**Health Assessment for Children**

**Learning objectives**

* To know the normal characteristic of children especially in newborn stage
* To know the assessment of children from head to toe
* To know the most common newborn reflexes

**1-Physical characteristics of pediatric**

**A-Height**

* AT birth: 46-56cm , average( 50cm)
* male infant is an average of 2-3cm longer than of female at birth
* During first year of the life the infant HT should increase 25-30 cm and by age 2 about 12.5 cm
* Before 2 years HT take by supine position
* After 2 years HT take by standing position

**B-Weight:**

* Average newborn boy weight=3400g, and girl= 3200g
* - Infant lose 5-10% of birth weight at age 3-4 days to gain it back in 2 weeks
* Infant double birth Wight by 6 month
* They triple the body weight by 12 month= 10 kg.

**C-Head circumference and chest circumference :**

* HC at birth = 33-35 cm
* CC = 31-33 cm at birth
* birth : HC is larger than CC about 2cm and in 1 yrs-18 month : HC=CC then in 2-3 yrs HC slightly smaller than CC

**Head :**

***Anterior fontanel :***

* Located between the frontal and 2 parital bones
* Diamond- shaped 2-3 cm (length) x 3-4cm( width)
* Closed between 18 month

***Posterior fontanel:***

* Located between the occipital and parital bones
* Triangular shape , 1cm( length ) x 1cm ( width)
* Closed between 4-8 month , and may closed at birth.

**2-Physiological characteristics**

Temperature, Pulse Rate, Respiratory Rate, and Blood Pressure

**a-Temperature:**

* Oral :: 36.4°-37.4° C)
* Rectal (36.1°-37.8° C)
* Axillary :35.9-36.7° C

**b-Pulse Rate**

* Normally 120 to 160 beats per minute
* under 2 yrs apical pulse for full 1 min
* it increase with( crying, anxiety, fever, and pain).

**Respiratory Rate**

* Normally 30 to 60 breaths per minute at birth
* To accurate assessment of the respiratory rate avoid doing it before invasive exam

**Blood Pressure**

* Obtain blood pressure by auscultators method
* the cuff should cover 2/3 of the upper arm)
* crying can cause inaccurate blood pressure reading

**Pediatric Vital Sign Normal Ranges**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Age Group** | **Respiratory Rate** | **Heart Rate** | **Systolic Blood Pressure** | **Weight in kilos** | **Weight in pounds** |
| Newborn | 30 - 50 | 120 - 160 | 50 - 70 | 2 - 3 | 4.5 - 7 |
| Infant (1-12 months) | 20 - 30 | 80 - 140 | 70 - 100 | 4 - 10 | 9 - 22 |
| Toddler (1-3 yrs.) | 20 - 30 | 80 - 130 | 80 - 110 | 10 - 14 | 22 - 31 |
| Preschooler (3-5 yrs.) | 20 - 30 | 80 - 120 | 80 - 110 | 14 - 18 | 31 - 40 |
| School Age (6-12 yrs.) | 20 - 30 | 70 - 110 | 80 - 120 | 20 - 42 | 41 - 92 |
| Adolescent (13+ yrs.) | 12 - 20 | 55 - 105 | 110 - 120 | >50 | >110 |

**C-Physical Assessment for Pediatric (head to toe)**

**General appearance :**

* child is a well-developed
* well-nourished
* Appears well hydrated.

**Head:**

* Normocephalic
* atraumatic with thick hair
* **Anterior fontanelle** :is soft and flat with normal pulsations.
* **Posterior fontanelle :**is fingertip.

**Eyes:**

* Pupils equal
* round and reactive to light
* No discharge, conjuctivitis or scleral icterus.
* No ptosis.

**Ears**:

* Clear external auditory canals
* Pinnae normal is shape and contour.
* No pre-auricular pits or skin tags.
* No erythema

**Nose:**

* Normal pink mucosa
* No discharge or blood visible.
* Normal midline septum.

