Southern Technical

Technical Institute of Amara

Southern Technical University

Technical Institute of Amara

Nursing Department

Second Class

1st course

Child Growth and Development

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Growth **1st &2nd week**

The changes that occur in all the body include an increase in his body length, weight and the internal organ size. Which lead to increase in his total size. The growth measure unites are kilogram (kg), meters.

Development

It is a series of regular changes in behaviours and skills, this result from increase in the function of different parts and organs of the body.

Stages of growth and development

There is a positive relationship between growth and development, there is some variation from one person to another.

The stages are: -

1. **From pregnancy to delivery** **Embryo and fetus**
2. **1-28 days of life** **New born baby**
3. **I month - I year** **Infant**
4. **1-3 year** **Toddler**
5. **3-6 year** **Preschool**
6. **6-12 year** **School**
7. **12-18 year** **Puberty and adolescence**

Factors that affect growth and development

i. **Genetic factors include: -**

A. The genetic features which transfer to the embryo from both parents.

B. Other external factors affect the development of embryo include:

1) Infectious disease of the mother in pregnancy like rubella (German Measles) in first 3 months, disorders in endocrine gland function.
2) Exposure to radiation.
3) Placental disorder
   - placenta previa
   - abruption placenta
4) Nutrition of the pregnant woman.
5) Smoking and alcohol drinking
6) Drugs
7) External trauma
8) Rh incompatibility

C- Race , nation and sex factors

D- Environmental factors include

-Parent environment.

-Labour environment.

E-Quality of nutrition

F-Socioeconomic status
G-Ordinal position in family
H-Parent child relationship

- **Height**
  - **ESTROGEN responsible for increase in height in female**
  - **TESTOSTERONE responsible for the increase in height in male**
  - **Stoppage of height coincide with the eruption of the wisdom teeth**

Types of growth: **3rd week**

A. Physical growth: Can be assessing through measurement of head circumference, thoracic diameter, weight, height and arm circumference.

B. Physiological growth: This can be assessing through measurement of vital signs (temperature, pulse, respiration and blood pressure).

Types of development:

1. Motor development: e.g. sitting, standing, running, usage of fine muscles.
2. Intellectual (Cognitive) development e.g. Problem solving, reasoning, mental (cognitive)
3. Social development: e.g. Raising and training a child in the culture, self-concept, and friend-ship
4. Emotional development e.g. Love, fear

The patterns of Growth and development:

- **Cephalocoudul (start from head to toes):** The infants achieve control of the head before they have control of the trunk and extremities. And they achieve control of their hands before they have control of their feet.
- **Proximodistal (start from near to far):** Refers to the development of motor skill from the center of the body to the peripheral. The limbs of the body develop before hands and feet, hands and feet develop before the fingers and toes.
- **General to specific:** The infant used whole hand as a unit before the fingers. And they will be to grasp object with all fingers before using the thumb.

The new born baby **4th&5th week**

Definition:- A newborn refers to an infant in the first 28 days after birth; the term applies to Premature infants, Post mature infants, and Full term infants .

The features of new born baby:

A. Weight :-

In developed countries, the average birth weight of a full-term newborn is approximately 3.4 kg and is typically in the range of 2.7-4.6 kg .

Over the first 5-7 days following birth, the body weight of a term neonate decreases by 3-7%, and is largely a result of the resorption and urination of the fluid that initially fills the lungs, in addition to a delay of often a few days before breastfeeding becomes effective. After the first week, healthy term neonates should gain 10-20 grams/day.

B. Length: - The length of new born baby range from (35.6- 60 cm). The average (50Cm) male new born baby is taller than female new born baby.

C. The skin: -it is usually dark pink covered with few lanugo hairs

Lanugo hair: - it is a fine, immature hair covered the body of new born baby especially the premature baby and some dark hair baby it is usually disappear in the first week of life.

Infants may be born with full heads of hair; others, particularly Caucasian infants, may have very fine hair or may even be bald. Amongst fair-skinned parents, this fine hair may be blonde, even if the parents are not. The scalp may also be temporarily bruised or swollen, especially in hairless newborns, and the area around the eyes may be puffy.

Vernix caseosa :- soft white creamy layer covered the skin of the premature baby disappear by terms .

Mongolian spots: - transient dark blue to black pigment seen over the lower back, buttock, in 90 % of the black, Indian, and oriental babies disappear in (1-2 years) of life.

Hemangioma: - transient pink macule in the back of the neck, eyelids, forehead.

Milia:- pin head whitish spot seen on the nose ,chin disappear in first (1-2 week) of life.

D. <u>Head</u>: - Head circumference (HC) is (33 - 37 cm), 35 cm. there are two fontanels: -

1) Anterior fontanel: - it is a bony gap in the skull result from incomplete fusion of 2 frontals & 2 parietal bones, it is diamond in shape, measured (2.5 × 2.5 cm) closed in (15-18 month) of life causes of delay in closure in rickets , causes of bulging in crying , hydrocephalus.

