

ASSESSMENT OF THE BREASTFED INFANT

Evelyne Ruf, MD, IBCLC
Lactation Clinic
Family Health Promotion Center, Sharjah

Objectives

- List the essential components of a perinatal history
- List the essential components of a clinical assessment
- Describe the different methods used for infant's oral assessment

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PLAN

- **Introduction & Resources**
- Perinatal History
- Global Observation of the Infant
- Oral Assessment of the Infant
- Conclusion

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Introduction

- All body systems participate in feeding:
 - Gastrointestinal and renal systems (obvious)
 - Heart, lungs, circulatory systems (aerobic exercise)
 - Musculoskeletal system (stability during feeding, and milk transferring process)
 - Liver and pancreas (energy for each cell through glucose metabolism)
 - Nervous system (direct the activities of all other systems)
- Many other factors affecting feeding:
 - Pre-existing medical diagnosis (mother/infant)
 - Gestational age

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Introduction (cont.)

- Fundamentals of a lactation consultation:
Comprehensive history and clinical assessment of the
 - mother,
 - infant,
 - feeding
- Booking consultation takes time, but is the necessary step to provide appropriate management...

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Resources

A



'Supporting Sucking Skills'
Catherine Watson Genna,
2nd Ed. (2013)

B



'BF and Human Lactation'
Jan Riordan & K. Wambach
5th Edition (2016)

C



'Core Curriculum'
ILCA
3rd Edition (2013)

'The BF Atlas'
Wilson-Clay & Hoover,
4th Edition (2008)
and CD from 2nd edition



D

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○ PERINATAL HISTORY

- **Essential components**
- Classification of infants

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Essential Components

- Family history
 - Genetic disorders, chronic disorders
- Psychosocial history
 - Age/education/socio-economic status/tobacco...
- Maternal medical history
- Maternal reproductive history
- Pregnancy history
- Intrapartum history
- Breastfeeding history

BF & HL, Table 19-1

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Looking for Risk factors for Primary Low Milk Production

- H/o infertility?
- PCOS?
- H/o prolactin disorders?
- Thyroid disorders?
- H/o breast trauma / breast surgery?
- Chronic disease / chronic Rx?
- Breast growth during pregnancy?
- Any issue during pregnancy (GDM, severe anemia)?

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Looking for Risk factors for Delayed Lactogenesis phase II

- Stress/pain (e.g. difficult birth / deep episiotomy)
- Severe hemorrhage / blood transfusion?
- Skin-to-skin?
- Timing of initiation of BF/hand expression?
- When breast changes occurred early pp?
- Which type of changes (minimal, moderate, physiological engorgement, pathological)?
- *In case of severe engorgement, what was done? After how long?*
- Lochia?

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Looking for Risk factors for Infant's Ability to Breastfeed

- Gestational age?
- Prolonged labour / prolonged phase II?
- Instrumental delivery? / C/S ?
- Apgar?
- Resuscitation?
- Admission in NICU?
- Intubated? Other intervention?
- Any congenital anomaly suspected / diagnosed?
- Phototherapy?
- Feeding history (what, when, how)?

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Previous Breastfeeding History / Family Situation

- Gravida / Para / Living?
- Age range of previous children?
- Previous BF duration?
- If any, when AM introduced?
- For which reason?
- If any, which breastfeeding difficulties?

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Mother's Own Health

- Working outside? Inside the house?
- Which support available ?
- Active or passive smoking?
- Diet
- Sleep
- Any other issue (depression, abuse...)?

