of the examination. Let the child hold a security object if it helps. Attempt to reduce the child's anxiety by demonstrating the use of instruments on the parent or security object. Begin the examination by touching the feet and then moving gradually toward the upper body and head. Instruments to examine the ears, eyes, and mouth are usually viewed as the most fearful and should be used at the end of the examination.

Preschoolers: Assess the willingness of the child to be separated from the parent. Younger children will often prefer to be examined on the parent's lap, while older children will be comfortable on the examining table. Most children are willing to undress, but leave the underpants on until conducting the genital examination. Most children in this age group are cooperative during the physical examination. Some children will prefer to have the head, eyes, ears, and mouth examined first while others will prefer to postpone them to the end. Allow the child to touch and play with the equipment. Give simple explanations about the assessment procedures, and offer choice where there is one during the examination. Use distraction to gain the child's cooperation during the examination, such as asking the child to count, name colors, or talk about a favorite activity. Give positive feedback when the child cooperates.

School-age Children

School-age children willingly cooperate during the examination and sit on the examining table. Anticipate the

development of modesty in school-age children and offer a patient gown to cover the underwear. Let the older school age child determine if the examination will be conducted in privacy or with the parent or with siblings presence. A head-to-toe sequence can be used for this age group. Demonstrate how the instruments are used and let the child handle them if they wish. During the examination, tell the child what you are doing and why. Offer as many choices as possible to help the child feel empowered. The examination is a good opportunity to teach the child about how the body works, such as letting the child listen to heart and breathe sounds.

Adolescents

Protect the adolescent's modesty by providing a private place to undress and put on the patient gown, and then during the examination by covering the parts of the body not being assessed. Use the head-to-toe sequence and the same procedures used for adults. Perform the examination in private without parent or siblings unless the adolescent specifically requests the parent's presence. Provide a chaperone when the parent or accompanying adult is not present during the examination. Adolescents often have a lot of concern regarding their developing bodies. When appropriate, provide reassurance about the normal progression of secondary sexual characteristic development and what further changes to expect.

Techniques of Physical Examination

Following are the specific examination techniques:

Inspection: Purposeful observation of the child's physical features and behaviors. Physical feature characteristics include size, shape, color, movement, position, and location. Detection of odors is also a part of inspection.

Palpation: Use of touch to identify characteristics of the skin, internal organs, and masses. Characteristics include texture, moistness, tenderness, temperature, position, shape, consistency, and mobility of masses and organs. The palmar surface of the fingers and finger pads helps determine position, size, consistency, and masses. The ulnar surface of the hand is the best to detect vibrations.

Auscultation: Listening to sounds produced by the airway, lungs, stomach, heart, and blood vessels to identify their characteristics. Auscultation is usually performed with a stethoscope to enhance the sounds heard.

Percussion. Striking the surface of the body, either directly or indirectly, to set up vibrations that reveal the density of underlying tissues and borders of internal organs.

Manipulation: Movements of joints and extremities of hands and legs, neck, trunk etc.

Points to be kept in mind while assessing the children are given in **Table 9.1**.

Table - 9.1 : Parameters to be Considered while Health Assessment

General	General growth pattern, overall health status, ability to keep up with other children or tires easily with feeding or activity, fever, sleep patterns Allergies, type of reaction (hives, rash, respiratory difficulty, swelling, nausea), seasonal or with each exposure
Skin and lymph	Rashes, dry skin, itching, changes in skin color or texture, tendency for bruising, swollen or tender lymph glands
Hair and nails	Hair loss, changes in color or texture, use of dye or chemicals on hair, abnormalities of nail growth or color
Head	Headaches, Birth markings, Fontanelles, etc.
Eyes	Vision problems, squinting, crossed eyes, lazy eye, wears glasses, eye infections, redness, tearing, burning, rubbing, swelling eyelids
Ears	Ear infections, frequent discharge from ears, or tubes in ears Hearing loss (no response to loud noises or questions, inattentiveness, was hearing test ever done?), hearing aids or cochlear implant done?
Nose and sinuses	Nosebleeds, nasal congestion, colds with runny nose, sinus pain or infections Nasal obstruction, difficulty breathing, snoring at night
Mouth and throat	Mouth breathing, difficulty swallowing, sore throats, strep infections, mouth odor Tooth eruption, cavities, braces voice change, hoarseness, speech problems
Cardiac and hematologic	Heart murmur, anemia, hypertension, cyanosis, edema, rheumatic fever, chest pain
Chest and respiratory	Trouble breathing, choking episodes, cough, wheezing, cyanosis, exposure to tuberculosis, other infections
Gastrointestinal	Bowel movements, frequency, color, regularity, consistency, discomfort, constipation or diarrhea, abdominal pain, bleeding from rectum, flatulence nausea or vomiting, appetite