2) Posterior fontanel :- it is a bony gap in the skull result from incomplete fusion of 2 occipitals & 2 parietal bones, it is a tiangulre in shape, measured (0.5 cm) in width, closed in (6-8 week) of life.

E. Chest :- chest circumference (CC) is (30 - 35 cm) , it is like a bell.
(CC) is equally or less than the (HC) .

F. Muscles: - it is fine and small , but have full strength.

G. The nervous system (N.S)

The brain of the NBB is immature so that the reaction of the NBB to the external stimuli is by a reflex called primitive reflexes (PR) the presence of these PR indicate that the (N.S) was normal or (health).

The primitive reflexes are

i. **Motor PR include: -** Moro reflex or (startle R) grasping, stepping, knee jerk, planter reflexes.
ii. **Primitive reflexes related to the feeding include: -** Rooting, sucking, swallowing reflexes.
iii. **<u>Protective</u> reflexes include: -** sneezing, coughing Blinking, yawing, gagging reflexes.

Motor Primitive reflexes hnclude:

1. **Moro reflex (startle R)** :- when the NBB exposed to a high voice or sudden change of his position the baby will extend and abduct both arms and legs then flexion and adduction of both **.**

2. **Grasping R:-** when the index finger is placed across the palm will cause flexion and grasping of the fingers.
3. **Stepping R :-** when the baby is hold upright and the foot placed over affirm surface ,the other leg will flexed in the hip and knee in a stepping movement.

Feeding Primitive reflexes include:

1. **Rooting R :-** Is done by touching the check of the NBB he will turn his head toward the stimulus.
2. **Sucking reflexes**
3. **Swallowing reflexes**

Both motor reflexes and the reflexes related to the feeding disappears by 4-6 month of age.

Protective reflexes include:

1. **Sneezing and coughing R:** when foreign body in the upper respiratory tract the NBB will sneeze or cough in order to discharge this foreign body.
2. **Blinking R** : when foreign body near his eyelid or high light he will try to close his eyes.
3. **Gagging R** : when there is a large amount of milk in his mouth and he cannot swallow he will try to discharge it out.

H. Senses 6th week

The NBB has many sensation like touch, sight, hearing, taste, smell senses

1. **Touch sense** :- it is well developed in NBB especially in lips, tongue, ear, cheek so can feel these external stimuli to the skin like light touch, pressure, change in temperature.
2. **Sight sense :-** close his eyes to the light.
3. **Hearing sense :-** we can test the hearing by doing moro reflex or by a bell from a short distance.

4. **Taste sense :-** it is more developed than the sense of sight and hearing, the NBB like sweat liquid, refuse bitter.
5. **Smell sense** :- he has a good smell to his mother milk so can reach the breast of his mother

I. Vital signs

The vital signs include the: -

1. **Temperature :** The temp of the NBB is unpredictable so he has sudden fall in the temp. immediately after birth then start to increase and his temp. is affected with the temp of the room and bed. Normal body temperature (36-37.70c). measured initially per rectum later on measured axillaries'**.**
2. **Heart rate :** Normal heart rate of the NBB is (120-160) beats/mint, it increase with crying.
3. **Respiratory rate:** Normal respiratory rate is (30-60) beats/mint we can monitor respiration by movement of the muscle of the chest and abdomen.

The premature baby **7th week**

Definition :- live born baby age from (28-37week)gestation.

Features included :-

Somatic Features (physical features)

A) wt (1- 2.5 Kg)

B) length (35- 45 cm)

C) Head circumference less than full term (35cm) but appear larger in proportion to the small body.

- Small upper & lower limbs ,fingers,(nail& very thin).

-Little sub cutaneneous fat so the skin is wrinkled.

- Small face so the eye appear projected

Physiological Feature :-

1.Weak or poor body temperature control.

2.Difficulty in breathing (R.D.S).

3.Cyanosis,apnea, more than in full term.

4. Immature immune system (more infection).

5. Immature hematopoiesis(more infection).

6. Vitamin D deficiency more affection with rickets.

7. Immature liver so deficiency of money enzymes .

8. Immature kidney so Premature baby is liable to fluid over load.

9. Retrolental fibroplasia (fibrosis in retina).

10.Weak sucking & swallowing

Causes of Premature baby

A-Fetal causes include:-

1.Abnormal lie

2. Congenital abnormality

3.Twin pregnancy

B-Maternal causes include:-

1.Under nutrition.

2.External trauma.

3-Bleeding in pregnancy.
4-Medical diseases (heart, renal ,diabetes mellitus).
5. Infectious diseases (urinary tract infection.)
6. Rh incompatibility between mother & father.
7.Smoking & alcohol.

Nursing care of premature baby :-

A. Nursing Care in the delivery room include: -

1-Establishment and maintenance of respiration:-

the first and most important care given to the NBB after birth is to a- Clean the mouth and the nose from the mucous, blood and amniotic-fluid so that the airway is open. b-The first respiration starts with the first crying so if this not occur in the first 30 second after the birth, so that the risks of asphyxia increase. c-If there is excessive secretion so can be drained with a sucker to prevent aspiration. The head of the NBB put little down and the foot should be elevated to encourage the drainage of secretion. or the NBB put in aside position also to encourage the drainage.