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PERINATAL HISTORY

- Essential components
- **Classification of infants**
 - ❖ According to birth weight
 - ❖ According to gestational age (GA)
 - ❖ According to weight for gestational age

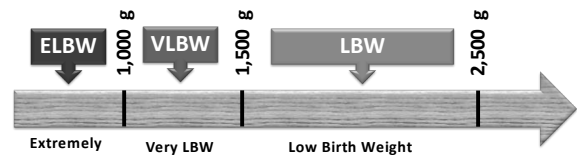
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Classifications: ... According to BIRTH WEIGHT



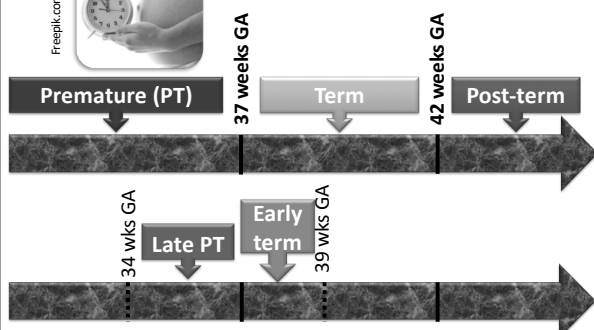
< 2,500 g → Low Birth Weight irrespective of gestational age



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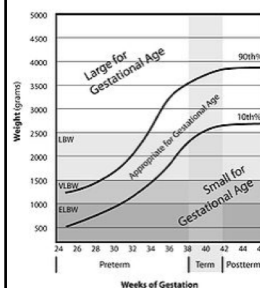
... According to GESTATIONAL AGE (GA)



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... According to WEIGHT FOR GESTATIONAL AGE



- **Small for Gestational Age (SGA)** weight is below the 10th percentile at GA
- **Appropriate for GA (AGA)** normal birth weight
- **Large for Gestational Age (LGA)** weight is above the 90th percentile at GA

https://en.wikipedia.org/wiki/Small_for_gestational_age

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○ GLOBAL OBSERVATION OF THE INFANT

- **Physical newborn examination** (pediatrician)
- Skin color
- Tone
- Grading of movements
- Symmetry
- Sleep/awake states
- Respiratory pattern

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Newborn Physical Assessment (by Pediatrician)



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Newborn Physical Assessment (end)

- Vital Signs
- Measurement
- Skin
- Head
- Eyes
- Ears
- Nose
- **Mouth/Throat**
- Neck
- Chest
- Lungs
- Abdomen
- Genitalia
- Back/Rectum
- Extremities

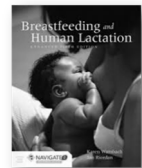


Table 19-3:

- Normal
- Normal Variations
- Abnormal

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Skin Colour

Changes in colour can reflect ↓ oxygenation / stress:
– Most apparent around the mouth, eyes, nipples, hands and feet

- Mottling: chilled infant
- Pallor, duskiness (darkness) and cyanosis (blueness): reduced tissue oxygenation
- Flushed and ruddy colorations: sign of autonomic instability or ↑ red blood cells (!hyperbilirubinemia)
- Gray: ?cardiac problem

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Skin Colour (cont.)



'Supporting Sucking Skills' **A**

1

Circumoral and periorbital cyanosis

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Skin Colour (cont.)



'The Breastfeeding Atlas'

Mottling on the trunk (cold stress)

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Skin Colour (cont.)

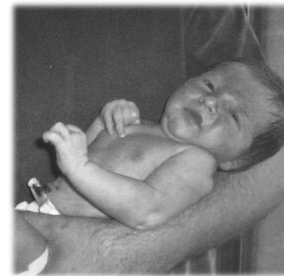


Jaundiced baby 'The Breastfeeding Atlas 3rd ed.'

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Skin Colour (cont.)



Jaundiced baby (compared with normal skin) 'The Breastfeeding Atlas' fig. 23

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Skin Colour (cont.)



Identifying jaundice: press on skin – observe underlying skin tone 'The Breastfeeding Atlas' fig. 23-24

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Skin Colour (cont.)

Screening for neonatal jaundice

Blichek, Respironics, Inc. Murrysville, PA (USA)



Transcutaneous bilirubin

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Serum bilirubin (heel prick or hand venous sampling)

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Which one is the less stressful for the newborn?

'The Breastfeeding Atlas'

Skin Colour (cont.)

Phototherapy



Fiberoptic biliblanket

'The Breastfeeding Atlas' fig. 26



Traditional phototherapy

'The Breastfeeding Atlas' Fig. 27

Which one is less stressful for the newborn?

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Skin Colour (cont.)



