Physical Assessment for neonate

Nursing Health History

1) Bio-graphic Demographic

- Name, age, health care provider
- Parents name age /siblings age
- Ethnicity / cultural practices
- Religion / religious practices
- Parent occupation

2) Chief complain

- To establish the major specific reason for the child’s and parant’s seeking professional health attention

3. History of present illness

- To obtain all detials related to chief complaint
- Seven attributes

4. Past History

- Allergies
- Childhood illness
- Trauma / hospitalizations
- Birth history, pregnancy and delivery
- Did baby go home with mom / special care nursery
- Genetics: anything in the family

5.Family history

- Any underlying illness / genetic condition.

6. Review of systems

- Ask questions about each system
- Measuring data: growth chart, head circumference, BMI
- Nutrition: breast fed, formula, eating habits
- Growth and development: How does parent think child is doing?

Vital Signs

What are vital signs?

- Vital signs include heart rate, respiration (breathing rate), blood pressure, and temperature.

Infant and Toddler Vital Sign Measurement

1) Count respirations **FIRST**
   (before disturbing the child)
2) Count apical HR **SECOND**
3) Measure BP (if applicable) **THIRD**
4) Measure temperature **LAST**

Temperature

- Body temperature is the difference between heat produced by internal processes and heat lost through the external environment.

Temperature

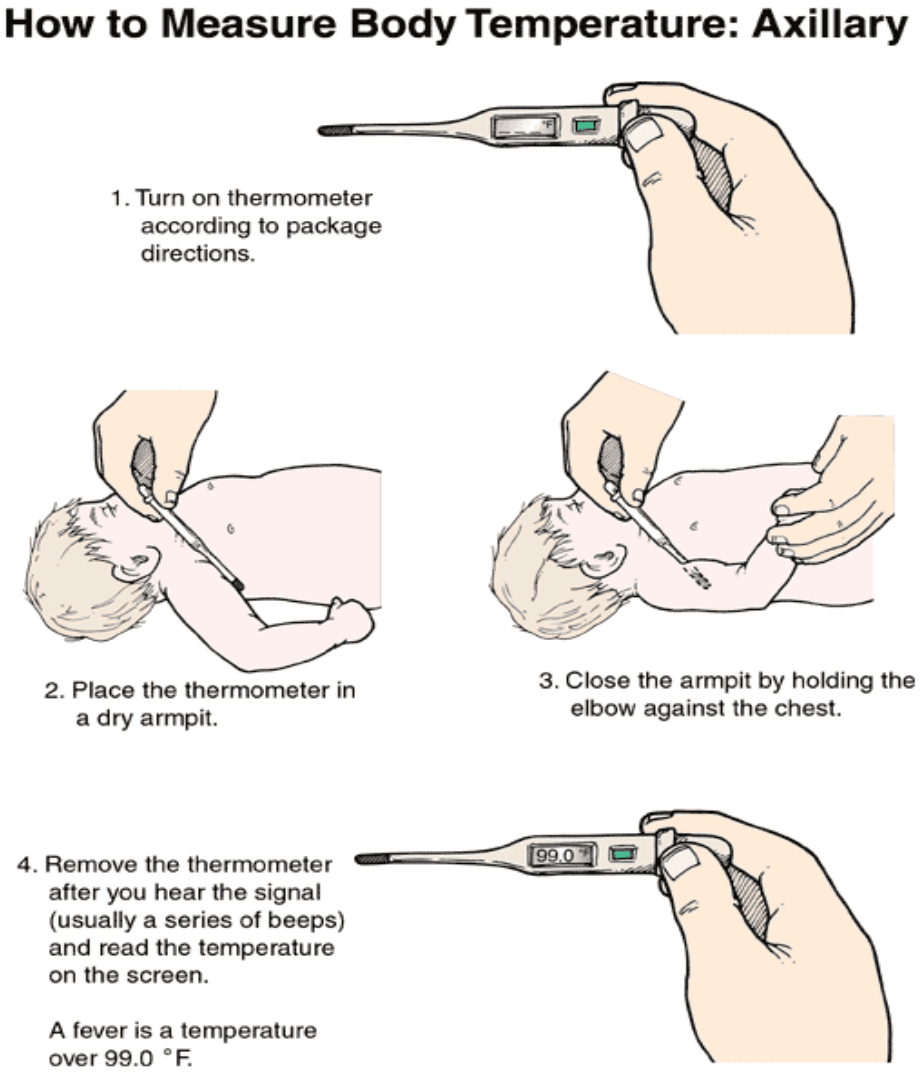
- There are several ways to take child's temperature. The American Academy of Pediatrics no longer recommends mercury thermometers because these glass thermometers may break and, as their mercury vaporizes, it can be inhaled, resulting in toxic levels. Digital electronic thermometers are better choices.

Types of thermometer

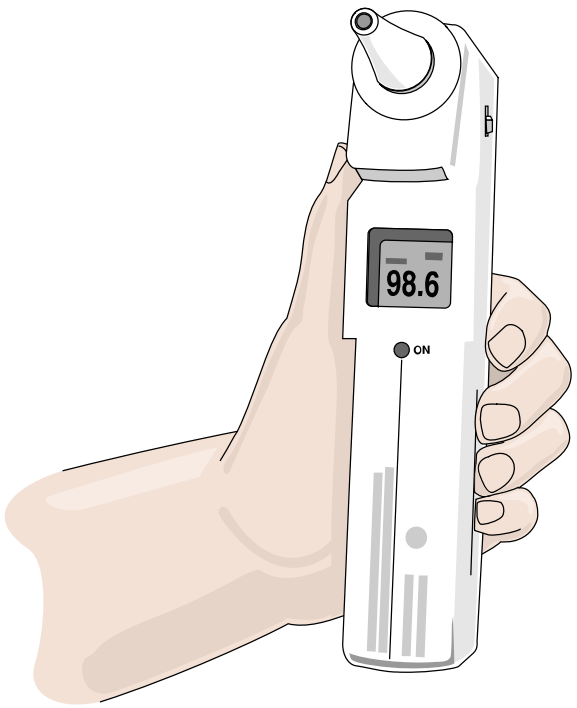
- Digital electronic: oral and axillary
- Infrared: tympanic
  - another acceptable choice. it accuracy depends on the ability of the beam emitted by the device to reach the eardrum.
- Chemical (e.g. Tempa-dot)
- Mercury or glass thermometer

Temperature

Position for taking axillary temperature.



Ear (Tympanic) Temperature



- Can also be affected by:
  - Impacted ear wax & ear infections
- Should NOT be used if child had ear surgery

Temperature

- Oral temperature for children over 5 to 6 years.
- Rectal temperatures are contraindicated if the child has had anal surgery, diarrhea, or rectal irritation.
- Normal temp : 36.5-37.5

Position for Rectal tempreture

- To take the temperature in your child's bottom (rectally), then put a small amount of lubricant, such as petroleum jelly, on the small end of it. Place child on something firm, either faceup or facedown (if he's facedown, put one hand on his back; if he's faceup, bend your child's leg to his chest,

Heart rate

- The pulse is a wave of dilation - the wave of blood, created by the heart pumping that travels along the arteries

- **Where to find pulse:**
- At points where the artery is between fingertips and a bony area
- Called pulse points
- Felt with two or three fingers but never the thumb

Heart rate

Pulse sites:

- Temporal, Carotid, Radial, Ulnar, Brachial, Apical, Femoral, Popliteal, Dorsal Pedis, Posterior tibial.
- **Notes: -**
- Carotid most common in emergencies.
- Radial most common for routine examination.
- Apical pulse provides a more accurate assessment of heart function, particularly when tachycardia present

Heart rate

- Apical pulse for infants and toddlers under 2 years
- Count for 1 full minute
- Will be increased with: crying, anxiety, fever, and pain