2- Improve the body temperature by: -

- ***a.*** Remove the excess vernix, mucous, blood, amniotic fluid and dry the NBB body.
- ***b.*** Wrap the NBB in a heated blanket and exposed only to measure birth weight.

3- Care of the umbilical cord :-

- ***a.*** Aseptic media is used to prevent cord infection like septicemia or tetanus and take care of bleeding from the cord.
- ***b.*** Clamp the cord with 2 sterile artery forceps 2.5 cm from the umbilicus and the second one is applied 5cm from the umbilicus.
- ***c.*** Cut the cord between the 2 forceps with sterile scissors.
- ***d.*** In case of Rh negative mother Clamp the cord in distance more than 3 cm
- ***e.*** Treat the cord at least once/day with 70% alcohol swab. Place the diaper below the cord to avoid irritation.

4- Care of the eye :-

The eyelid and surrounding skin should be cleaned carefully with a sterile cotton which may be moisten with sterile water ,in some hospitals they use 1% silver nitrate eye drop as 2 drops in each eye as prophylaxis for gonorrhea.

5- Skin care :-

- ***a.*** clean the face, head, body of the baby from blood ,mucous with a piece of cotton cloth (towel).
- ***b.*** don't remove the vernix caseosa

c. to prevent prolonged exposure of the baby body exposed only the part of the body which want to clean & dry & covered immediately to keep this part warm then put on the cloths (soft & comfortable) & covered with blanket .

NC in delivery room .

1. Airway should be open by suction of secretions.
2. Keep Premature baby warm to prevent cold injury.
3. Care of umbilical cord ,skin, eye .
4. Gentle movement of Premature baby.
5. Prevention from injury.
6. Prevention from infection**.**

B. NC in incubator include :

a- Warm incubator

Premature baby need to be warm so incubator temperature should be (31.2-35.2) in order to keep Premature baby(35.5 -36.5) temperature

b- Oxygen with humidity with concentration of 30-40 % & not than 40% & humidity 55% .

Note :

a- O2 concentration not more than 40% to prevent retrolental fibroplasia.

b- Ways of giving oxygen

1- by incubator

2- nasal tube.

3- mask.

Premature baby feeding **8th &9th week**

Premature baby has weak sucking & swallowing.
Small stomach.
Decrease ability for fat absorption
Incomplete digestion of any food
Premature baby need 110-150 kcal/kg /day , protein5gm/kg/day, more cho & less fat than full term Vitamin D &C & iron add to feed
First feed is 5%-10% gloucose water as 5ml then increase gradually
Breast milk is the ideal ,if Premature baby has weak sucking &swallowing so given by spoon

Ways of feeding:-

1- **Bottle or breast in (good sucking &swallowing).**

Use clean bottle, small and fine teat with suitable pole, warm formula, few amount & frequently in sitting or semi sitting position
Duration of feeding 10-15 minute &not more than 20 minute
Gas discharge in between & in the end of feeding
Nursing notes record during feeding Amount of feeding
Appearance of cyanosis, distress, vomiting in feeding

2- **Small spoon in (poor sucking & good swallowing).**

Be sure baby has good swallowing

3- **drug drip in (poor sucking & good swallowing).**
4- **Naso gastric tube (gavages) in (week sucking &swallowing).**

Appearance of cyanosis, distress in the three ways.

Giving drugs to premature baby

In premature intensive care unit some drugs should be prepared like epinephrine, vitamin K **.**

Prevention from infection

1. Wash the hand with water & soap.
2. Wear gown, mask, cap ,clean& sterile shoes .
3. Don't wear ring or jewel
4. Wash the hand with water & soap in between the patient to prevent cross infection.
5. If medical staff infected with influenza prevent from entrance to the ward.
6. Prevent foreigner person from entrance to premature intensive care unit
7. Take care of premature baby cleaning.
8. Isolation of premature baby with diarrhoea, meningitis.
9. prepare specialized room to prepare milk & baby feeding.

Handling of premature baby

Take care of handling because has large head in proportion to small body, head put in hand & body between lower arm chest nurse chest

Monitoring the premature baby

Nursing care & nurse has an important role & should have a good practice in take care of premature baby the important points recorded are

Color, respiration, movement, sucking & swallowing, feeding, crying, cyanosis, vomiting, bowel motion.

Feeding of Baby **10th week**

Breast milk has many advantages over formula such as

1. Requiring no mixing.
2. Being the correct temperature.
3. Requiring no sterilization
4. Being easily digested.
5. Having antibodies and immunoglobulin to many types of microorganisms, which are passed from mother to baby.
6. Being cost effective

Family teaching:

Colostrum: it is first immunization, explain to the mother that breast milk does not come in until the 2nd or 4th day, until the newborn gets nutrients from colostrum, a product the breast produces prior to milk.

