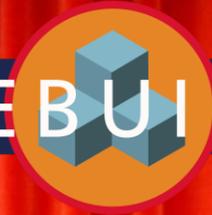


A black spotlight on a tripod stands on the left side of the image. The spotlight is illuminated from within, casting a bright yellow and green glow that fades into the background. The background is a rich red curtain with vertical folds.

SCOREBUILDERS



SPOTLIGHT

What is Normal Anyway

Series

Presented by Beth Ennis, PT, EdD, PCS

Objectives for tonight:

Discuss typical progression of developmental skills in the infant/young child

Describe “primitive reflexes” and their emergence and integration

Developmental Progression

Ages are an average; range of acquisition is very broad

Different components of movement are present and develop according to

- 1)gravity's effect on the child
- 2)the child's perception and motivation
- 3)the state of the neuromuscular system
- 4)previously learned skills

Development is Spiraling Rather than Linear

Flexion/extension

Symmetry/asymmetry

Stability/mobility

Gesell -- viewing growth "not as a linear process but a spiral one where structure and function jointly mature leading to regression, asymmetries, and reorganization"

Neural Development

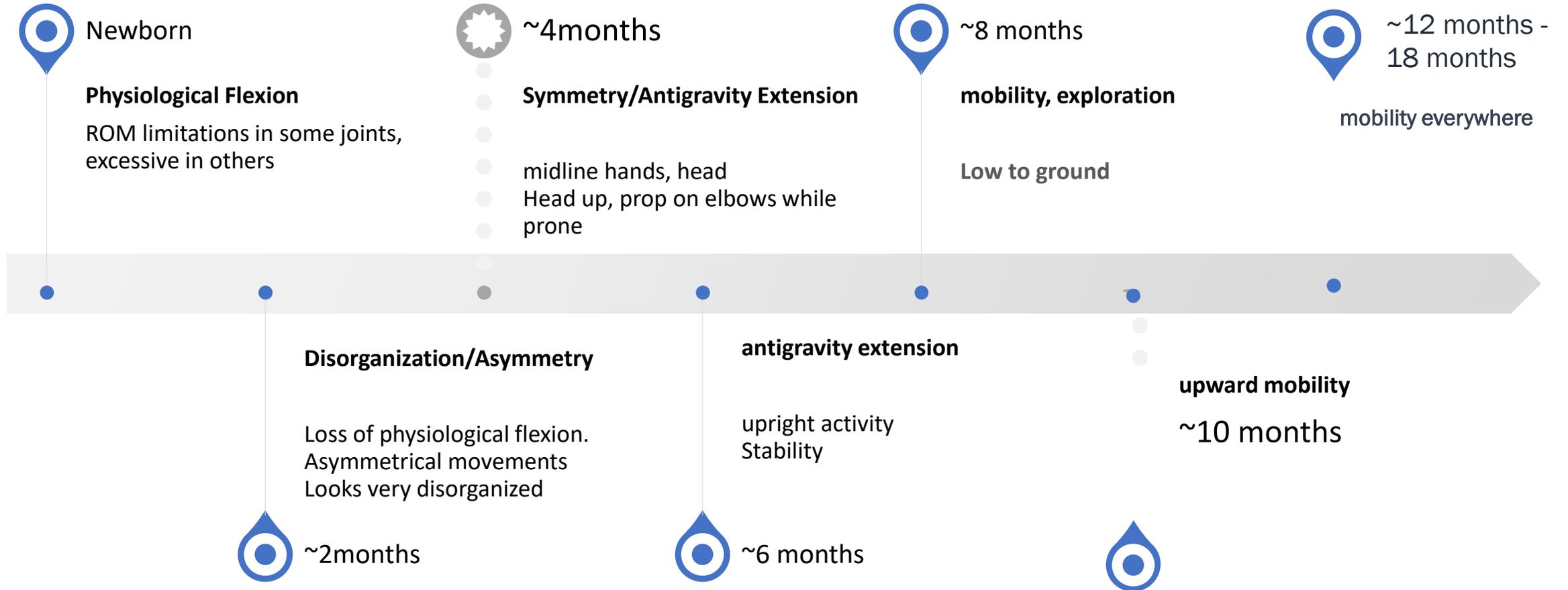
Organization and myelination

Third trimester gestation well past birth especially in first two years of life



This helps to explain some of the “atypical things” seen in young children intermittently

Developmental Overview



Reflexes

STNR: head in flexion.extension;
arms follow head, legs opposite
Age: 6-8 months

TLR: head position influences
body position; extension in
supine, flexion in prone
Age: birth to 6 months