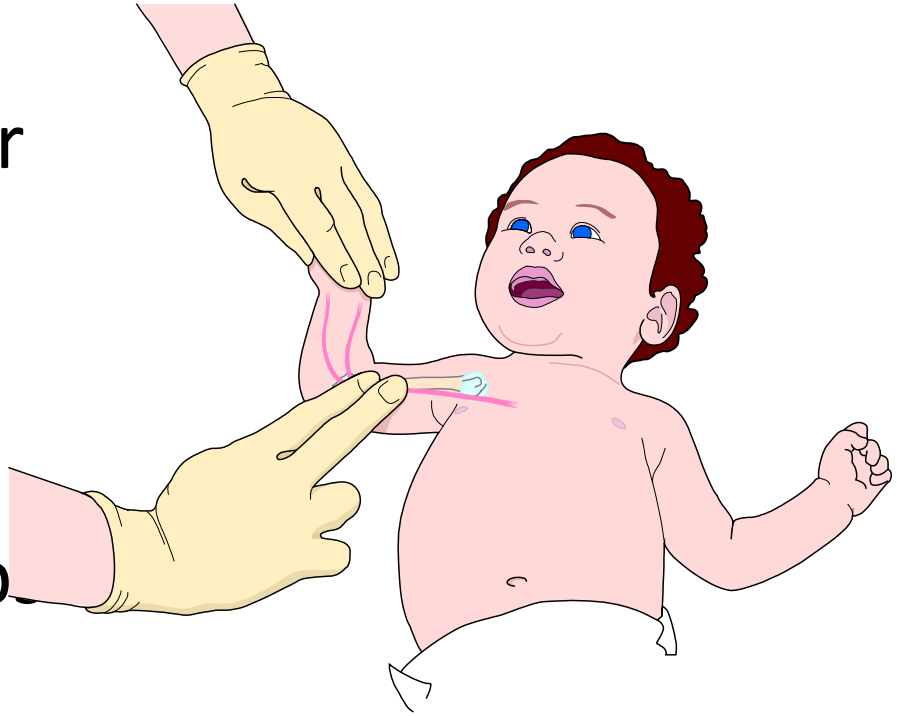
Pulse rates

- Neonate: 100 – 180
- 1-year: 100 – 160
- 3 years: 80- 110
- 14 years 60 - 100

Apical Pulse

Pulse - Brachial

- Used for infants and small children
- Place fingertips of first 2 or middle 3 fingers over the brachial pulse area
  - Inside of the elbow
- Lightly press your fingertip on the pulse area



Respiration

- The exchange of gases between a living organism and its environment.
- The mechanical act of breathing in air (inspiration) and expelling air (expiration) from the body.

Normal Respirations:

- Effortless
- Regular
- Smooth

Respiratory

- Count for one full minute
- May want to do before you wake the infant up
- Rate will be elevated with crying / fever
  - Newborn: 30 – 60
  - Toddler: 25- 40
  - School-age: 18 - 30
  - Adolescent: 16- 20

Normal respirations.

Chest and abdoman rise with inspiration.

Blood Pressure

- The width of the rubber bladder should cover two thirds of the circumference of the arm, and the length should encircle 100% of the arm without overlap.
- Crying can cause inaccurate blood pressure reading.
- Consider normal for age.

Blood Pressure

- **Systolic blood pressure** is the highest pressure reached in the arteries as the heart pumps blood out for circulation through the body.
- **Diastolic blood pressure** is the much lower pressure that occurs in the arteries when the heart relaxes to take blood in between beats.

Blood Pressure

Approximate Age Range	Systolic Range	Diastolic Range
1-12 months	75-100	50-70
1-4 years	80-110	50-80
3-5 years	80-110	50-80
6-13 years	85-120	55-80

Oxygen Saturation

- **Oxygen Saturation** provide important information about cardio-pulmonary dysfunction and is considered by many to be a fifth vital sign.

1. General appearance

General appearance and behavior of new born.

- Flexion position
  - Head flexed, chin resting on the upper chest, arm flexed with hand clenched and the feet dorsiflexed.
- Check vital sign

a. Skin

- Skin reddish in color, smooth and puffy at birth
- At 24 - 36 hours of age, skin flaky, dry and pink in color
- Edema around eyes, feet, and genitals
- Turgor good with quick recoil < 2 sec
- Mongolian spots: are large patches of bluish colored skin with wavy border often seen in sacral area.
- Bruises, cyanosis

a- Skin

- Check for color variations—such as increased or decreased
- pigmentation, pallor, mottling, bruises, erythema,cyanosis, or jaundice
- Some variations in skin color are common and normal, such as freckles found in the white population and Mongolian spots found on dark-skinned

a- Skin

- When a skin color abnormality is suspected, inspect the buccal mucosa and tongue to confirm the color change.
- Generalized cyanosis is associated with respiratory and cardiac disorders.
- Jaundice is associated with liver disorders.

a- Skin

- Cord clamp tight and cord drying
- Jaundice, note in seclera
- Colour of the skin depends on the familial and racial back ground.
- Texture is soft, smooth skin
- Rashes, petechia, scar, lesions (describe location,size and characteristics)

Skin cont…

Skin cont…

- **Vernix caseosa** - The white, cheesy substance covering the newborn's body. Often present only in the skin folds.
- **Lanugo** - Fine downy body hair usually distributed over shoulders, sacral area, and back of newborns. Usually disappears before birth or shortly after birth.

b. Head

- Contour of the head.
- Six bones:
  - Frontal bone
  - Occipital bone
  - Two parietal
  - Two temporal bone

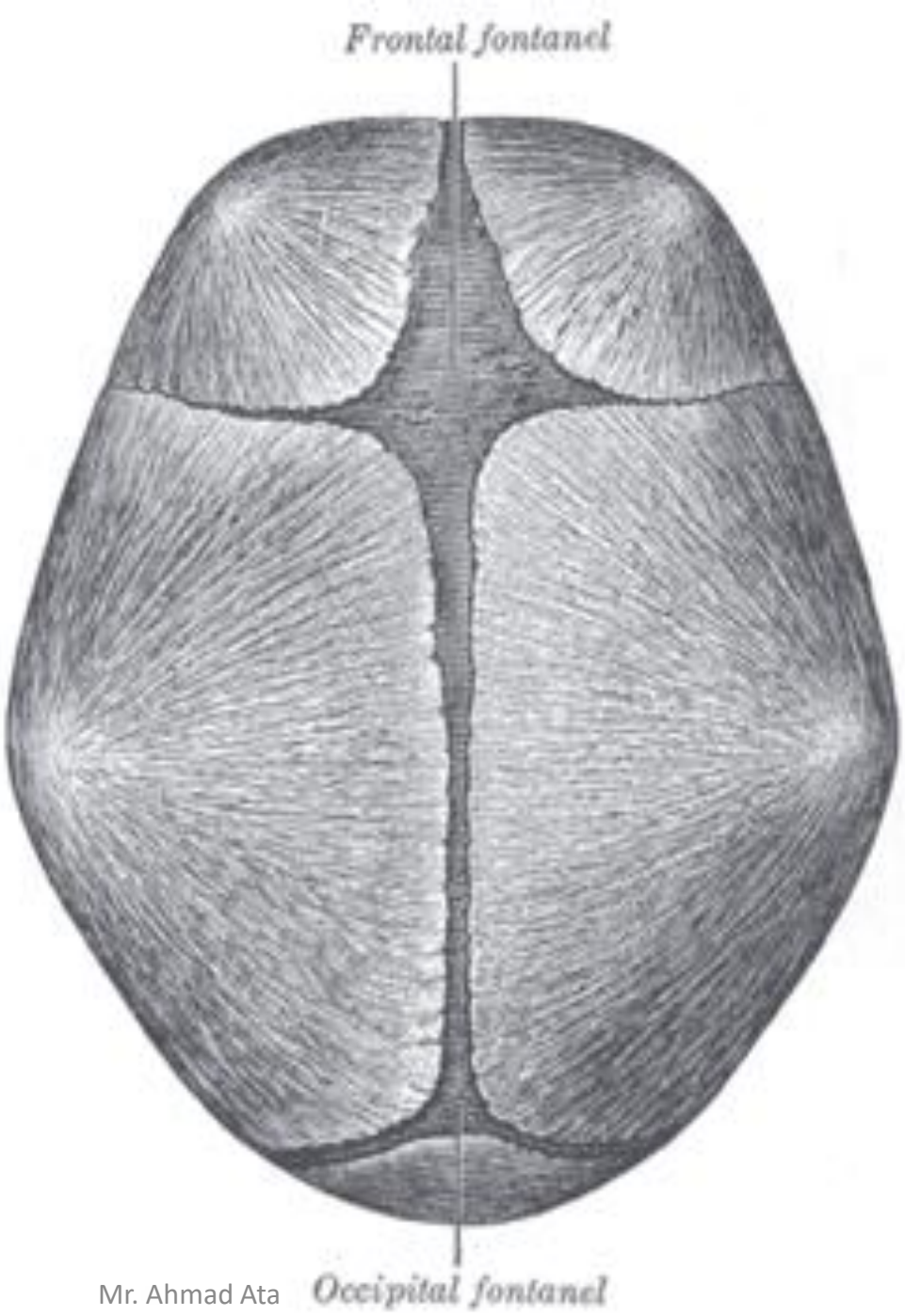
- Between the junction of these bone are bands of connective tissue called **S*utures.***
- At the junction of the are wider spaces unossified membranous tissue called ***Fontanels***

Head

- **Expected findings:**
- Anterior fontanel diamond shaped 2-3 to 3-5 cm
- Posterior fontanel triangular 0.5 - 1 cm
- Fontanels soft, firm and flat
- Sutures are fibrous connetions between the bone.
- Bulging indicates increase intracranial pressure
- Sunken indicates dehydration

Cont … head

- Check fontanels:
  - Anterior: 12 to 18 months
  - Posterior: closes by 2-3 months
- head control usually establish by 6 month


Frontal fontanel
Occipital fontanel

b. Hair

- Inspect the scalp hair for color, distribution, and cleanliness.
- The hair shafts should be evenly colored, shiny, and either curly or straight.Variation in hair color not caused
- Normally, hair is distributed evenly over the scalp

C. Eyes

- Slate gray or blue eye color
- No tears
- Fixation at times - with ability to follow objects to midline
- Corneal reflex
- Distinct eyebrows
- Cornea bright and shiny
- Pupils equal,reactive to light, round and clear
- Hypertelorism: widely spaced eye.