Breastfeeding:

1- breast may be firm but feel softer after nursing.
2- Nurse at least 10-15 minutes on each side.
3- To prevent nipple tenderness hold infant correctly , cradle hold , football or side-lying down .
4- Make sure the newborn lips are behind the nipple , encircling areola .
5- Release the suction before the newborn is removed from the breast by placing a finger in the side of the mouth and between the jaws.
6- After nursing express a little breast milk , massage into the nipples and areola, and allow to air dry.

7- Avoid using soap , alcohol or creams on breasts or nipples , Express droplets of breast milk and allow to air dry , especially for cracks and reddened areas on nipples , clean with water during showering or bathing.
8- Baby s urine should be light yellow with soft yellow stools.
9- Burp baby between breasts and at the end of feeding.

Complementary feeding (weaning):

Definition : complementary feeding may be defined as a process by which the infant gradually becomes accustomed to semi-solid and solid food as supplements to breastmilk.

When should complementary feeding(weaning) start?

It is recommended that complementary feeding \ weaning should start at the beginning of fifth month of age.

Parent guideline : introducing solid food to infants :

1. begin with 1 or 2 teaspoons and gradually increase to a couple of tablespoons per feeding.
2. introduce only one new food at a time , usually at intervals of 4 to 7 days to allow for identification of food allergies.
3. introduction of other foods besides breast milk before the fifth month is dangerous because the baby s stomach and digestive system are not ready for it.
4. Delay in starting complementary feeds beyond the fifth month can cause malnutrition and will make the baby vulnerable to disease and infections.
5. Salt: unnecessary salt intake can overload the baby s kidneys and digestive system.
6. do not introduce foods by mixing them with formula in the bottle.
7. weaning food prepared at home using traditional foods items is always fresh and nutritious and costs less as compared to processed baby foods.
8. good hygiene, proper handling of food and feeding habits are very important during the weaning process.

Types of development **11th week**

1-physical development

Child physical development is a vital aspect of growth that involves the progress

ion of physical skills, strength, and coordination. This development can be broken down into several stages, each with distinct milestones.

Infancy (0-12 months)

- _Lifting the head while prone_: Infants typically develop this skill around 1-2 months [1].

- _Reaching and grabbing objects_: By 4-6 months, infants can reach for toys and grab them [1].

- _Crawling and sitting up_: Most infants master crawling between 6-10 months and sitting up with support around 6-7 months [1].

Toddlerhood (1-3 years)

- _Walking independently_: Toddlers usually take their first steps around 12-14 months [1].

- _Pointing and using gestures_: By 12-18 months, toddlers start using gestures to communicate [1].

- _Improved balance and coordination_: Toddlers refine their balance and coordination skills, enabling them to walk, run, and climb .

Preschool age (3-5 years)

- _Refined motor skills_: Children at this stage develop finer motor skills, such as drawing, using scissors, and building with blocks .

- _Improved balance and coordination_: Preschoolers continue to refine their balance and coordination, enabling them to engage in more complex physical activities .

School age (5-6 years)

- _Mastering complex motor skills_: Children at this stage master more intricate motor skills, such as riding a bike, skipping rope, and playing team sports .

- _Enhanced physical fitness_: School-age children typically experience significant improvements in cardiovascular endurance, muscular strength, and flexibility .

Keep in mind that every child develops at their own pace, and some may need more time to master certain skills. If you have concerns about your child's physical development, it's always best to consult with your pediatrician .

2- Moral development

Child moral development refers to the process by which children develop their moral values, principles, and behaviors. This development is influenced by a combination of factors, including genetics, environment, culture, and social interactions.

Stages of Moral Development

Lawrence Kohlberg identified six stages of moral development:

1. *Obedience and Punishment Orientation (Stage 1)*: Children follow rules to avoid punishment.

2. *Individualism and Exchange (Stage 2)*: Children recognize that different people have different perspectives.

3. *Good Interpersonal Relationships (Stage 3)*: Children prioritize maintaining good relationships.

4. *Maintaining the Social Order (Stage 4)*: Children understand the importance of social rules and norms.

5. *Social Contract and Individual Rights (Stage 5)*: Children recognize the importance of individual rights and social contracts.

6. *Universal Principles (Stage 6)*: Children develop a sense of universal moral principles.

Factors Influencing Moral Development

1. *Family and Parenting*: Parents' moral values, discipline styles, and interactions with children influence moral development.

2. *Culture and Society*: Cultural norms, values, and social expectations shape children's moral understanding.

3. *Education*: Formal education and moral instruction can impact moral development.

4. *Peer Relationships*: Interactions with peers can influence moral values and behaviors.

5. *Personal Experiences*: Children's personal experiences, such as facing challenges or making mistakes, can shape their moral development.

Promoting Moral Development

1. *Modeling Moral Behavior*: Parents and caregivers should model moral values and behaviors.