Urinary	Frequency, urgency, dysurea, dribbling, strength of urinary stream Toilet trained—age when day and night dryness attained, enuresis
Reproductive	For pubescent children
Female	Menses onset, amount, duration, frequency, discomfort, problems; vaginal discharge, breast development
Male	Puberty onset, emissions, erections, pain or discharge from penis, swelling or pain in testicles
Both	Sexual activity, use of contraception, sexually transmitted diseases
Musculoskeletal	Weakness, clumsiness, poor coordination, balance, tremors, abnormal gait, painful muscles or joints, swelling or redness of joints, fractures
Neurologic	Brain or head injuries Seizures, fainting spells, dizziness, numbness Learning problems, attention span, hyperactivity, memory problems

Components of Assessment of Infant, Toddler, Preschool and School Going

The assessment of growth and development is the major component of the routine anticipatory care of children. The main purpose of assessment of growth and development is to identify the early signs and symptoms of abnormal growth among the children and to facilitate the care towards normal growth and development. The following are the major components of assessment of growth and development among the children.

A. Physical Growth

- 1. Weight for age:** Measurement of weight according to age is the best single parameter for assessing physical growth among the children. A single weight record only indicates the child's size at the moment, it does not give any information about whether a child's weight is increasing, stationary or declining. This is because, normal variation in weight at a given age is wide. What is important is careful repeated measurement at intervals, ideally monthly, from birth to 1 year, every two months during the second year and every 3 months thereafter up to 5 years of age, since this age group is at greatest risk from growth faltering.

A baby should gain at least 500 gram wt. per month in the first three months of life. That is the minimum. The children who gain less weight are malnourished. It is usual for babies to gain about 1 kg a month, especially in the first 3 months. Healthy babies, on an average, double their birth weight by 5 months, and treble it by the end of first year and quadruple at the age of two. The first year, weight increases by about 7 kg. After that the increase in weight is about 2.5 kg during the second year and from then until puberty by about 2 kg per year. The weight and height gain patterns in India are as shown in **Table 9.2**.

Table - 9.2 : Average Weight and Height Increase During the First 5 Years of Life

Sl. No.	Age	Increase in Weight	Increase in Height
01	0-3 Months	200g	
02	4-6 Months	150g	
03	7-9 Months	100g	
04	10-12 Months	50-75g	
05	1-2 years	2.5 Kg	25 -37 cm
06	3 -5 years	2.0 Kg	9 – 13 cm

Weight for age is often used to classify malnutrition and determine its prevalence.

- 2. Height for Age:** The Height should be taken in a standing position without foot wear. If the height machine is not available, the measuring scale fixed to the wall can be employed. This arrangement is suitable for children of 2 years and above. The measuring scale should be capable of measuring to an accuracy of 0.1 cm. Effort should be made to measure children accurately. Error in the measurement of a young child may lead to significant error in the classification of the nutritional status.

The length of a baby at birth is about 50 cm. It increases by about 25 cm during first year, and by another 12 cm during the second year. During growth spurt, boys add something like 20 cm in their height, and girls gain about 16 cm. The spurt is followed by a rapid slowing of growth. Indian girls reach 98 per cent of their final height on an average by the age of 16.5 years, and boys reach the same stage by the age 17.75 years. With the exception of a few ethnic groups, there is evidence showing that all children have a similar growth potential.

Height is a stable measurement of growth as opposed to body weight. Whereas weight reflects only the present health status of the child, height indicates the events in the past also. The use of growth (height) centile chart is particularly valuable in studying the trend of height curve.

3. **Weight for height:** Height and weight are interrelated. Weight in relation to height is now considered more important than weight alone. It helps to determine whether a child is the within range of “normal” weight for his height.
4. **Head and chest circumference:** At birth, the head circumference is about 34-35 cm; it is about 2.5 cm more than the chest circumference. By 18 months, these two measurements become equal after which the chest circumference overtakes the head circumference. In severely malnourished children, this overtaking may be delayed by 3-4 years due to poor development of the thoracic cage.
5. **Nutritional Assessment:** The nutritional status or assessment can be done by calculating the anthropometric measurements as shown below.