Eyes

- Sclera should be white and clear.
- Yallowish sclera indicate jaundice
- strabismus may present
- Sunken or bulging
- Strabismus:
  - Alignment of eye important due to correlation with brain development
  - May need to corrected surgically

Normal eye alignment

Crossed eyes (strabismus)

Common variations

- Edematous Eyelids

- May focus for a few seconds

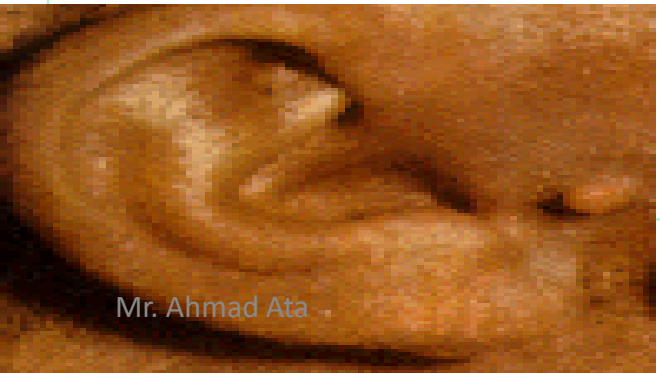
- Uncoordinated movements

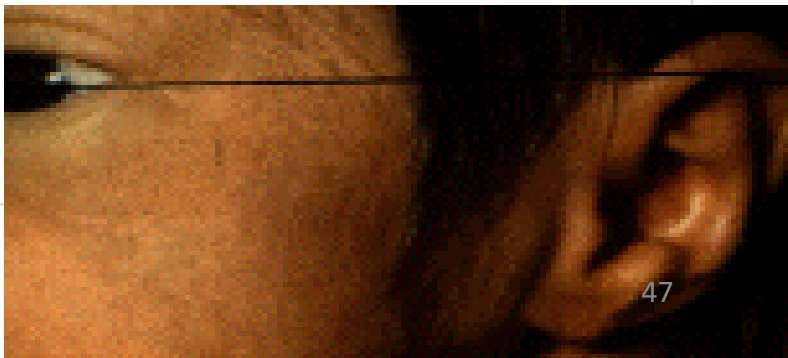
Signs of potential distress or deviations from expected findings:

- Discharges
- Opaque lenses
- Absence of Red Reflex
- Reflexes absent
- **"Doll's Eyes" Reflex** (beyond 10 days of age):
  When the head is moved slowly to the right or left, the eyes do not follow nor adjust immediately to the position of the head.

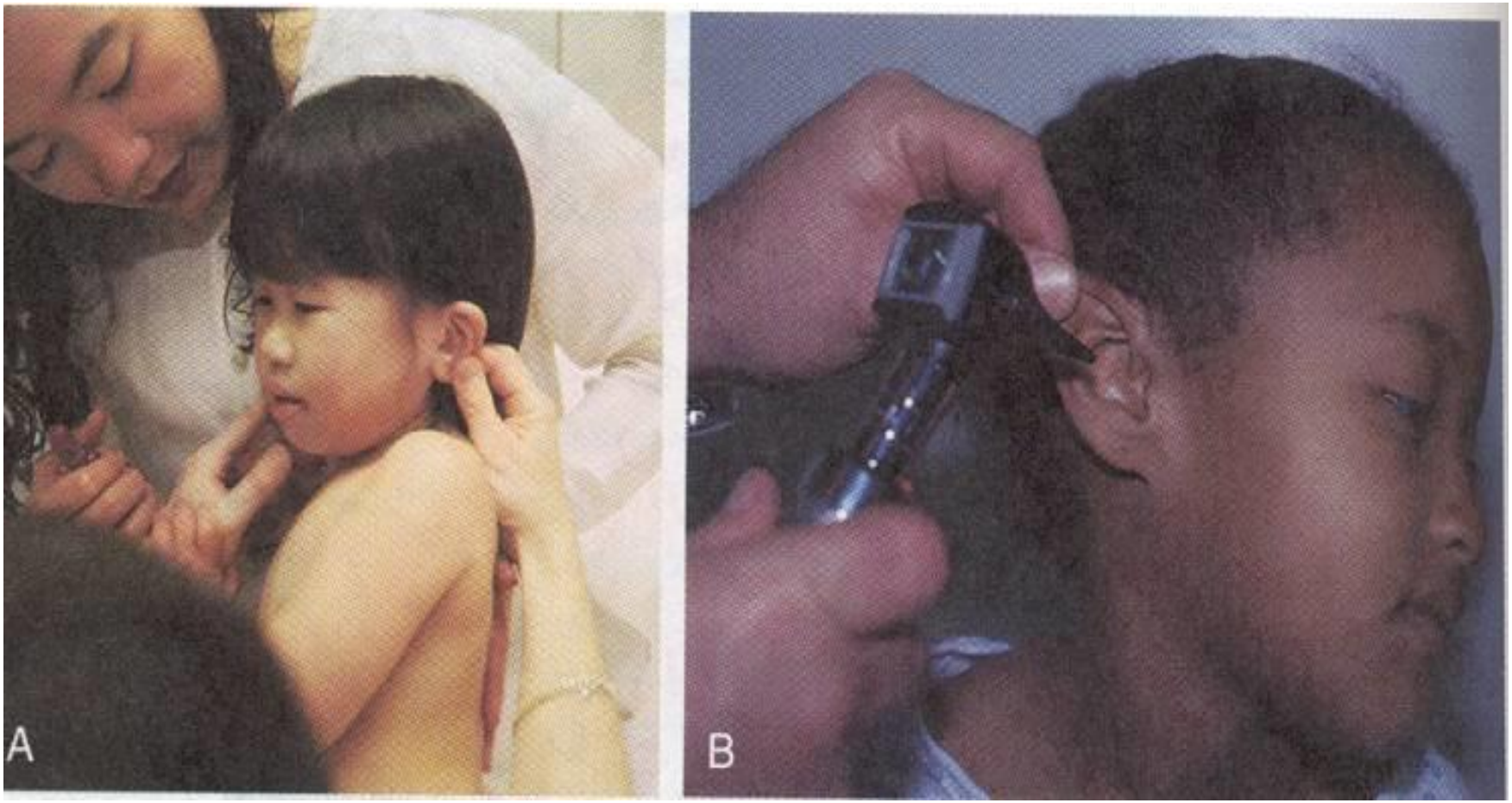
Ears

- **Ears Expected findings:**
- Loud noise elicits Startle Reflex
- Flexible pinna with cartilage present
- Pinna top on horizontal line with outer canthus of eye, if pinna is lower outer canthus may indicate congenital anomalies





Ear Exam



pulled down and back to straighten ear canal in children under 3 years

Nose

- **Expected findings:**
- Nostrils patent bilaterally
- Obligate nose breathers
- No nasal discharge

Common variations:

- Sneezes to clear nostrils
- Thin white nasal mucus discharge

Mouth and Throat

Expected findings:

- Uvula midline
- Minimal or absent salivation
- Tongue moves freely and does not protrude
- Well developed fat pads bilateral cheeks
- Sucking reflex
- Rooting reflex
- Gag reflex

Mouth and Throat

- **Mucosa moist.** Shortly after birth may visualize sucking calluses on central portions of lips.
- **Palate** high arched:
- *Cleft lip or cleft palate*

- **Common variations:**
- **Epstein's pearls** on ridges of gums

Common variations:

- **Epstein's pearls** on ridges of gums, small, white.
- Lingual frenulum: tight.
- Frenuloplasty
- Uvula can be inspected when open mouth.

Neck

Expected findings:

- Short and thick
- Turns easily side to side
- Clavicles intact
- Tonic neck reflex present
- Some head control

Neck

- Range of motion.
- Shape.
- Abnormal mass.
- Palpate clavicle for fracture
- *Palpable crepitus, movement with palpation of clavicle*
- *Torticollis-stiff neck:* difficulty in holding head straight.