Startle: different from moro;
response to loud noise, but arms
remain flexed with hands fistled
Age up to 5 months

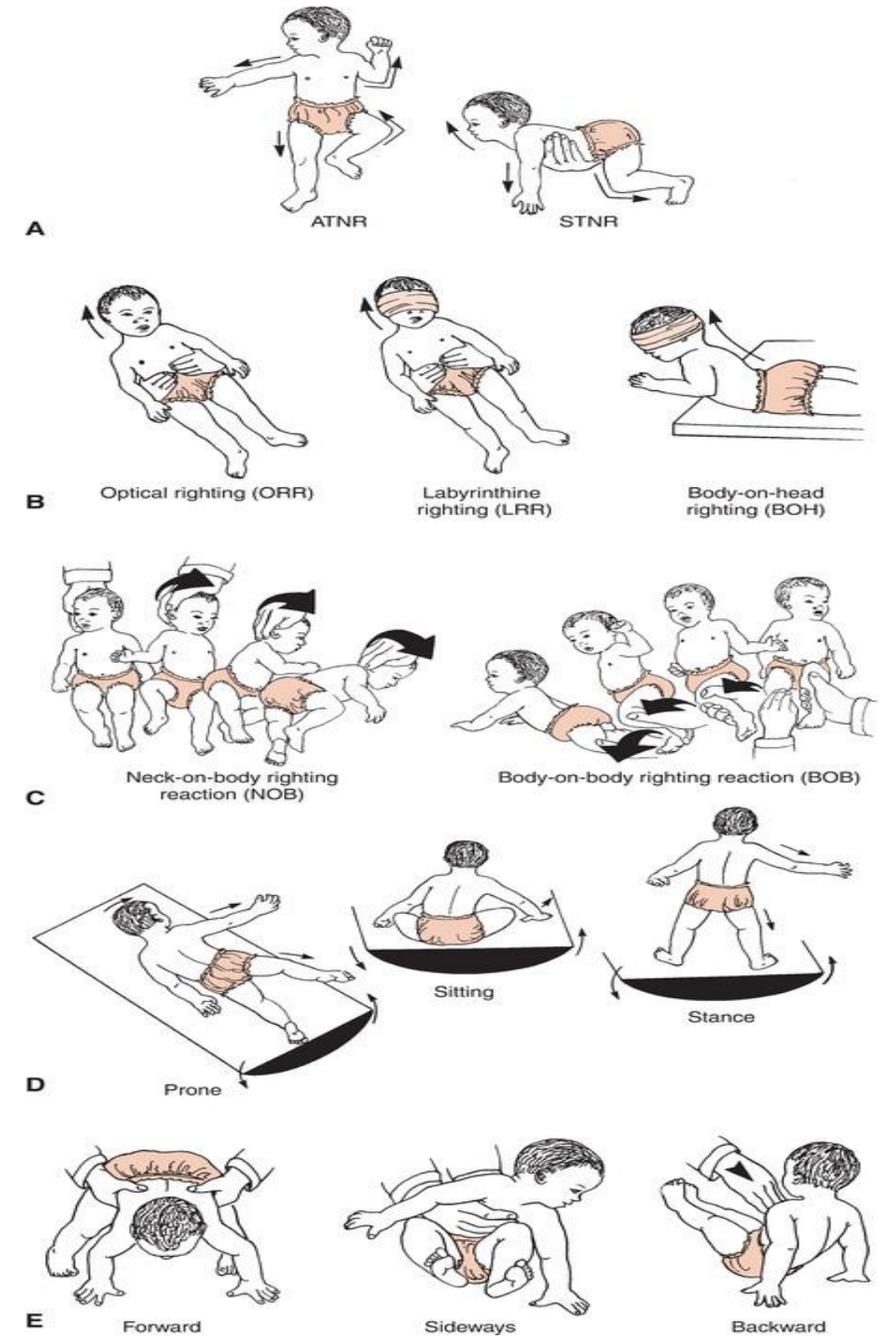
Primitive Reflex		
Primitive Reflex	Maneuver	Ages
Palmar Grasp Reflex	 Place your fingers into the baby's hands and press against the palmar surfaces. The baby will flex all fingers to grasp your fingers.	Birth to 3-4 months
Plantar Grasp Reflex	 Touch the sole at the base of the toes. The toes curl.	Birth to 6-8 months
Rooting Reflex	 Stroke the perioral skin at the corners of the mouth. The mouth will open and baby will turn the head toward the stimulated side and suck.	Birth to 3-4 months
Moro Reflex	 Hold the baby supine, supporting the head, back, and legs. Abruptly lower the entire body about 2 feet. The arms abduct and extend, hands open, and legs flex. Baby may cry.	Birth to 4 months
Asymmetric Tonic Neck Reflex	 With baby supine, turn head to one side, holding jaw over shoulder. The arms/legs on side to which head is turned extend while the opposite arm/leg flex. Repeat on other side.	Birth to 2 months