Calculation of Nutritional Status:

Expected Weight Calculations:

Weight at Birth	:	3.25 kg
Weight at Birth	:	7.00 lb
Weight (Kg) at 3 to 12 Months	:	[Age in months + 9] ÷ 2
Weight (lb) at 3 to 12 Months	:	Age in years + 11
Weight (Kg) at 1 to 6 Years	:	[Age in years X 2] + 8
Weight (lb) at 1 to 6 Years	:	[Age in years X 5] + 17
Weight (Kg) at 7 to 12 Years	:	[(Age in years X 7) -5] ÷ 2
Weight (lb) at 7 to 12 Years	:	(Age in years X 7) -5

Height Calculation:

Length (cm) at Birth	:	50 cms
Length (cm) at 1year	:	75 cms
Height (cm) at 2 to 12 years	:	Age in years X 6 + 77

Degree of Nutrition:

Degree of Nutrition	:	[Actual Weight ÷ Expected Weight] X 100
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- B. Behavioral Development:** A closely related development is behavioral development that can be assessed in the following fields:

1. Motor development
2. Personal Social Development
3. Adaptive Development
4. Language Development

The developmental landmarks/ milestones of development provide an estimate of the time when child can be expected to attain certain skills or points in development which is given below in the **Table 9.3**

Table - 9.3 : Behavioral Developmental Mile Stones

Domain	Age							
	0-1 Month	2 months	4 Months	6 Months	12 Months	18 months	2.5-3.5 Years	4-5 Years
Fine Motor	Hands mostly closed - fists	Hands more relaxed - often open	Look at and plays with his/her hands	Transfer toys from one hand to the other	Pincer grasp – picks up small objects with thumb and forefinger	Scribble Builds tower of 3-4 blocks	Hold crayon with fingers Draws circles and lines	Draw a person in three parts Use scissors
Gross Motor	In the prone position, infant can turn his/her head to the inside	In the prone position, infant can lift their head 45 degrees. In the supine position, moves arms & legs, generally spontaneous motor activity	In the prone position, the infant is able to lift his/her head up and upper chest well with weight on forearms When pulled to the sitting position head follows (little or no head lag)	In the prone position the infant is able to lift his/her head and chest well up, pushes up on hands / extends arms When pulled to the sitting position head follows No head lag	Infant is able to walk holding onto furniture When sitting on the floor infant is well balanced in all directions and is able to get in & out of the sitting position independently.	Walks well / runs stiffly Is able to seat themselves in a chair	Walks up and down stairs Throws and kicks a ball	Hops on one foot Throws and catches a ball well
Personal and Social	Infant momentarily looks at faces Shows preference for people to inanimate objects Turns head in response to familiar parental voice or smell Mother (or primary care giver) is sensitive to and responds appropriately to infant's cues [3, 22, 23]	Social smile 6-8 weeks Physiological regulation developing patterns of settling feeding and alertness Mother (or primary care giver) is sensitive to and responds appropriately to infant's cues	Show excitement in response to people First signs of infant's preference towards certain adults e.g. smiles, gestures Engages in 'peek-a-boo' Mother (or primary care giver) is sensitive to and responds appropriately to infant's cues	Separation protest present - the beginning of 'stranger anxiety' Infant shows clear preference for certain adults Increasing need for infant to 'check in' with parent - with voice or visual cues Mother (or primary care giver) is sensitive to and responds appropriately to infant's cues	Show emotions e.g. may give affection hugs/kisses Waves 'byebye', claps hands together Actively seek their mother (or primary care giver) when distressed Readily comforted when reunited with their mother (or primary care giver) Infants explore their environment, returning to their mother (or primary care giver) for reassurance	Beginning to show recognition of themselves in the mirror Shows verbal self - identity when speaking e.g. 'I', 'me', 'mine' Development of imaginative play Beginning to protest e.g. 'no' and experiments with control over events and people Becoming less fearful with strangers Explore their environment, returning to their mother (or primary care giver) for reassurance	Notifies gender differences e.g. I'm a girl At 3 years children begin to understand others i.e. empathy Possess a range of words for their own emotions Able to fully cooperate in play Can become wilful or possessive Begin to predict events Able to separate from parents more easily Can tolerate longer separations from mother (or primary care giver)	Symbolic and imaginative play becomes more elaborate Increasingly aware of social expectations / responsibilities Friendships develop and strengthen Increasingly flexible and resilient under stress Beginnings of capacity to know that others have thoughts and feelings separate from their own Tolerates separation from mother (or primary care giver)
Language	Crie to alert parent/s, they require attention e.g. feeding, cuddle, nappy change etc	Crie to alert parent/s, they require attention e.g. feeding, cuddle, nappy change etc. Vocalizes coos	Crie to alert parent/s, they require attention e.g. feeding, cuddle, nappy change etc Squeals	Crie to alert parent/s, they require attention e.g. feeding, cuddle, nappy change etc Vocalizes; Begins to imitate sounds Enjoys hearing own sounds and talking to self in the mirror.	Say 3-5 words Understands simple commands, responds to their own name being called Imitates animal sounds	Say > 10 words Forming word combinations	Understand directions given Saying >300 words Using 2-3 word combinations	Use sentences Likes telling stories Questions