Chest

- **Expected findings:**
- Protruded xiphoid process.
- Shape is circular: Equal anteroposterior and lateral diameter.
- Ribs are very flexible and slight intercostal retraction
- Bilateral synchronous chest movement

Chest

- Breast:

➢ Size, shape and nipple formation.

➢ Location symmetry.

➢ With’s milk.

Breast

Signs of potential distress or deviations from expected findings:

- Asymmetrical chest movements
- Sternum depressed
- Marked retractions
- Absent breast tissue
- Flattened chest
- Nipples widely spaced
- Bowel sounds auscultated

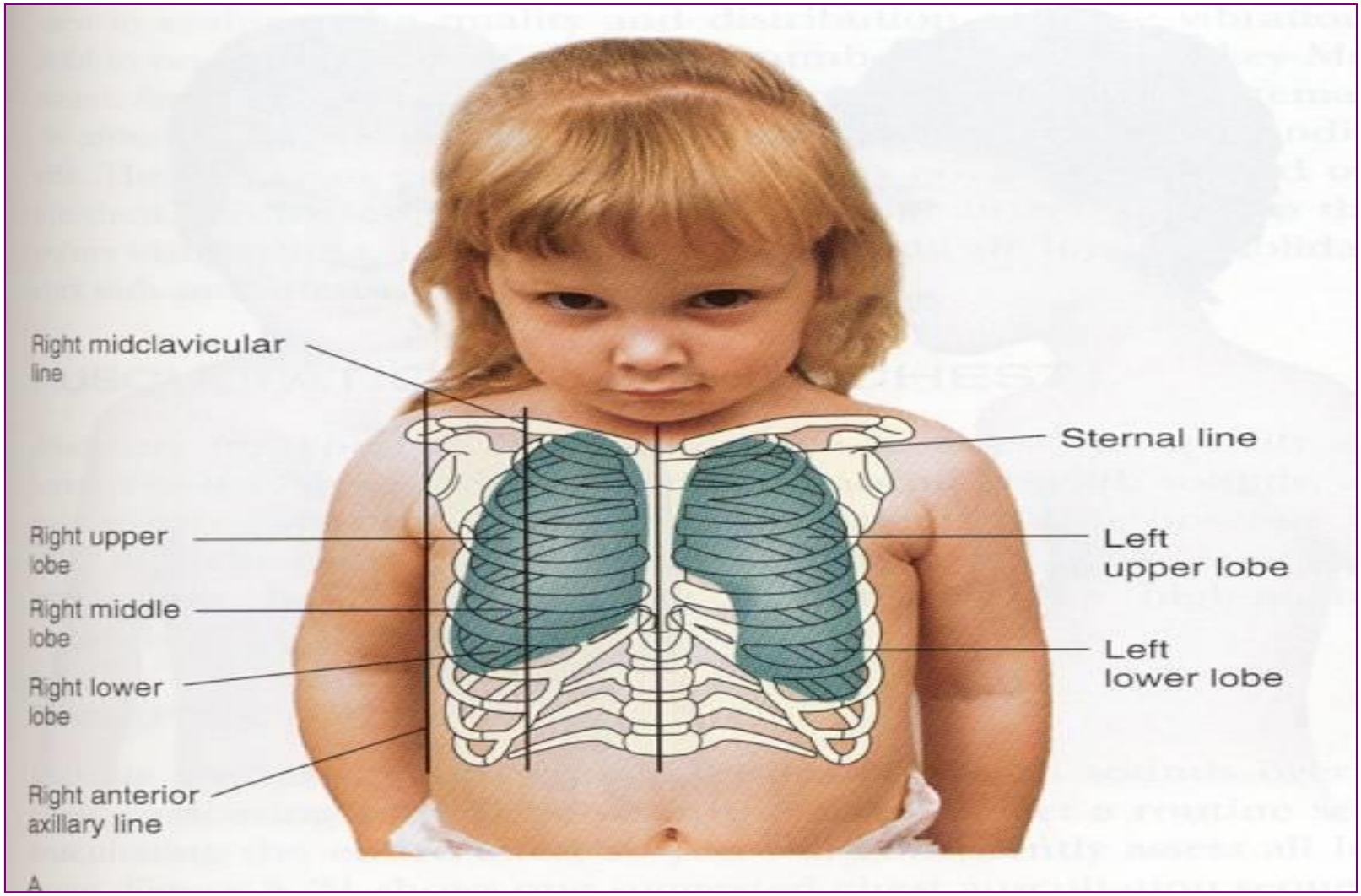
Lungs

- The normal respiration are irregular and abdominal.
- The rate is between 30- 60b/m.
- Irregulataries occur during crying, sleeping and feeding.
- Bronchial equal bilaterally
- Crackles soon after birth may indicate presence of fluid.
- Wheezing or stridor.

Wheeze or Stridor

- Wheezes occur when air flows rapidly through bronchi that are narrowed nearly to the point of closure.
- Wheezes is lower airway
  - Asthma = expiratory wheezes
- A stridor is upper airway
  - Inflammation of upper airway or FB

Child Chest


Right midclavicular line
Sternal line
Right upper lobe
Left upper lobe
Right middle lobe
Left lower lobe
Right lower lobe
Right anterior axillary line
A

Chest assessment

- Retractions
  - Subcostal
  - Intercostal
  - Sub-sternal
  - Supra-clavicular

  - Red flags: grunting / nasal flaring

Table 1. Signs Of Respiratory Distress In The Child.

Tachypnea
Use of accessory muscles
Nasal flaring
Position of comfort
Tripod position
Grunting respirations
Cyanosis

Heart

- Heart rate: 100 – 180b/m after birth.
- The Point of Maximums Impulses (PMI).
- 4^{th} to 5^{th} intercostals space.
- Give us the location of the heart (congenital diaphragmatic hernia or hemothorax.
- Dextrocardia: heart in the right side.
- Murmur: represents the incomplete functional closure of fetal shunt.

Abdomen

- Shape is cylindrical and with few visible vein.
- Bowl sound are heard within 15 – 20 m after birth.
- Umbilical cord presence two arteries and one vein.
- After clamping, it begins to dry and dull yellowish.
- If umbilical cord appear unusually in diameter may indicate hematoma or small omphalocele.

Abdomen

- Liver palpable 2 - 3 cm below right costal margin
- Bilaterally equal femoral pulses
- Voiding within 24 hours of birth
- Meconium within 24 - 48 hours of birth

Male Genitalia

- **Expected findings:**
- Urinary meatus at tip of glans penis
- Palpable testes in scrotum
- Large, edematous, pendulous scrotum, with rugae
- Stream adequate on voiding
- **Common variations:**
- Prepuce covering urinary meatus
- Erections
- Increased pigmentation
- Edema and ecchymosis after breech delivery

Male Genitalia

- Smegma: a white cheesy substance is commonly around the glans penis.
- Epithelial pearls: small, white firm lesion may be seen at the tip of prepuce

- **Signs of potential distress or deviations from expected findings:**
- Non palpable testes
- Hypospadius
- Epispadius
- Scrotum smooth
- Ambiguous genitalia
- inguinal hernia.

Female Genitalia

Expected findings:

- Edematous labia and clitoris
- Labia majora are larger and surrounding labia minora
- Vernix between labia

Common variations:

- Hymenal tag
- Pseudomenstruation
- Increased pigmentation
- Ecchymosis and edema after breech birth.

- **Signs of potential distress or deviations from expected findings:**
- Labia fused
- Fecal discharge from vaginal opening
- Ambiguous genitalia
- Widely separated labia

Back and Rectum

Expected findings:

- Intact spine without masses or openings
- Patent anal opening
- "Wink reflex" present

Signs of potential distress or deviations from expected findings:

- Limitation of movement
- Spina bifida
- Imperforate anus
- Anal fissures
- Pilonidal cyst

Extremities

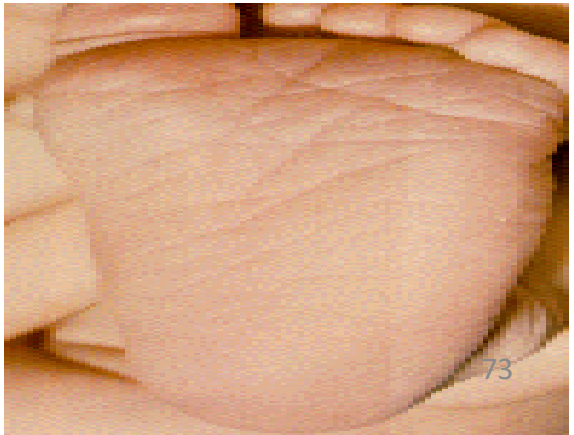
Expected findings:

