

# به نام خداوند بخشنده مهربان

# *Occupational Therapy and NICU*

---

Presented by:

*Reihaneh Askary*: PhD of OT, assistant  
professor , SBMU

*October 2018*



# Outline...

---

- Occupational Therapy in NICU
- OT and Self regulation in State of Arousal
- OT and NICU Environment
- Positive Touch and massage in NICU
- Positioning in NICU
- Chest Therapy



t







- High and at risk neonates

Improve brain development and function

# Criteria for referral to OT

- **Marked prematurity < 28 GA**
- **Neuromotor concerns( abnormal tone or Posture: poor head and trunk control, asymmetries, hyper or hypotonicity)**
- **Feeding or sucking or swallowing difficulties**
- **Congenital malformations**
- **Sensory Impairments**
- **Disorganized behaviors; irritability, inability to self-quiet, jitteriness, excessive startle or hyperexcitability**
- **Parental anxiety**



# Infant state of arousal

**TABLE 5.2** Infant States of Arousal

State	Description	Daily duration in newborn (hours)
Regular sleep	Baby is still, with eyes closed and unmoving. Breathing is slow and regular.	8-9
Irregular sleep	Baby's eyes are closed but can be observed to move under the closed eyelids (a phenomenon known as rapid eye movements, or REMs). Baby may jerk or grimace in response to stimulation. Breathing may be irregular.	8-9
Drowsiness	Baby is falling asleep or waking up. Eyes open and close and have a glazed appearance when open. Breathing is regular but more rapid than in regular sleep.	1/2-3
Alert inactivity	Baby's eyes are wide open and bright, exploring some aspect of the environment. Breathing is even, and the body is relatively inactive.	2-3
Alert activity	Baby's eyes are open and breathing is irregular. May become fussy and display various bursts of diffuse motor activity.	1-3
Crying	Intense crying that may be difficult to stop and is accompanied by high levels of motor activity.	1-3

© 2007 Thomson Higher Education

# NICU environment

system	intrauterine	extrauterine
<b>Tactile</b>	Constant proprioceptive input; wet, usually safe and comfortable; circumferential boundaries.	Often painful and invasive; dry, cool air; predominance of medical touching
<b>vestibular</b>	Maternal movements ,diurnal cycles ,amniotic fluid creates gently oscillating environment, flexed posture	Horizontal, flat posture; rapid position change, influence of gravity, restraints and equipment
<b>auditory</b>	Maternal biologic sounds, muffled environmental sounds	Loud, sudden, mechanical, frequent
<b>visual</b>	Dark; occasionally have very dim red spectrum light	Bright light, eye unprotected, often no diurnal rhythm
<b>Thermal</b>	Constant warmth, consistent temprature	Environmental temprature variations



# Sensory processing difficulties

---

- Hypersensitivity..... refer to OT
- Hyposensitivity..... refer to OT
- Tactile
- Vestibular
- Proprioceptive
- Auditory and visual

# Positive Touch and massage in the neonatal unit













# Support at difficult times

## *Examples of support:*

- *Containing the infant's extremities in a flexed position.*
- *Offering opportunities for grasping onto a finger, a cloth or bedding.*
- *Giving rest periods (pacing) during the stressful procedure.*
- *Offering a pacifier or other sucking opportunities.*







- The typical massage used in neonates is a gentle stroking with moderate pressure of parts of the body combined with kinesthetic stimulation that consists of passive motion of the limbs





# Attention

- Even the youngest NICU infant has sophisticated perioral sensation and perceives pressure, pain, and temperature.
- The back and legs are very sensitive to touch, especially prior to 32 weeks, when modulation improves.



- 
- **Firm steady touch (containment) is better tolerated than light moving touch (stroking).**





# Positioning in NICU



# why nesting??

---





# Nesting recommendations

---



# supine





# *preemie positional Deformities:*

## Lower Extremity

- hip abduction, external rotation,
- knee flexion
- and ankle eversion are common when legs rest on the surface in a “frogged” or “M” shape ;
- external tibial torsion .



## *premie positional deformities:*

### *skull*

- *The skull of a preterm infant is thinner, softer, and more vulnerable to postural deformation than the skull of full-term infant.*

*{dolicephaly*





# prone



# Proper Handling

---

- slow position changes







- arterial O<sub>2</sub> saturation was higher in the left lateral and prone positions than in the supine position





# Positioning to prevent head flattening

Inability to maintain the head in midline

Weight of head

Infant's soft cartilaginous skull

Head deformities



**Normal**



**Plagiocephaly**



**Brachycephaly**



**Dolichocephaly**

## To prevent:

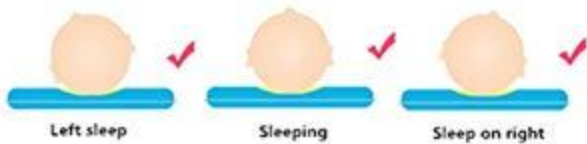
Providing lateral support in supine

Water beds

Gel pillows

Changing head position

therapeutic Helmet





# Attention

## IVH...

- Turning the head toward one side >>>> limit return of blood in the veins of the same side  
>>>> increase pressure and the amount of blood within the brain>>> increase risk IVH especially during the first two to three days of life



# Positioning in the NICU

**ENCOURAGE:** flexed position with support from blankets/ boundaries, rotate baby in different positions to promote head shaping, gross motor strengthening, self-calming, and ability to participate in fine motor and developmental activities



Supervised Tummy Time



Side Lying



Back



**AVOID:** positioning without support/boundaries which can result in asymmetrical postures, skull deformations, delayed fine and gross motor development



"W" Position of Arms



"M" Position of Legs



No Boundaries



Preferential Head Turning



Boundaries Too Small











# Nutritive sucking



## Nutritive

- 1 suck per second
- Involves the coordination of suck: swallow: breathe
- Suck: Swallow: breathe pattern 1:1:1 ratio (**preterm infants demonstrate difficulty with this coordination**)

## Physiologic influences on sucking in prematurity

---

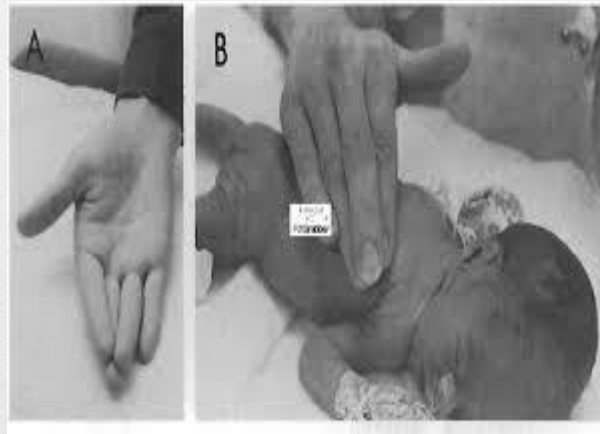
- Immature sucking reflex
- Decreased muscle tone or weakness
- Poor state regulation
- Autonomic instability
- Disorganized sucking, Swallowing and breathing pattern
- Inability to effectively switch from NN to N







# Chest Therapy





## *Don't Do*



- Trendelenberg position is not to be used in the NICU for Chest therapy

# Thank you for your attention

---