Uses of growth Chart:

1. Growth monitoring of children
2. Used as diagnostic tool for detecting high risk children
3. For planning and policy making for child care
4. Used as educational tool for mother for active participation in child care
5. It helps to health worker as action tool to treat under nourished children
6. It helps as evaluation tool for effective care given to children
7. It acts as important tool for teaching various conditions.

Assessment of School Going Children

The school age of child is very crucial because the child is exposed to external environment where the child learns and plays with other children of the society. Here, the child comes across many consequences of health related problems. The health related problems of school going child is compiled into:

1. Malnutrition problems
2. Infectious disease problem
3. Intestinal parasites
4. Diseases of skin, eye and ear and
5. Dental caries.

Components of Health Assessment of School Child:

1. **Physical Assessment:** Physical assessment includes general inspection, head to toe examination of all body parts, and sensory organs. The attention is given to oral cavity examination for determining the dental health of the child. The skin examined to various skin disorders including vitamin deficiencies. Sensory organs such as eye, ear and skin are assessed to detect the abnormalities of eye, ear and skin.
2. **Nutritional Assessment:** Nutritional assessment is important among the school children. The height and weight measurement determines the nutritional growth of the children.
3. **Psycho-social Assessment:** Psycho-social development is an important aspect of school going child. In this age, the child shows his intellectual and social development in terms of progress in the studies, adjustment with their peer group, leadership qualities etc. To assess the psychosocial development, the IQ (Intelligence Quotient) test is performed through which IQ level is determined. Intelligence Quotient is assessed by using the following formula.

$$IQ = \frac{\text{Mental Age}}{\text{Chronological Age}} \times 100$$

The mental age is determined by the performance shown by the child in his daily studies i.e. verbal comprehension, memory power, induction and deduction flexibility and quickness of thought. For example, if the child is 12 year old and his mental age is 10 years, then the IQ will be 83% (Table 9.4).

Levels and IQ range is as follows**Table - 9.4**

Levels of Intelligence	IQ Range
Idiot	0-24
Imbecile	25-49
Moron	50-69
Borderline	70-79
Low normal	80-89
Normal	90-109
Superior	110-119
Very Superior	120-139
Near genius	140 and above

The current interpretation is that the IQ is measured to check the intellectual and psychosocial development among the children.

Assessment of Adolescents

Adolescent period is a crucial stage of development and it starts from the puberty and ends at around the age of 19-20 years. In this period, both the anatomical and physiological changes take place. Always the children get into confusion regarding the development of secondary sexual characteristics and changes in the body that are taking place during this period.

Components of Health Assessment of School Child:

1. **Physical Assessment:** Physical assessment includes general inspection, head to toe examination of all body parts especially secondary sexual characteristics among the girls. Examinations of breast as well as genitals seek the special attention to detect any kind of abnormality in early stage of life.
2. **Nutritional Assessment:** Nutritional assessment is important among the adolescent girls. Nutritional anemia is more prevalent among girls of adolescent age which can be assessed through thorough physical examination and blood examination.
3. **Psycho-social Assessment:** Psychological consequences are more common among the adolescents

which can be assessed through conducting personal interview and by taking the interview of the parents and peers.

Assessment of Adults

Assessment of adults includes overall physical, neurological, physiological and psychosocial assessment. Apart from that the adults usually are assessed through calculating their BMI. Let us discuss about BMI.