- Maintains posture of flexion
- Equal and bilateral movement and tone
- Full range of motion all joints
- Ten fingers and ten toes
- Grasp reflex present
- Legs appear bowed

- **Feet appear flat**

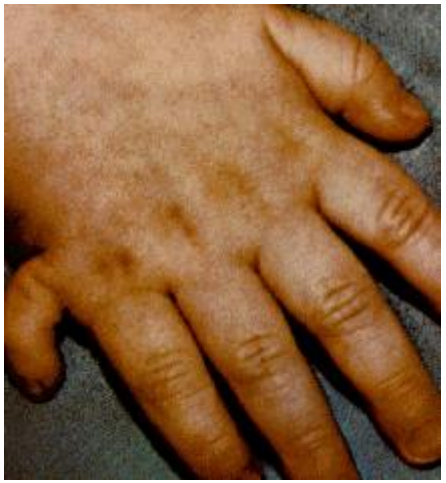
- **Palmar creases present**

- **Sole creases present**



- **Signs of potential distress or deviations from expected findings:**
- Unequal tone
- Asymmetrical movement of extremities
- Syndactyly
- Unequal leg length
- **Asymmetrical skin creases posterior thigh**
-

- Dislocation of hip
- Persistent cyanosis of nail beds
- **Polydactyly**



APGAR TEST

The Apgar score rates:

Respiration, crying

Reflexes, irritability

Pulse, heart rate

Skin color of body and extremities

Muscle tone

What is it?

- A test developed in 1952 by Dr. Virginia Apgar
- A baby's first test
- Quick assessment of the newborn's overall well-being
- Given one-minute after birth and five minutes after birth
- Rates 5 vital areas

Why is it done?

- To assess the baby's vital signs quickly

- The score is helpful for later evaluations

The 5 Signs:
1. The baby's color

Color:

a. Pale or blue = 0

b. Normal color body, but blue extremities (arms and/or legs) = 1

c. Normal color = 2 – completely pink

2. The baby's respiratory effort

Respiration:

a. Not breathing = 0

b. Weak cry, irregular breathing = 1

c. Strong cry = 2

- 2 points for a strong cry
- 1 point for a slow or weak cry
- 0 points for no cry at all

3. The baby's heart rate

Heart Rate:

a. Absent heartbeat = 0

b. Slow heartbeat (less than 100 beats/minute) = 1

c. Adequate heartbeat (more than 100 beats/minute) = 2

- 2 = good strong heartbeat
- 1 = slow but steady heartbeat
- 0 = little or no heartbeat

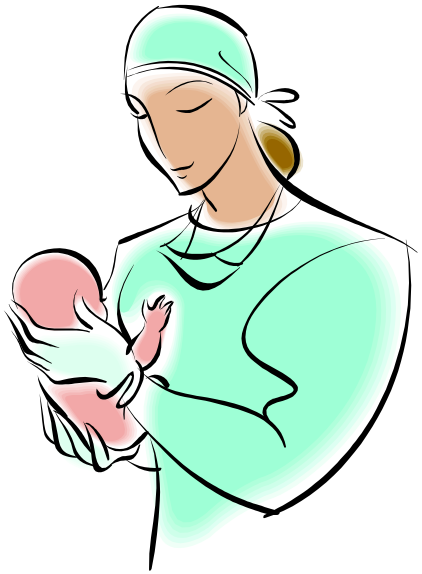
4. The baby's muscle tone

Muscle Tone:

a. Limp, flaccid = 0

b. Some flexing or bending = 1

c. Active motion = 2



- 2 points for vigorous motion
- 1 point for small flexing
- 0 points for no movement

5. The baby's reflexes

Response to Stimulation

a. No response = 0

b. Grimace (facial expression) = 1

c. Vigorous cry or withdrawal = 2

- 2 points if the baby cries
- 1 point if the baby grimaces (facial expression)
- 0 points for no movement or sound

	Score 0	Score 1	Score 3
Appearance			
Pulse	No pulse	<100/min	>100/min
Grimace			
Activity			
Respirations	No respirations	Weak, Slow	Strong Cry

APGAR Score Interpretation

Score	Intervention
8 – 10 (Eight to ten)	•No intervention is required
4 – 7 (Four to seven)	•Gently stimulate •Rub newborn's back •Administer O2 to the newborn.
0 – 3 (Zero to three)	•Infant requires resuscitation

Example

- A newborn assessed using APGAR scoring system, found with heart rate = 120 bpm, slow and weak cry, well flexed, the newborn found crying and sneezing as a response , and pale ….. how much in APGAR? And what will be your intervention ?.

Answer

The sign	Newborn's findings	The score
Heart rate	120 bpm	2
Respiratory effort	Slow, weak cry	1
Muscle tone	Well flexed	2
Reflex irritability	Sneeze , cry	2
Skin color	Pale	0
Total		7 ???!!!

Growth Measurements

Introduction

- Measurement of physical growth in children is a key element in evaluation of the health status of children.
- Physical growth parameters include height, weight, and head circumference.
- Over all evaluation of growth requires judgment in interpretation of growth percentiles.

Physical growth parameter

1. Weight
2. Height / length
3. Skin fold
4. Head circumferences
5. Chest circumferences

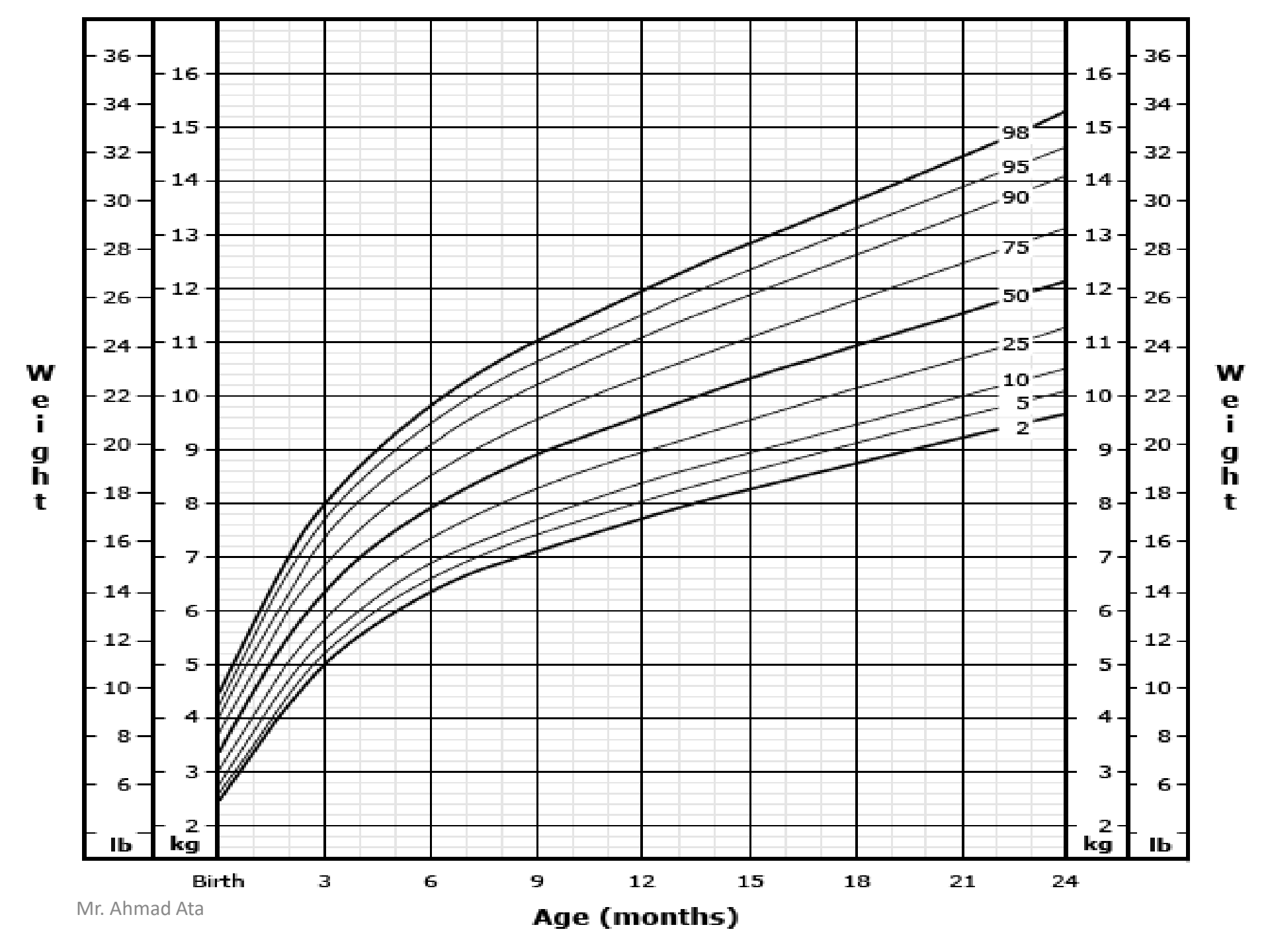
Weight

Note close proximity of nurses hands for safety

Weight

- Needs to be recorded on a growth chart
- Newborn may lose up to 10% of birth weight in 3-4 days.
- Too much or too little weight gain needs to be further investigated.
- Double birth weigh by 5-6 months
- Triple birth weight by 1 year
- Nutritional counseling
- The normal birth weight is 2700- 4000g .