Source : Bates' Guide to Physical Examination and History Taking, 11E 2012

Primitive Reflex (continued)		
Primitive Reflex	Maneuver	Ages
Trunk Incurvation (Galant's) Reflex	 Support the baby prone with one hand, and stroke one side of the back 1 cm from midline, from shoulder to buttocks. The spine will curve toward the stimulated side.	Birth to 2 months
Landau Reflex	 Suspend the baby prone with one hand. The head will lift up, and the spine will straighten.	Birth to 6 months
Parachute Reflex	 Suspend the baby prone and slowly lower the head toward a surface. The arms and legs will extend in a protective fashion.	8 months and does not disappear
Positive Support Reflex	 Hold the baby around the trunk and lower until the feet touch a flat surface. The hips, knees, and ankles extend, the baby stands up, partially bearing weight, sags after 20-30 seconds.	Birth or 2 months until 6 months
Placing and Stepping Reflexes	 Hold baby upright as in positive support reflex. Have one sole touch the tabletop. The hip and knee of that foot will flex and the other foot will step forward. Alternate stepping will occur.	Birth (best after 4 days). Variable age to disappear

From: **CHAPTER 8 Development of Postural Control**

Motor Control, 5e, 2017



Lets thing
about what
happens
when these
don't
integrate

ATNR

STNR

Galant

Palmar grasp

Positive Support Reflex

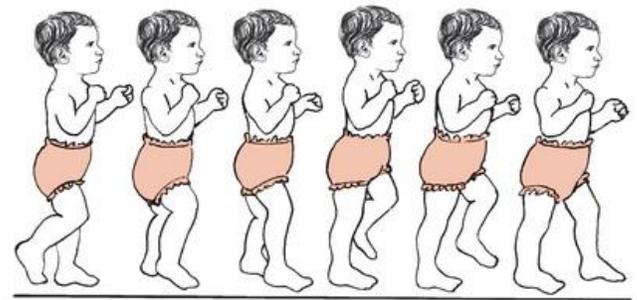
	Newborn	2 months	4 months	6 months	8 months	10 months	12-16 months	17-24 months
Prone	Head turned, physiological flexion	Brief head lifting, accidental rolling	Prop on elbows Shifting in prone, head to 90, rolls prone to supine	Prop on extended arms,	Getting to hands and knees			
Supine	Physiological flexion, accidental partial rolling	Head to side, ATNR, looks low tone	Rolls to side, hands to knees	Rolls supine to prone	Doesn't want to be here anymore			
Sitting	Pull to sit with lag	With support, head bob	Head steady with trunk support, beginning prop sitting	Sits without support Play within BOS	Gets into and out of sitting; Reaching out of base of support			
Standing	Positive support	Withdrawal of feet, forward flexed trunk	Bears weight in supported standing	Able to take weight through feet with support at trunk	Takes weight with hands held; Stands at furniture when placed	Pulls to stand, cruises furniture		Squats to play
Mobility				May push backward on tummy	Belly crawls forward, rocks on hands and knees	Creeps forward Takes steps with hands held	Walks without support; Creeps up steps	Walks backward Steps with support