**Mouth:**

* moist mucous membranes
* No evidence of a cleft Lip

**Throat:**

* Pharynx shows no erythema or ulcerations. Normal movement of soft palate
* No cleft palate
* **Neck:**
* No swollen
* No tracheal deviation
* No decrease in ROM
* No lymphadenopathy, goiter or masses detected.

**Chest:**

* Tanner II breast development
* Look for chest cavity
* No increase of accessory muscles
* No evidence of increased work of breathing
* Lungs are clear to auscultation bilaterally
* No stridor, wheezes, crackles

**CVS**:

* Look for PMI in left mid-clavicular line in 6th intercostal space
* Pule is Regular rate and rhythm.
* Normal Sl with normally split S2 on respiration. No murmurs

**Abdomen:**

* Soft, non-tender, non-distended.
* Bowel movement signs present.
* Liver edge palpable 1 cm below costal margin
* No noted splenomegaly.
* No masses
* Umbilicus healing well no erythema, discharge or foul smell; mild diastasis recti present.

**Genitalia:**

* Circumcised
* Bilaterally descended testes
* No hernias, no hydroceles.

**Extremities:**

* Warm,
* No clubbing, cyanosis or edema. No gross deformities.
* Good skin turgor
* no hip dislocated .

**Neurological Assessment Include**

**a-cranial nerve examination**

* I Smelling
* II Response to light, vision
* III Extrinsic ocular movements, response of the pupil to
* light, eyelid elevation
* IV Extrinsic ocular movements
* V Facial sensibility, sucking, biting
* VI Extrinsic ocular movements
* VII Facial motility, taste
* VIII Hearing, vestibular responses
* IX & X Sucking, swallowing, vocalization, taste, gag reflex
* XI Head and neck movements
* XII Movements of the tongue

**b-Reflexes (Primitive Reflexes In Newborn )**

A reflex is an action that is a response to a stimulus and that occurs without conscious thought.Some of the reflexes observed in newborns:

* Rooting Reflex: present at birth and disappears at 4 months. The baby turns head & opens mouth to follow the direction of mouth stimulation.
* Sucking Reflex: begins about the 32nd week of pregnancy, and is fully

developed by 36 weeks. Preterm babies may have weak or immature sucking ability.

* Palmar Grasp Reflex: present at birth, disappears at 2–3 months. If the palm is stimulate the baby closes the fingers and grasps what is in the palm.
* Moro Reflex: present at birth, disappears at 4–5 months. Often called the startle reflex because it usually observed when the baby is surprised by a loud sound or movement. The baby throws back the head, extends the arms and legs, cries and then pulls the arms and legs back in.
* Stepping Reflex: present at birth, disappears at 2 months. When the back of the foot is touched by an obstacle, the infant steps by lifting the foot and places it on the obstacle.
* Babinski reflex : Striking along the lateral aspect of the sole extending from the heel to the head of the fifth metatarsal

**Summary of newborn reflexes**

|  |  |  |  |
| --- | --- | --- | --- |
| Reflex | Response | Age of Disappearance | Type |
| Eye blink | Infant quickly closes eyelids | Permanent | Protection |
| Rooting | Head turns toward source of stimulation | 3 weeks | Feeding |
| Sucking | Infant sucks finger rhythmically | 4 months | Feeding |
| Moro | Infant makes an “embracing” motion by arching back, extending legs, throwing arms outward, and then bringing arms in toward the body | 6 months | Motor |
| Palmar grasp | Spontaneous grasp of finger | 3-4 months | Motor |
| Tonic neck | Infant lies in :One arm is extended in front of eyes on side to which head is turned, other arm is flexed | 4 months | Motor |
| Stepping | Infant lifts one foot after another in stepping response | 2 months | Motor |
| Babinski | Toes fan out and curl as foot twists in | 8-12 months | Motor |

**APGAR SCORE**

The Apgar score is a screening test used worldwide to quickly assess the health of an infant one minute and five minutes after birth. The baby is then scored based on these factors. A baby with a score of 4 or less is considered in need of medical attention, which is not good.