Weight-for-age percentiles, boys 0 to 24 months, WHO growth standards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Birth
3
6
9
12
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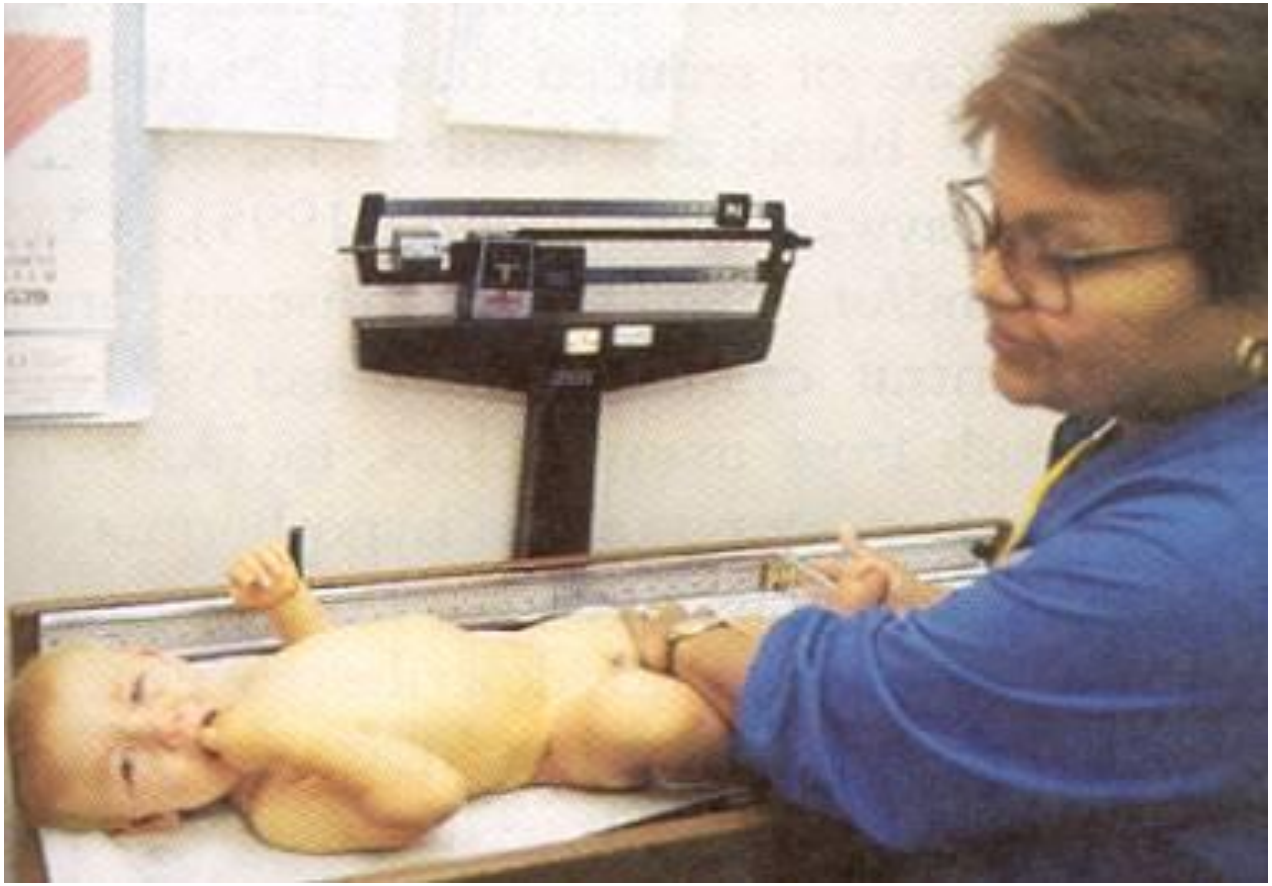
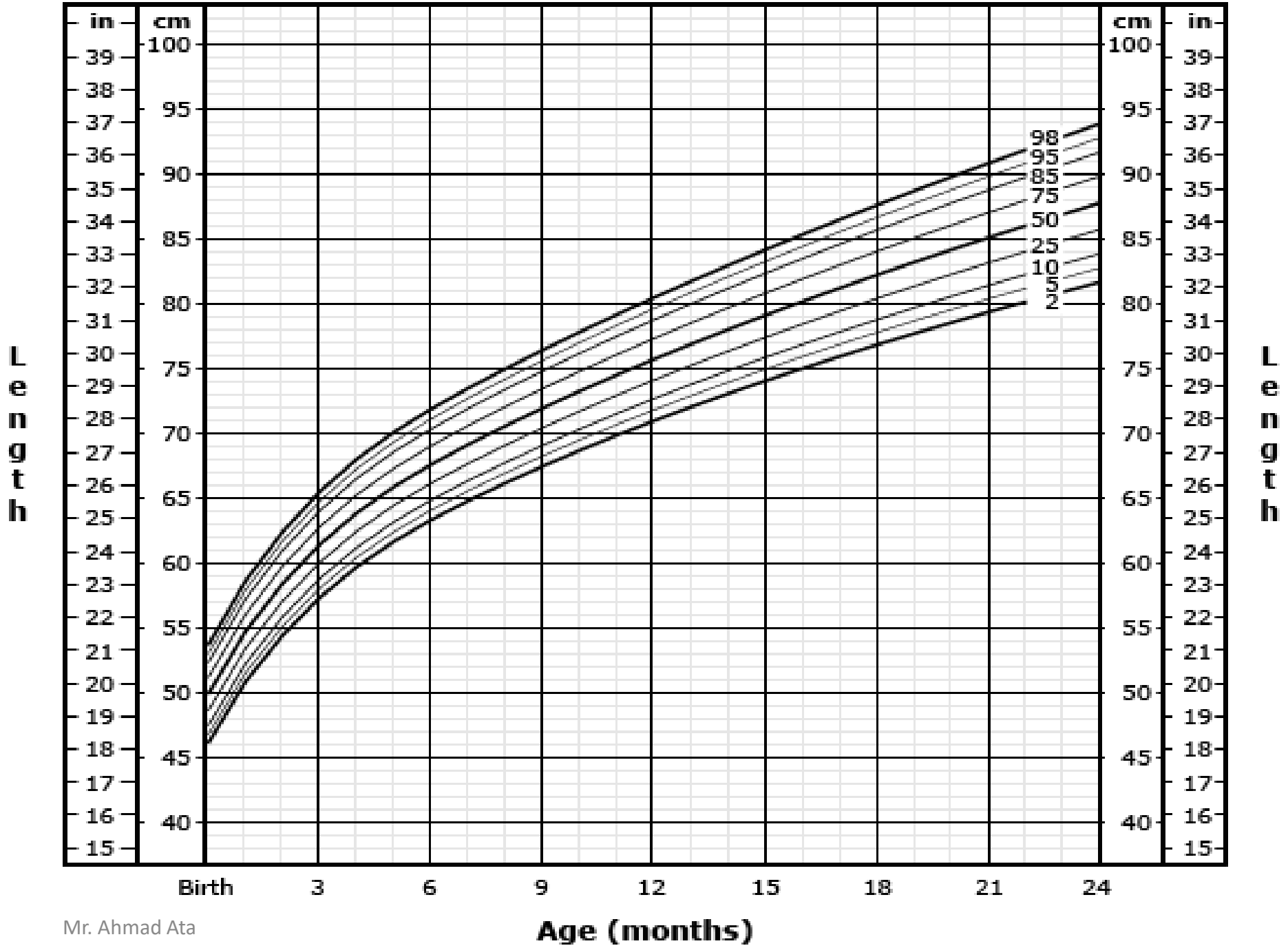
18
21
24
Age (months)

Length Measurement



Infants head is against end point and legs fully extended.