LE development

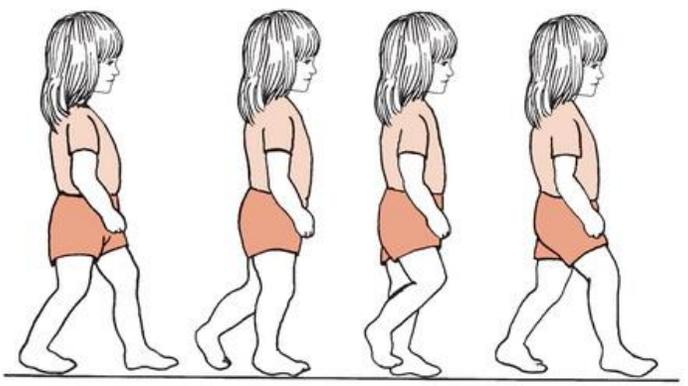


From: **CHAPTER 13 Development of Mobility**

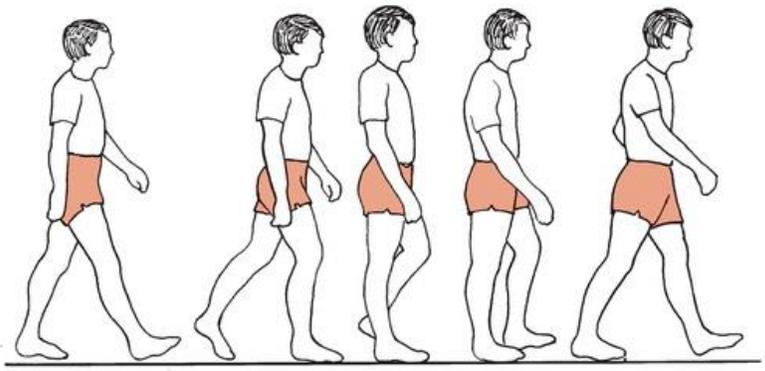
Motor Control, 5e, 2017



A



B



C

Legend:

Body motions associated with developing gait.

Beyond the two years

Bilateral coordination: jumping, hopping, skipping, trike/bike riding

Eye-hand coordination: throw, catch, scribble,

Multi-tasking

4 fundamental
elements to
observe:

Base of support

Alignment

Muscle activity

Weight shift

What to look for in a question

- Do they mention age of child?
- Words used to describe child
 - Newborn (birth to two months)
 - Infant (birth to one year)
 - Toddler (12-18 months)
- Activity discussed in the question
- Typical or atypical

Let's look:

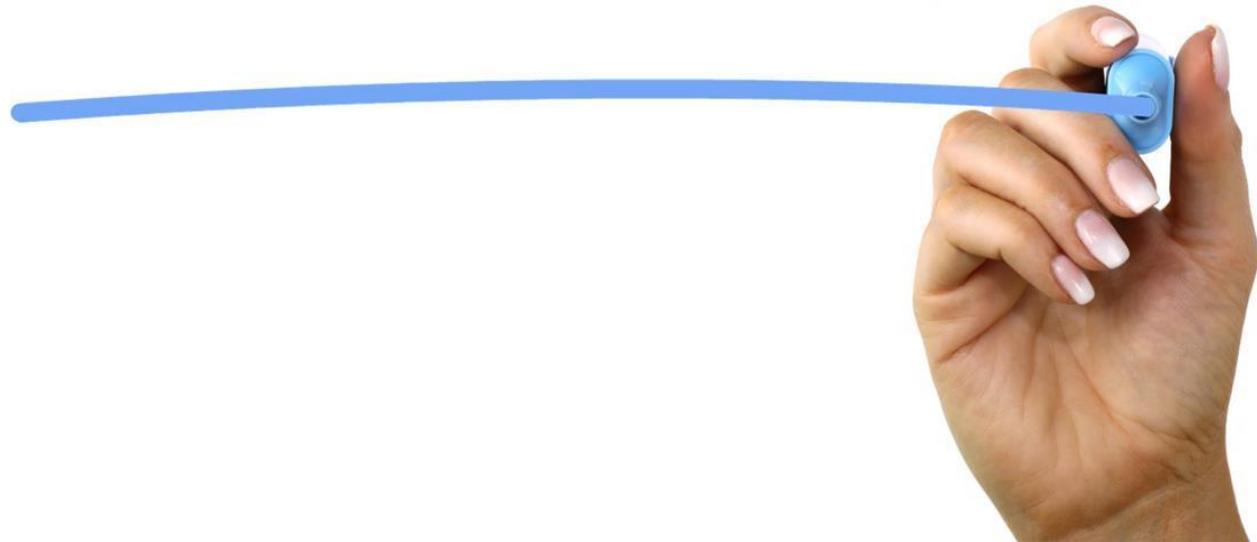
Your best friend from high school expresses concern that there is something wrong with his 12-month-old son. He is sitting without support to play with toys and is starting to use words to make his wants and needs known. A typical 12 month old should be able to do all of the following **except**:

- a. Run on level surfaces
- b. Change from sitting to creeping independently
- c. Walk with hands held
- d. Pull to stand through ½ kneel

A 3 year old child has been referred to you for evaluation of postural difficulties related to coordination. Which of the following is a typical description related to development of alignment and posture in children?

- a. Initial weight bearing is on the medial borders of the feet, shifting to full foot with experience in rotation
- b. Lower extremity alignment begins in valgus, shifts to varus at age 3, then to neutral by age 5
- c. Development of postural reactions and coordinated movements shows a dip between ages 2-3 years of age, stabilizing by age 4-6
- d. Base of support is initially very narrow with shorted step length and absent heel strike

QUESTIONS





SPOTLIGHT *Series*

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