Understanding BMI

In adults, once you calculate your BMI, it is rather easy to interpret your results, as a BMI between 25 to 30 is considered overweight and a BMI of 30 and above is considered obese. Interpreting BMI is a bit more complicated for children though, since you also have to take into account the child's age to figure out the percentile ranking for that BMI from a Girl's BMI Chart or a Boy's BMI Chart. This BMI percentile can then help you to determine if a Adult is overweight or at a healthy weight (Table 9.5).

Formula for Body Mass Index.

Body Mass Index = $\text{Weight(kg)} / \text{Height(m)}^2$

Table - 9.5

Category	Women	Men
Underweight	<19.1	<20.7
Ideal weight	19.1-25.8	20.7-26.4
Marginally overweight	25.8-27.3	26.4-27.8
Overweight	27.3-32.3	27.8-31.1
Very overweight or obese	>32.3	>31.1

Definition of "Overweight".

A Body Mass Index between 25 and 29.9 is "overweight", greater than or equal to 30 is "obese". However, some very muscular people can have high Body Mass Indexes and in adolescents, BMIs frequently result in overestimation of fatness. A better classification of "overweight" is given in this table below. These numbers are used in the BSA calculator.

Formulas for Lean Body Weight & Ideal Body Weight

Lean Body Weight (men) = $(1.10 \times \text{Weight(kg)}) - 128$
 $(\text{Weight}^2 / (100 \times \text{Height(m)})^2)$

Lean Body Weight (women) = $(1.07 \times \text{Weight(kg)}) - 148$
 $(\text{Weight}^2 / (100 \times \text{Height(m)})^2)$

Ideal Body Weight (men) = $50 + 2.3 (\text{Height (inches)} - 60)$
 (Devine formula)

Ideal Body Weight (women) = $45.5 + 2.3 (\text{Height(inches)} - 60)$ (Robinson formula)

Antenatal Assessment

Antenatal assessment is the assessment of women during pregnancy. The primary aim of antenatal assessment is to identify the high risk pregnancies and to achieve at the end of a pregnancy a healthy mother and a healthy baby.

Components of Antenatal Assessment:

1. History Taking: During the time of first visit:

- Confirm the pregnancy by doing urine examination (HCG test)
- Identify of complications of previous pregnancy
- Identify of current medical surgical conditions
- Record the date of last menstrual period (LMP)
- Calculate the expected date of delivery (EDD)
- Record the symptoms including complication
- Collect the history of any current systematic diseases including HIV test

2. Physical examination:

- **Pallor:** Presence of pallor is a sign of anemia. So examine the woman for pallor at each visit and do not forget to examine conjunctiva, nails, tongue, oral mucosa and palms. Pallor must be correlated with blood examinations
- **Pulse:** If the pulse rate is persistently low or high with or without other symptoms then woman needs medical attention
- **Respiratory rate:** Especially the women complaint breathlessness often, hence it is necessary to check to identify abnormality
- **Oedema:** Oedema is normal when it appears in the evening and disappears in the morning after full night sleep. Any oedema of the face, hands, abdominal wall and vulva is abnormal. Once oedemas are observed then refer the case to the medical officer.
- **Blood Pressure:** It is necessary to examine the blood pressure at every visit to rule out the PIH (Pregnancy Induced Hypertension) case. If the blood pressure exceeds 140/90 mm of Hg in subsequent check-ups at the interval of 4 hours indicates PIH. Once HTN (Hypertension) is identified ,check the urine for albumin and if it is found +2 then we can easily categorize the case as pre-eclampsia and refer the case to medical officer.
- **Weight:** Weight is a major indicator of healthy pregnancy. A healthy woman gains 9-11 kg weight during her pregnancy on an average of 2kg per

month after first trimester. Low weight indicates nutritional inadequacy.

- **Breast Examination:** Observe the breast for presence of inverted or flat nipples. And identify the presence of Montgomery tubercles.
- **Skin Examination:** Identify the stria gravidarum and linea nigra signs on skin.

3. Abdominal Examination: Examine the abdomen to monitor the progress of the pregnancy and fetal growth. The abdominal examination include;

- **Measurement of fundal height:** Enlargement of the uterus and height of the uterine fundus is as shown in the **Fig 9.3**.