2. *Encouraging Empathy*: Teach children to consider others' perspectives and feelings.

3. *Providing Opportunities for Socialization*: Encourage interactions with peers and others to develop social skills.

4. *Teaching Moral Values*: Explicitly teach moral values and principles.

5. *Encouraging Critical Thinking*: Encourage children to think critically about moral issues.

3- Psychosocial development

Child psychosocial development refers to the process by which children develop their sense of self, emotional regulation, social skills, and relationships with others.

Erik Erikson's Psychosocial Stages

Erik Erikson identified eight psychosocial stages that children go through:

1. *Trust vs. Mistrust (0-1 year)*: Children develop trust when their needs are met consistently.

2. *Autonomy vs. Shame and Doubt (1-3 years)*: Children explore independence and develop self-control.

3. *Initiative vs. Guilt (3-6 years)*: Children take on responsibilities and develop a sense of purpose.

4. *Industry vs. Inferiority (6-12 years)*: Children develop skills and competencies, and feel a sense of accomplishment.

5. *Identity vs. Role Confusion (12-18 years)*: Adolescents explore their identities and develop a sense of self.

6. *Intimacy vs. Isolation (18-40 years)*: Young adults form close relationships and develop emotional intimacy.

7. *Generativity vs. Stagnation (40-65 years)*: Adults contribute to society and develop a sense of purpose.

8. *Integrity vs. Despair (65+ years)*: Older adults reflect on their lives and develop a sense of acceptance.

Factors Influencing Psychosocial Development

1. *Family and Parenting*: Parents' parenting styles, relationships, and interactions with children influence psychosocial development.

2. *Culture and Society*: Cultural norms, values, and social expectations shape children's psychosocial development.

3. *Peers and Social Relationships*: Children's relationships with peers and others influence their psychosocial development.

4. *Education and Life Experiences*: Formal education and life experiences, such as challenges and successes, shape children's psychosocial development.

Promoting Psychosocial Development

1. *Providing a Supportive Environment*: Create a nurturing and supportive environment that promotes exploration and learning.

2. *Encouraging Socialization*: Encourage children to interact with peers and others to develop social skills.

3. *Modeling Healthy Relationships*: Model healthy relationships and emotional regulation to promote children's psychosocial development.

4. *Providing Opportunities for Autonomy*: Encourage children to take on responsibilities and make choices to promote autonomy and self-confidence.

5. *Teaching Emotional Regulation*: Teach children to recognize, express, and regulate their emotions to promote emotional intelligence.

4-Emotional development

Child emotional development refers to the process by which children develop the ability to recognize, understand, and manage their emotions.

Stages of Emotional Development

1. *Infancy (0-12 months)*: Infants develop trust and attachment to caregivers.

2. *Toddlerhood (1-3 years)*: Toddlers experience a range of emotions, including anger, fear, and joy.

3. *Preschool age (3-5 years)*: Preschoolers develop empathy and begin to understand others' emotions.

4. *School age (6-12 years)*: School-age children develop more complex emotions, such as pride, guilt, and shame.

Key Emotional Development Milestones

1. *Recognizing and expressing emotions*: Children develop the ability to recognize and express their emotions.

2. *Empathy*: Children develop the ability to understand and share others' emotions.

3. *Emotional regulation*: Children develop the ability to manage and regulate their emotions.

4. *Self-awareness*: Children develop the ability to recognize and understand their own emotions.

Factors Influencing Emotional Development

1. *Family and parenting*: Parents' emotional expression, validation, and regulation influence children's emotional development.

2. *Culture and society*: Cultural norms and values shape children's emotional development.

3. *Peers and social relationships*: Children's relationships with peers and others influence their emotional development.

4**. *Temperament*:** Children's innate temperament influences their emotional development.

Promoting Emotional Development

1. *Emotional validation*: Validate children's emotions to promote emotional awareness and acceptance.

2. *Emotional labeling*: Label children's emotions to promote emotional awareness and understanding.

3. *Emotional regulation strategies*: Teach children strategies to manage and regulate their emotions.

4. *Empathy and perspective-taking*: Encourage children to consider others' perspectives and emotions.

5. *Positive relationships*: Foster positive relationships with children to promote emotional security and development.

Principles of Growth And Development **12th week**

- Growth and development is a continuous process (WOMB TO TOMB PRINCIPLE) begins from conception and ends with death
- Not all parts of the body grows at the same time or at the same rate (ASSYCHRONOUS GROWTH)
- Each child is unique
- Growth and development occurs in a regular direction reflecting definite and predictable patterns or trends

Patterns of Growth And Development

- Renal & Digestive & Circulatory & Musculoskeletal
  - ✔ childhood
- Brain & CNS & Neurologic Tissue
  - ✔ Rapid growth and development of brain from1 - 2 years
  - ✔ Malnutrition may result to Mild Mental Retardation
- Lymphatic System (Lymph Nodes)

Grows rapidly during infancy and childhood

  - ✔ Provide protection against infection
- Reproductive
  - ✔ Grows rapidly during puberty