Length-for-age percentiles, boys birth to 24 months, WHO growth standards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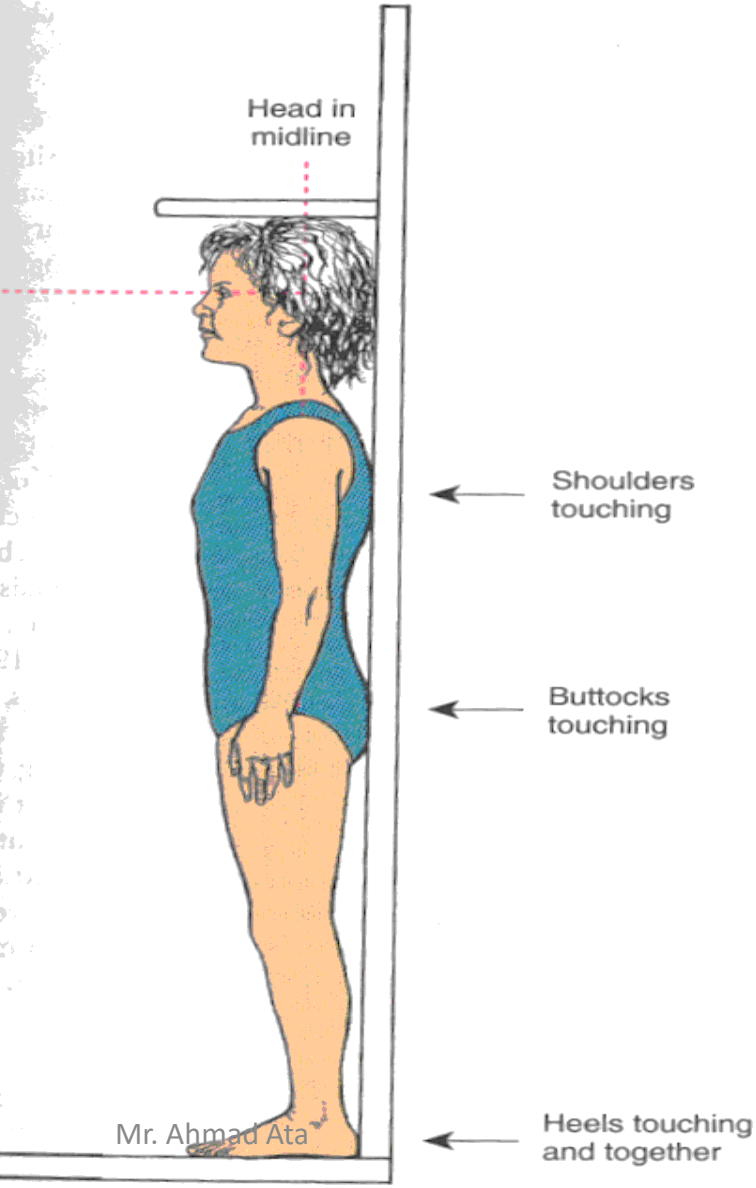
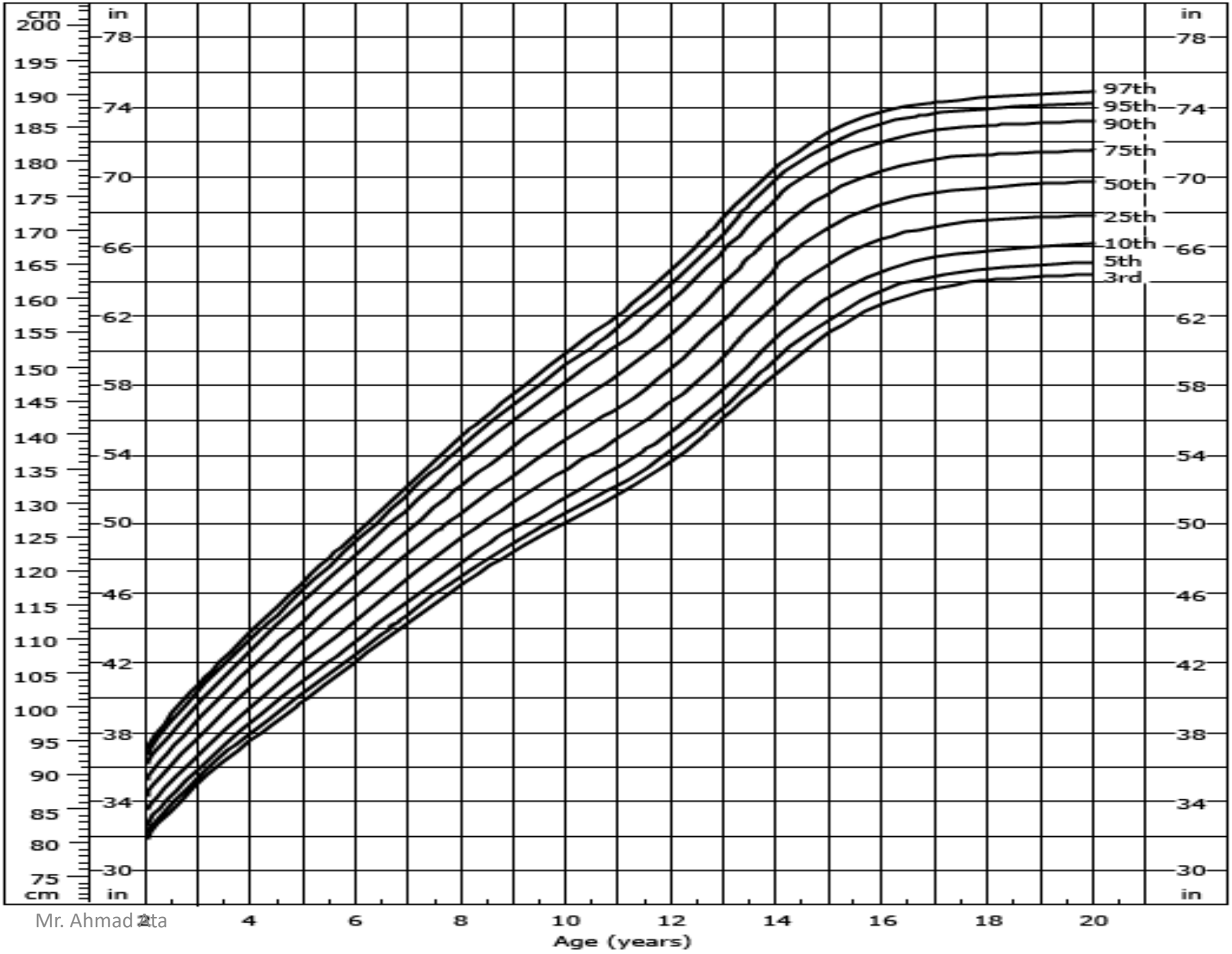
Age (months)

Height Measurement



Child is measured while standing in stocking or bare feet with the heels back and shoulders touching the wall.

Stature-for-age percentiles, boys, 2 to 20 years, CDC growth charts: United States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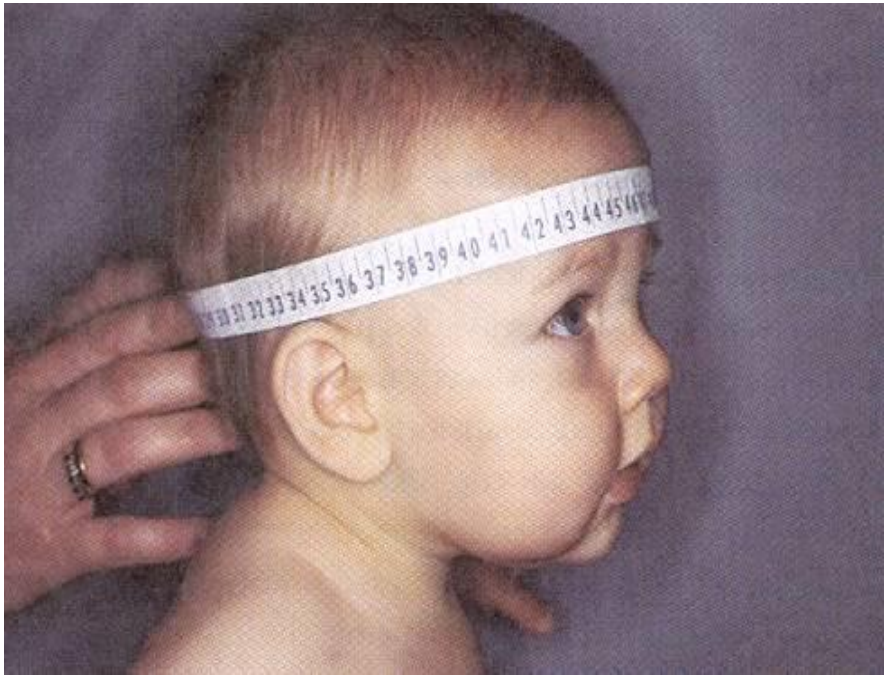
Age (years)