At 12 weeks Palpable just above the symphysis pubis

At 24 Weeks At the lower border of umbilicus

36 Weeks felt at the level of xiphisternum

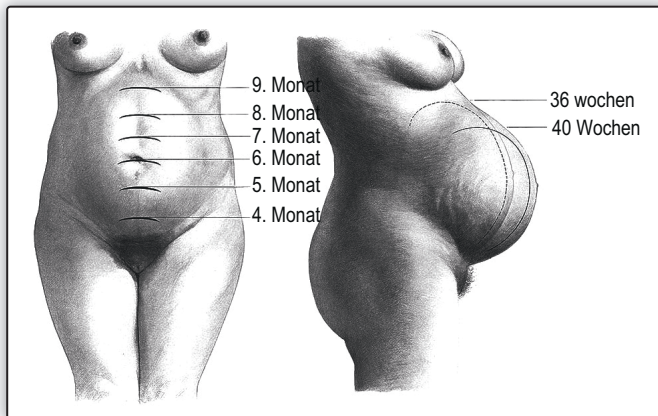


Fig. 9.2 : Enlargement of Uterus During Pregnancy According to Gestational Months

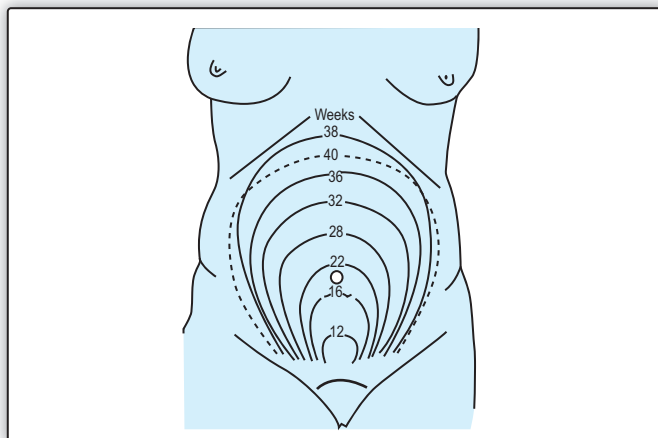


Fig. 9.3 : Enlargement of Uterus During Pregnancy According to Gestational Weeks



Fig. 9.4 : Linea Nigra

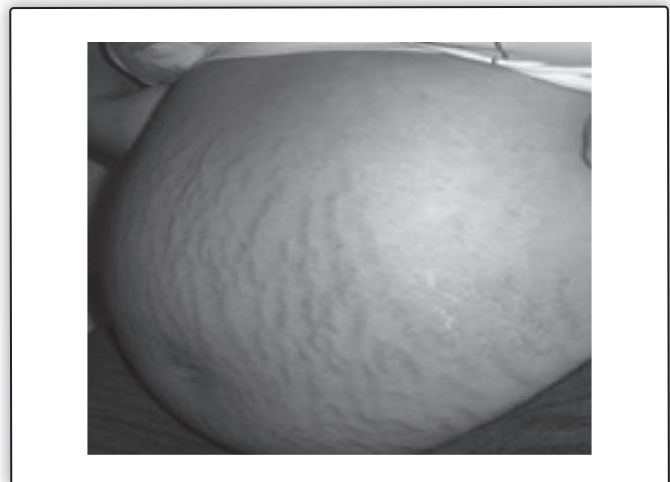


Fig. 9.5 : Stria Gravidarum

- **Fetal Heart Sounds:** The fetal heart sounds clearly can be heard after 6 months. The rate varies between 120 to 140 beats per minute. They usually heard at the midline but position may change due to fetal movements.
- **Fetal Movements:** Fetal movements can be felt by the examiner after 18-22 week by gentle palpation of the abdomen.
- **Fetal parts:** Fetal parts can be felt after 22 week and after 28 week the parts easily identified i.e. head, back and limbs.
- **Multiple pregnancy:** This can be easily identified if the size of the uterus is larger than gestational size and palpation of multiple fetal parts.
- **Fetal lie and presentation:** It is relevant only after 32 weeks of pregnancy
- Inspection of abdominal scar or any relevant signs of pregnancy.

4. **Assessment of gestational age:** The gestational age can be assessed based on the LMP and EDD can be calculated by adding 9 months and 7 days to it.
5. **Laboratory Investigations:** The common laboratory investigation includes
 - Pregnancy confirmation test
 - Urine test for albumen and sugar
 - Blood test for Hb, HIV, HBs Ag, Malaria etc.
6. **Postural Changes During the pregnancy:** Common postural changes occur during the pregnancy as illustrated in the Fig. 9.6.