Normal newborn rash

'The Breastfeeding Atlas' Fig.12

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Skin Colour (end)



Neonatal sepsis (petechiae)

'The Breastfeeding Atlas' fig. 13

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Other Skin Findings



"Stork Bites" on forehead (nevus simplex)

The Breastfeeding Atlas fig. 38

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Other Skin Findings (cont.)



Forceps bruise

'The Breastfeeding Atlas' fig. 15

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Other Skin Findings (cont.)



Vacuum abrasion of the scalp

'The Breastfeeding Atlas' fig. 16

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Other Skin Findings (end)



Fetal monitor scab
'The Breastfeeding Atlas' fig. 17

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○ GLOBAL OBSERVATION OF THE INFANT

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Hypotonia



Normal tone/Head lag (infant with Down Syndrome)
'The Breastfeeding Atlas' fig. 350

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Hypertonia



Arching (causes hyperextension)
'The Breastfeeding Atlas' Fig. 358

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○ GLOBAL OBSERVATION OF THE INFANT

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Grading of Movement

- **Smoothness of movement** (infant grading) generally depends on **stability**:
 - Head and neck support → improves fine motor control in neonates
 - Prone on mother's trunk or abdomen → accurate movement (head lift, bobbing to the breast, smooth jaw movement)
- Depends also of neurological status

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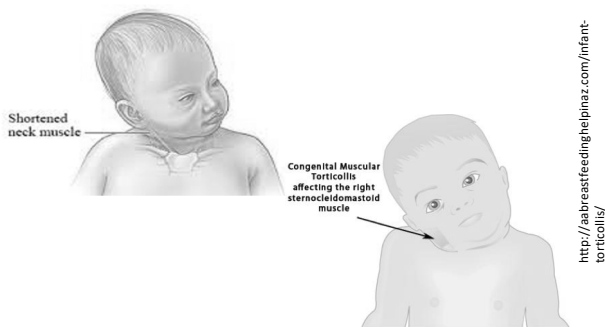
○ GLOBAL OBSERVATION OF THE INFANT

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Symmetry

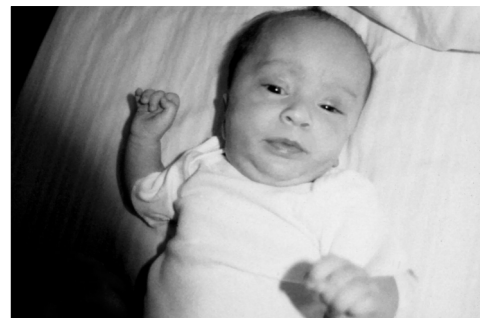
- Symmetry across midline: equal neurological and muscle activity on each side of the body
- Asymmetry can cause feeding difficulties
 - Nerve palsies,
 - Birth injuries,
 - Adverse effects of restricted in utero positioning (e.g. torticollis)

Asymmetry: Infant Torticollis



<https://abreastfeedinghelpinaz.com/infant-torticollis/>

Asymmetry: Infant Torticollis (cont.)



'The Breastfeeding Atlas'

Torticollis (cont.)



<https://narrowphysiotherapy.ca/torticollis/>

Consequence: Plagiocephaly



And after osteopathic treatment:

www.osteopathichealinghands.com/ultimate-guide-plagiocephaly-torticollis/

Other Causes of Asymmetry (cont.)



Flat ear owing to breech position
'The Breastfeeding Atlas' fig. 18

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Asymmetry (cont.)



Asymmetry of jaw, lips and cheeks
'The Breastfeeding Atlas'

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Overlapping of Cranial Bones (Newborn)



Physiological (to facilitate birth process).
Bones should then go back to normal (no overlapping, no separation).

Cranial molding (narrow head) in a newborn

'The Breastfeeding Atlas' fig. 19

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Overlapping of Cranial Bones (Pathological)

- Fissure ridges
- Small fontanelle
- Tensions



<https://www.baracocon.com/barbarabarbaracocon.com>

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Asymmetry (cont.)