Rates of Growth And Development

- Fetal and Infancy
  - ✔ Period of most rapid growth and development
  - ✔ Prone to develop anaemia
- Toddler
  - ✔ Period of slow growth and development
- Toddler and preschool
  - ✔ Period of alternating rapid and slow growth and development
- School Aged
  - ✔ Slower growth and development
  - ✔ Least to develop anaemia
- Adolescent
  - ✔ Period of rapid growth
  - ✔ Secondary prone to anaemia

The 13 principles of child growth and development are essential guidelines for understanding how children grow and develop. Here are the principles:

1. Development Proceeds from Head to Toe*:

Children develop from the head down, with the upper body developing before the lower body [1].

2.Development Proceeds from the Center of the Body Outward*:

Children develop from the center of their body outward, with the trunk and limbs developing before the fingers and toes [1].

3.Growth and Development are Continuous Processes*:

Growth and development are ongoing processes that continue throughout childhood and adolescence [1].

4. Growth and Development are Influenced by Both Genetic and Environmental Factors*:

Both genetics and environment play a role in shaping a child's growth and development [1].

5. Growth Occurs at an Uneven Pace*:

Children grow and develop at different rates, with some developing more quickly than others [1].

6. Development Follows an Orderly and Sequential Pattern*:

Children develop in a predictable and sequential pattern, with each stage building on the previous one [1].

7. Development is Influenced by Maturation and Learning*:

Children's development is influenced by both maturation (physical growth and development) and learning (experiences and interactions) [1].

8. Development Proceeds from Simple to Complex*:

Children's development proceeds from simple to complex, with more complex skills and abilities building on simpler ones [1].

9. Development is a Highly Individualized Process*:

Each child develops at their own unique pace and in their own way [1].

10. Development is Influenced by the Interaction Between Heredity and Environment*:

The interaction between genetics and environment plays a crucial role in shaping a child's development [1].

11. Development is a Lifelong Process*:

Development is a lifelong process that continues throughout childhood, adolescence, and adulthood [1].

12. Development is Influenced by Socio-Cultural Factors*:

Socio-cultural factors, such as family, culture, and community, play a significant role in shaping a child's development [1].

13. Development is Characterized by Plasticity*:

Children's development is characterized by plasticity, meaning that their brains and abilities can adapt and change in response to experiences and interactions [1].

Growth problems in children **13th week**

Growth problems in children can be caused by a variety of factors, including genetics, hormones, nutrition, and certain medical conditions.

Types of Growth Problems

1. *Short Stature*: Children who are significantly shorter than their peers.

2. *Growth Hormone Deficiency*: A condition where the pituitary gland does not produce enough growth hormone.

3. *Turner Syndrome*: A genetic disorder that affects girls and women, causing short stature and other physical characteristics.

4. *Growth Delay*: A condition where children grow at a slower rate than their peers.

5. *Overgrowth*: A condition where children grow at an abnormally fast rate.

Causes of Growth Problems

1. *Genetic Disorders*: Certain genetic disorders, such as Turner syndrome and Prader-Willi syndrome.

2. *Hormonal Imbalances*: Imbalances in growth hormone, thyroid hormone, and other hormones.

3. *Nutritional Deficiencies*: Deficiencies in nutrients, such as protein, calories, and vitamins.

4. *Chronic Medical Conditions*: Certain medical conditions, such as diabetes, kidney disease, and heart disease.

5. *Infections and Inflammatory Conditions*: Certain infections and inflammatory conditions, such as tuberculosis and juvenile rheumatoid arthritis.

Symptoms of Growth Problems

1. *Short Stature*: Children who are significantly shorter than their peers.

2. *Slow Growth Rate*: Children who grow at a slower rate than their peers.

3. *Delayed Puberty*: Children who experience delayed puberty.

4. *Weight Loss or Gain*: Unexplained weight loss or gain.

5. *Fatigue or Weakness*: Fatigue or weakness that interferes with daily activities.

Diagnosis of Growth Problems

1. *Physical Examination*: A thorough physical examination to assess growth and development.

2. *Growth Charts*: Growth charts to track growth over time.

3. *Laboratory Tests*: Laboratory tests, such as blood tests and imaging studies, to rule out underlying medical conditions.

4. *Hormone Tests*: Hormone tests to assess hormone levels.

Treatment of Growth Problems

1. *Hormone Replacement Therapy*: Hormone replacement therapy to replace deficient hormones.

2. *Nutritional Supplementation*: Nutritional supplementation to address nutritional deficiencies.

3. *Medications*: Medications to treat underlying medical conditions.

4. *Surgery*: Surgery to treat certain medical conditions, such as tumors or skeletal abnormalities.

5. *Growth Hormone Therapy*: Growth hormone therapy to stimulate growth in children with growth hormone deficiency.