Head Circumference

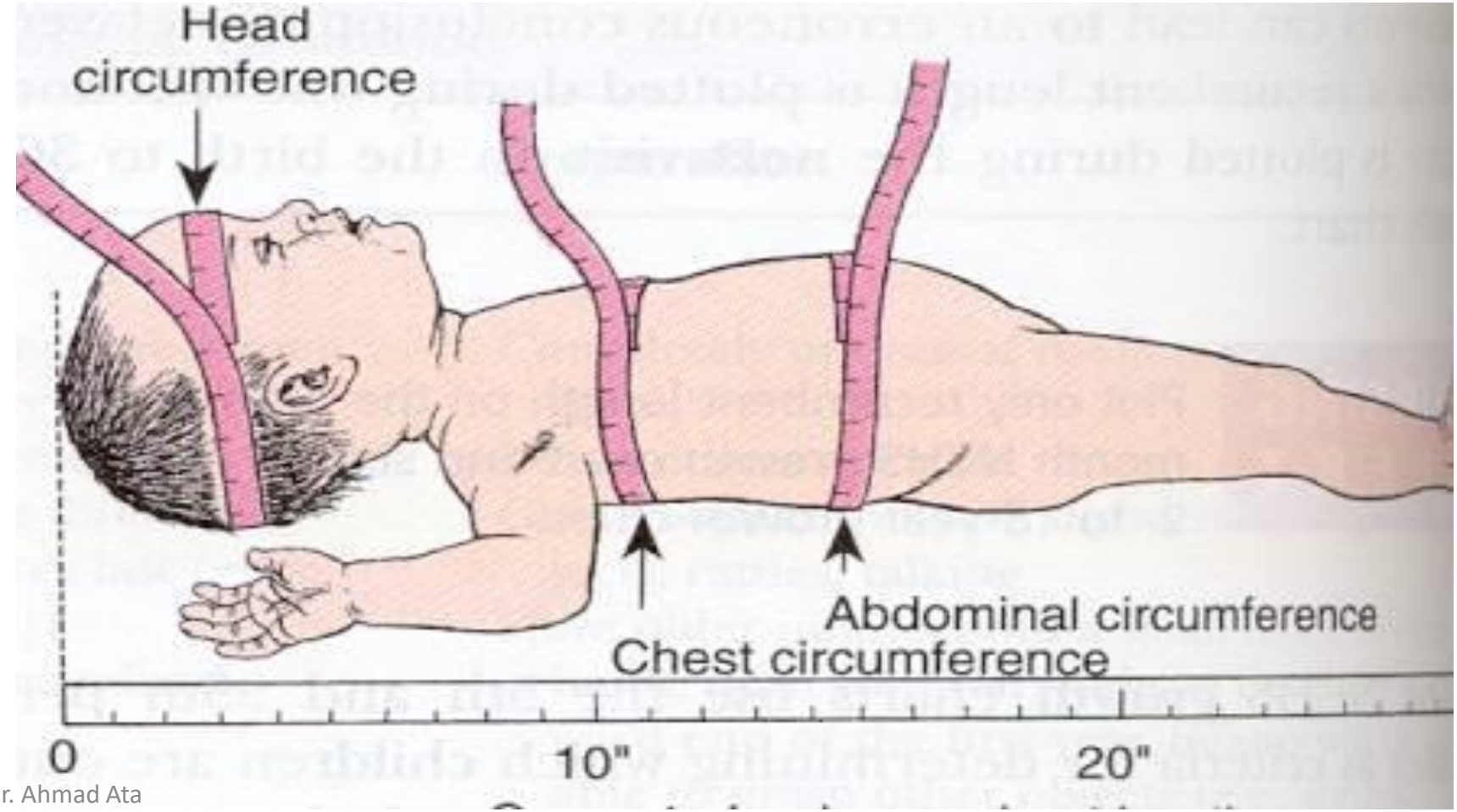


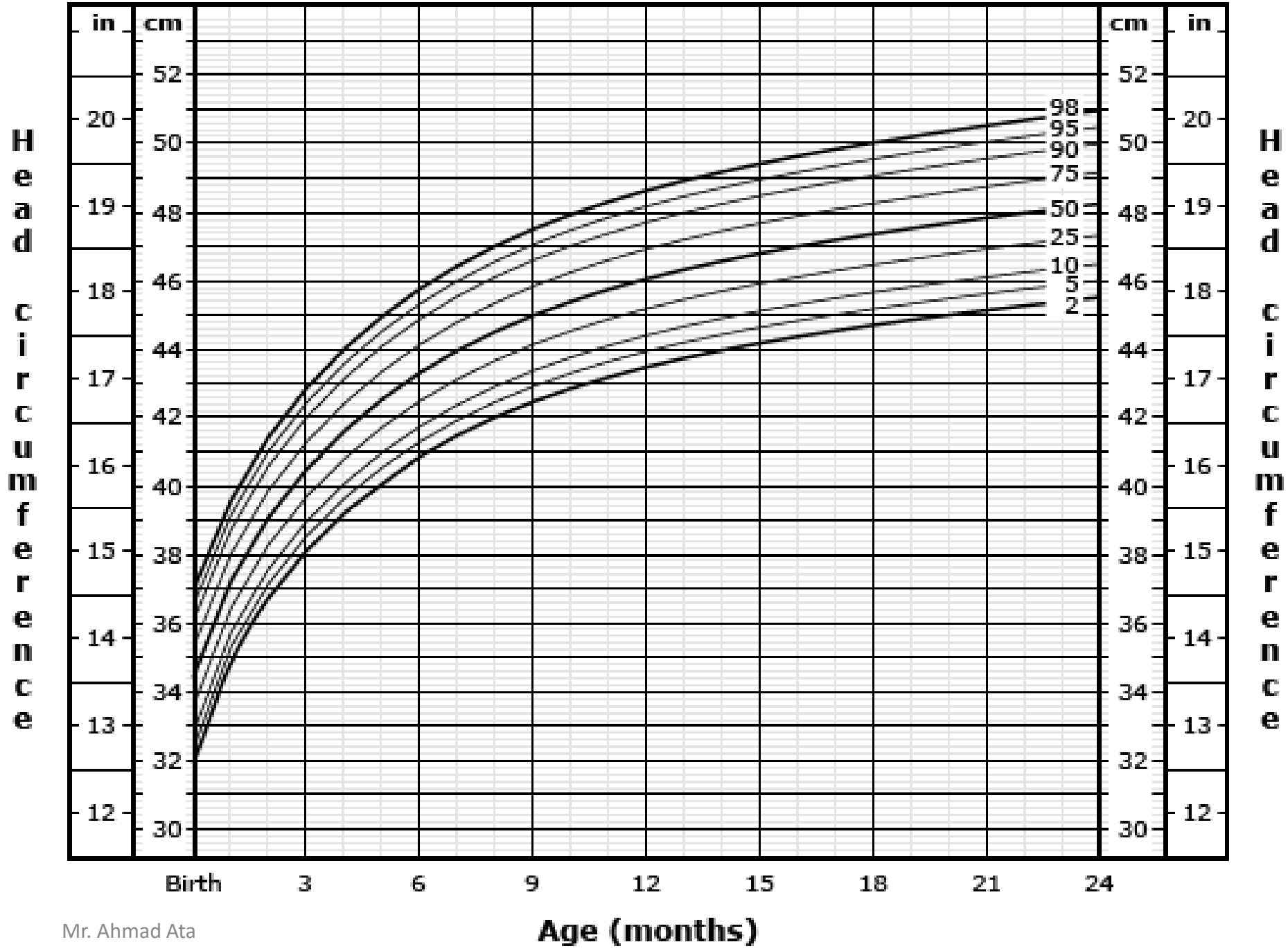
Head circumference is measured by wrapping the paper tape over the eyebrows and the around the occipital prominence.

Head circumference-for-age percentiles, boys 0 to 24 months, WHO growth standards

- Head circumference is measured in children from birth to 3 years of age because this is the period of rapid brain growth.
- Head circumference also should be measured in older children with abnormal growth because it may be helpful in determining the etiology.
- A child with fetal alcohol syndrome, as an example, may have growth deficiency and microcephaly. The measurement should be plotted on a standardized growth chart.

Head, chest, and abdominal circumference.




Head circumference
in
cm
52
20
50
19
48
18
46
17
44
16
42
15
40
14
38
13
36
34
32
12
30
98
95
90
75
50
25
10
5
2
Birth
3
6
9
12
15
18
21
24
Age (months)

Normal Growth measures

- Head circumference : 33- 35.5 cm
- Chest circumference : 30.5- 33 cm, 2 cm less than head circumference.
- Length: head (cephalic) to heal: 48- 53 cm
- Body weight : 2700- 4000 g. (loses 10% of weight in the first 3 to 4 days after birth).

What is failure to thrive

- Children who are unable to thrive do not receive or are unable to adopt, maintain, or use the calories, was supposed to gain weight and grow as expected.