Cranial asymmetry (premature fusion of cranial sutures)

'The Breastfeeding Atlas' fig. 20

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Asymmetry (end)



Cephalohematoma
'The Breastfeeding Atlas' fig. 21

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○ **GLOBAL OBSERVATION OF THE INFANT**

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- **Sleep/awake states**
- Respiratory pattern

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Infant Sleep/Awake States

- Deep/quiet sleep
- Light/active sleep
- Drowsy
- Quiet alert
- Active alert
- Crying

Ability to move from one state to the other:


- Gestational age
- Neurological status
- Health (jaundice...)

Following description from Table 19-5, BF & Human Lactation 5th Edition

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➢ Deep or Quiet Sleep

- Closed eyes, no eye movement
- Regular breathing
- Relaxed
- Absent body movement (occasional isolated startles)
- Only intense stimuli will arouse him/her




"The Breastfeeding Atlas" fig. 1

→ Do not attempt to feed

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➢ Light or Active Sleep (most frequent)

- Closed eyes with rapid eye movement
- Irregular breathing
- Sucking, smiling, grimacing, yawning
- Some slight muscular twitching of the body
- More easily aroused by stimuli





"The Breastfeeding Atlas" fig. 3

→ Not alert enough to feed (in classical positions)

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➢ Light or Active Sleep (cont.)


"The Breastfeeding Atlas" fig.

Undressing → increased arousal

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➢ Drowsy

- May have eyes open
- Irregular breathing
- Variable body movements with mild startles
- Relaxed
- Stimuli may arouse infant but may return to sleep




"The Breastfeeding Atlas" fig.4

→ May enjoy nonnutritive sucking

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➤ Quiet Alert

- Eyes bright and wide open
- Responsive to stimuli
- Minimal body activity
- Interacts with others




'The Breastfeeding Atlas' fig. 6

➔ Excellent time to initiate BF

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➤ Active Alert

- Eyes open
- Rapid and irregular breathing
- More sensitive to stimuli and discomfort
- Active
- Comfort welcome (change diaper, hold, talk quietly)




'The Breastfeeding Atlas' fig. 7

➔ Initiate BF before progression to crying

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➤ Crying

- Eyes open or tightly closed
- Irregular breathing
- Crying, very active
- Uncoordinated, thrashing movements of extremities
- Comfort needed (hold, swaddle, talk quietly, rock)




'The Breastfeeding Atlas' fig. 10

➔ Comfort before attempting to breastfeed

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Crying and Other Signs of Stress

- Characteristic behaviours (irritability, crying, inconsolability, worried alertness, restlessness)
- Motoric stress cues: hypotonia, hypertonia



FTT --35 day-old baby
'The Breastfeeding Atlas' fig. 360

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Crying and Other Signs of Stress (cont.)




Motoric stress cues -
finger splaying, stiffening, crying

'The Breastfeeding Atlas' fig. 8

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Crying and Other Signs of Stress (cont.)



FTT - note worried expression
'The Breastfeeding Atlas' fig. 362

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Crying and Other Signs of Stress (end)



Facial grimace - a stress cue

'The Breastfeeding Atlas' fig. 5

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○ GLOBAL OBSERVATION OF THE INFANT

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- Sleep/awake states
- **Respiratory pattern**

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Respiratory Rate (RR)

- RR must be slow enough to coordinate with sucking and swallowing.

Resting RR for infants	Breaths per minute
Term infant	30-40
Preterm infant	40-60
Ill infant	60-80

'Supporting Sucking Skills'

- Most infants are not able to feed with an RR over 80 bpm

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Signs of Respiratory Difficulties

- Rapid respiration during pauses
- Stridor (inspiratory) or other respiratory noises
 - May be due to airway instability
- Harsh and wet respiratory sounds
 - May be due to velopharyngeal insufficiency or aspiration
- Increased effort of breathing (retraction of chest)
- Short sucking bursts
- Loss of milk through the lips or nose

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Signs of Respiratory Difficulties (end)

- Mouth breathing (nasal blockage or deviated septum)
- Apnea, bradycardia, and desaturation
- Color changes



Infant with upper respiratory obstruction displays mouth breathing and worried facial expression