The differences between growth and development divided into four major classes by Mrs. Hurlock 14th week

Elizabeth Hurlock, a renowned psychologist, identified four major classes of differences between growth and development:

Class 1: Quantitative vs. Qualitative Changes

1. *Growth*: Refers to quantitative changes, such as increases in size, weight, and length.

2. *Development*: Refers to qualitative changes, such as improvements in structure, function, and organization.

Class 2: Physical vs. Functional Changes

1. *Growth*: Focuses on physical changes, such as increases in height, muscle mass, and bone density.

2. *Development*: Emphasizes functional changes, such as improvements in cognitive abilities, language skills, and social behaviors.

Class 3: Reversible vs. Irreversible Changes

1. *Growth*: Can be reversible, such as weight gain or loss.

2. *Development*: Typically involves irreversible changes, such as the development of language skills or cognitive abilities.

Class 4: General vs. Specific Changes

1. *Growth*: Involves general changes that occur throughout the body, such as increases in height or weight.

2. *Development*: Encompasses specific changes that occur in particular systems or structures, such as the development of the nervous system or the formation of social skills.

Malnutrition diseases

Child malnutrition can lead to various diseases and health complications. Here are some of the most significant ones:

1- *Stunting*: Caused by chronic undernutrition, stunting can lead to delayed mental development, poor school performance, and reduced intellectual capacity [1].

2- *Wasting*: A symptom of acute undernutrition, wasting can impair the immune system, increase the severity and duration of infectious diseases, and raise the risk of death [1].

3- *Overweight and Obesity*: Childhood obesity is associated with a higher probability of obesity in adulthood, leading to cardiovascular diseases, diabetes, musculoskeletal disorders, and certain types of cancer [1] [2].

Malnutrition diseases include :

- ***Kwashiorkor*:** A severe form of malnutrition caused by protein deficiency, kwashiorkor can lead to edema, muscle wasting, and impaired immune function [3].

- ***Marasmus*:** Another severe form of malnutrition, marasmus is caused by calorie deficiency and can lead to muscle wasting, weakness, and impaired immune function [3].

- ***Anemia*:** Malnutrition can cause anemia, particularly iron-deficiency anemia, leading to weakness, fatigue, and impaired cognitive function [3].

- ***Impaired Immune Function*:** Malnutrition can weaken the immune system, making children more susceptible to infections and diseases [1] [3].

- ***Cognitive Impairment*:** Malnutrition can affect brain development and cognitive function, leading to poor school performance and reduced intellectual capacity [1] [3].

- ***Increased Risk of Mortality*:** Severe malnutrition can increase the risk of mortality in children .

These diseases and health complications can have long-lasting effects on a child's physical and cognitive development, emphasizing the importance of addressing malnutrition early on.

Obesity

Childhood obesity is a serious health condition that affects millions of children worldwide. It's characterized by excess body fat, which can lead to various health problems, including type 2 diabetes, high blood pressure, joint pain, and breathing difficulties [1].

Causes of Childhood Obesity

Several factors contribute to childhood obesity, including:

- _Genetic and Hormonal Factors_: Genetic predisposition and hormonal imbalances can affect appetite and metabolism.

- _Unhealthy Eating Habits_: Consuming high-calorie foods and sugary drinks, and lack of fruits and vegetables in the diet.

- _Lack of Physical Activity_: Sedentary lifestyle, spending too much time watching TV, playing video games, or using digital devices.

- _Socioeconomic Factors_: Limited access to healthy food options, safe spaces for physical activity, and cultural norms that promote unhealthy behaviors.

- _Family Factors_: Family eating habits, parental weight status, and socioeconomic status [1] [2].

Consequences of Childhood Obesity

Childhood obesity can lead to various short-term and long-term health consequences, including:

1-Cardiovascular Diseases_: Heart disease, stroke, and high blood pressure.

2-Type 2 Diabetes: Insulin resistance and impaired glucose regulation.

3-Musculoskeletal Disorders_: Joint pain, osteoarthritis, and musculoskeletal injuries.

4-Mental Health Issues: Low self-esteem, depression, and anxiety.

5-Social Stigma: Teasing, bullying, and social isolation [1] [2].

Prevention and Treatment

Preventing childhood obesity requires a multifaceted approach that involves:

1-Healthy Eating Habits: Encouraging consumption of fruits, vegetables, whole grains, and lean protein sources.

2-Regular Physical Activity: Engaging in at least 60 minutes of moderate-to-vigorous physical activity daily.

3-Reducing Screen Time: Limiting TV, video games, and digital device use.

4-Family Support_: Encouraging healthy behaviors and providing emotional support.

5-Community-Based Initiatives_: Promoting healthy environments and access to healthy food options and physical activity spaces .

Characteristics Growth and development in children **15th week**

Characteristics of Growth

1. *Continuous*: Growth is a continuous process that occurs throughout childhood and adolescence.

2. *Gradual*: Growth occurs gradually, with small increments over time.

3. *Irreversible*: Growth is an irreversible process, meaning that once a child grows, they cannot revert to a previous size or stage.