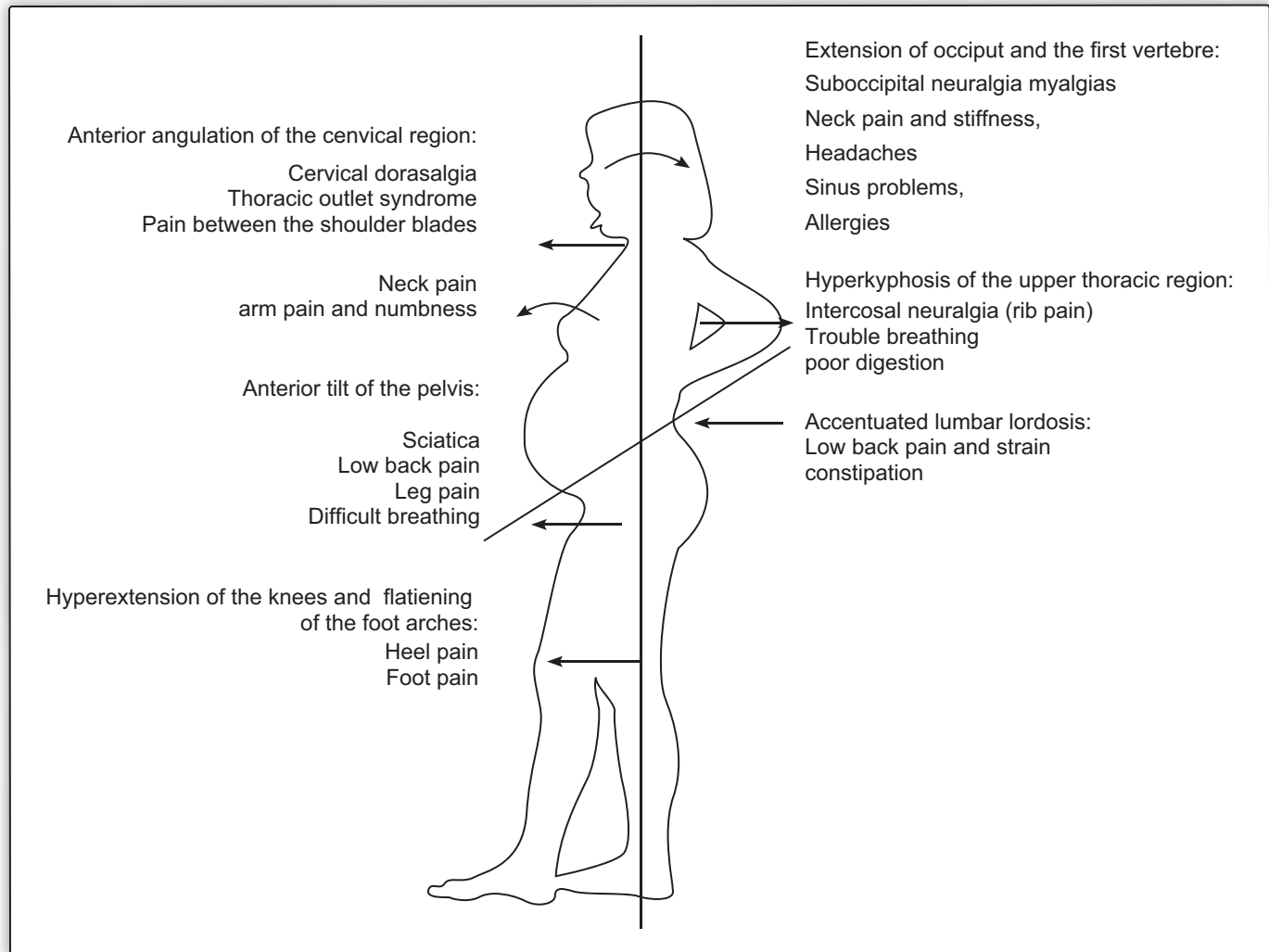


Fig. 9.6 : Postural Changes During the Pregnancy

Postnatal Assessment

Assess client for postnatal complications. The puerperium is the period of time spanning the first 6 weeks after delivery. It is the period of time in which the body adjusts both physically and psychologically to the process of childbearing.

Changes during puerperium

Physiological Changes

Uterus:

- Uterine involution: process by which the uterus returns to its pre-pregnant condition.
- Immediately after delivery, top of fundus is several finger breadth above the umbilicus.