'Supportive suckling skills' fig. 1-39

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PLAN

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- **Oral Assessment of the Infant**
- Conclusion

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Head / Neck / Jaw / Intra-oral

- Any asymmetry in body / neck / head posture?
- Any facial / jaw asymmetry?
- Cranial sutures: overlapping? Separated?
- Anterior fontanelle size?
- Chin: receding?
- Cheeks: fatty? Thin?
- Lips: blisters? Tight frenum?
- Hard palate: intact? shape?
- Soft palate (if suspicion): intact?
- Tongue: notch or heart shape? spontaneous movements / passive elevation / active elevation? Frenum aspect / shape / length / stretch ability...

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Clinical Methods

- Visual examination of oral structures
 - Lips, jaws, hard and soft palate, tongue, nose
- Audition
 - suckling
 - swallowing
 - clicking sounds
 - smacking sounds
- Cervical auscultation (advanced practice)
 - swallowing/breathing

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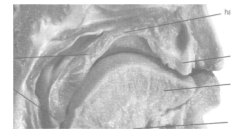
Clinical Methods (end)

- Digital examination
 - lips
 - cheeks
 - palates
 - tongue
- Digital suck examination
 - Non-nutritively (with finger only)
 - Nutritively (with finger and fluid; preferable)

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➤ Visual Examination



Visual assessment: bubble palate and Stage 4 tongue-tie

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'The Breastfeeding Atlas' fig. 36

➤ Visual Examination (cont.)



Tongue-tie (type 2)
'The Breastfeeding Atlas' fig. 392

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➤ Visual Examination (end)



Visual assessment (cleft of the soft palate)

'The Breastfeeding Atlas' fig. 401. MCH LC


E. Kernermann (2013)

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➤ Audition

The Breastfeeding Atlas CD



High milk flow: 'clicking' sound to let air enter from the lips




Uvular cleft: If latching, specific 'smacking' sound heard at each suck.


Edith Kernerman, 2013

Auditive assessment: Clicking or Smacking Sounds

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➤ Cervical Auscultation






A

Cervical Auscultation in Neonatal Feeding and Swallowing Examinations: An Innovative Application in Neonatal Physical Therapy Practice

July Pagan PT, MS, Technology Fellowship Program, Rocky Mountain University of Health Professions, Provo, UT
Anne Browning PT, PhD, PhD, DPTA, Pediatric Intensive Care Department, Rocky Mountain University of Health Professions, Provo, UT

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➤ Digital Examination



Assessing thickness of cheek fat pads
'The Breastfeeding Atlas' fig. 32


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➤ Suck Assessment




'Nutritive suck assessment'
'The Breastfeeding Atlas' fig. 319


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CD 2nd Ed. BF atlas,
2nd Chapter



09 – Assessment of lip tone



07 – 37-weeker facial assessment

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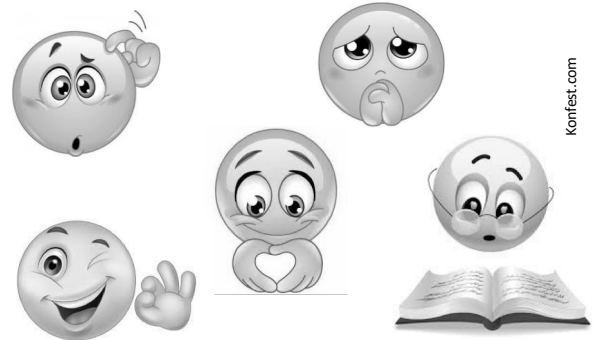
Assessment in a Lactation Clinic...

- Yes, good assessment takes time
- BUT it can solve problems, prevent complications or inappropriate management
- Your skills will improve with time and commitment

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How Do You Feel?



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Learning Curve...

- Observing somebody more experienced (video?)
- Practicing
- Asking feed-back from the mothers/colleagues
- Reading (e.g. Breastfeeding Atlas)
- Discussing cases with more experienced colleagues (who keep learning daily)
- Continuous education (Gold lactation, Journal of Human Lactation, iLactation conference...)

Mothers and babies will keep you empowered...

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Thank you!

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