4. *Quantitative*: Growth is a quantitative process, involving increases in size, weight, and length.

Characteristics of Development

1. *Directional*: Development follows a predictable direction, with children progressing from simple to complex behaviors.

2. *Sequential*: Development occurs in a sequential manner, with each stage building on the previous one.

3. *Cumulative*: Development is a cumulative process, with children retaining and building on previously acquired skills and knowledge.

4. *Qualitative*: Development is a qualitative process, involving changes in the quality and complexity of behaviors, skills, and abilities.

Shared Characteristics of Growth and Development

1. *Interrelated*: Growth and development are interrelated, with growth providing the foundation for development.

2. *Influenced by Genetics and Environment*: Both growth and development are influenced by genetic and environmental factors.

3. *Unique to Each Child*: Growth and development patterns are unique to each child, with individual differences in rates and patterns.

4. *Influenced by Nutrition and Health*: Adequate nutrition and good health are essential for optimal growth and development.

The benefits of monitoring growth and development of the child

Monitoring the growth and development of a child has numerous benefits for their health, well-being, and future success.

Health Benefits

1. *Early Detection of Health Problems*: Regular monitoring can help identify potential health issues, such as growth hormone deficiencies or developmental delays.

2. *Prevention of Complications*: Early detection and intervention can prevent complications and improve health outcomes.

3. *Improved Nutrition and Health Habits*: Monitoring growth and development can inform nutrition and health decisions, promoting healthy habits.

Developmental Benefits

1. *Identification of Developmental Delays*: Monitoring development can help identify delays or disorders, such as autism or ADHD.

2. *Early Intervention and Support*: Early identification and intervention can significantly impact developmental outcomes.

3. *Enhanced Cognitive and Social Development*: Monitoring development can inform strategies to support cognitive and social development.

Emotional and Social Benefits

1. *Increased Parent-Child Bonding*: Regular monitoring and interaction can strengthen parent-child relationships.

2. *Improved Parental Confidence*: Monitoring growth and development can empower parents, increasing confidence in their caregiving abilities.

3. *Enhanced Child Self-Esteem*: Positive reinforcement and support during monitoring can promote healthy self-esteem.

Educational and Economic Benefits

1. *Informed Educational Decisions*: Monitoring development can inform educational decisions, ensuring children receive appropriate support.

2. *Improved Academic Outcomes*: Early identification and intervention can improve academic outcomes and reduce special education needs.

3. *Reduced Healthcare Costs*: Early detection and intervention can reduce healthcare costs associated with treating complications.

Long-Term Benefits

1. *Optimized Health and Well-being*: Monitoring growth and development can promote optimal health and well-being throughout childhood and beyond.

2. *Increased Resilience and Adaptability*: Children who receive regular monitoring and support may develop greater resilience and adaptability.

3. *Improved Life Chances*: Monitoring growth and development can contribute to improved life chances, including better educational and economic outcomes.

The essential nutrients required for healthy growth

For healthy growth and development, children require a balanced diet that includes essential nutrients from various food groups. Here are some of the key nutrients:

Macronutrients

1. *Carbohydrates*: Provide energy for growth and development. Sources: whole grains, fruits, vegetables.

2. *Protein*: Builds and repairs tissues. Sources: lean meats, fish, eggs, dairy, legumes.

3. *Fats*: Provide energy and support growth. Sources: healthy fats like nuts, seeds, avocados.

Vitamins

1. *Vitamin A*: Essential for vision, immune function, and growth. Sources: sweet potatoes, carrots, dark leafy greens.

2. *Vitamin D*: Crucial for bone growth and development. Sources: fatty fish, fortified dairy products, sunlight exposure.

3. *Vitamin E*: Antioxidant that protects cells from damage. Sources: nuts, seeds, vegetable oils.

4. *Vitamin K*: Necessary for blood clotting and bone health. Sources: leafy greens, fermented foods.

Minerals

1. *Calcium*: Essential for bone growth and development. Sources: dairy, leafy greens, fortified plant-based milk.

2. *Phosphorus*: Important for bone growth and development. Sources: meat, fish, eggs, dairy.

3. *Iron*: Vital for healthy red blood cells. Sources: red meat, poultry, fish, beans, fortified cereals.

4. *Zinc*: Supports immune function and growth. Sources: oysters, beef, chicken, fortified cereals.

Other Essential Nutrients

1. *Fiber*: Promotes healthy digestion and bowel function. Sources: whole grains, fruits, vegetables.

2. *Probiotics*: Supports gut health and immune function. Sources: fermented foods like yogurt, kefir, sauerkraut.

3. *Omega-3 Fatty Acids*: Important for brain and heart health. Sources: fatty fish, nuts, seeds.

Tips for Ensuring Adequate Nutrition

1. *Eat a variety of whole foods*.

2. *Limit processed and sugary foods*.

3. *Consult with a healthcare professional or registered dietitian* for personalized nutrition advice.

4. *Encourage self-regulation of food intake* to promote healthy eating habits.