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continued

Motor Interventions in Early Intervention

An introduction to gross motor skills for infants & toddlers

Jessica McMurdie OTR/L

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continued

In this course, you'll go from feeling unsure of where to start teaching gross motor skills to feeling better prepared and more confident.

You'll learn a simple yet strategic therapy framework to support the developmental progression of the key mobility milestones for infants and toddlers.

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continued



Learning Outcomes

After this course, participants will be able to:

- Identify obstacles to motor development.
- Identify guidelines for therapy when teaching gross motor skills and mobility to infants and toddlers.
- Identify activity ideas to promote the achievement of developmental milestones.

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Jessica McMurdie OTR/L

Education

- Occupational Therapy and Spanish (2000)



Certifications

- Sensory Integration
- Feeding



Owner and Clinical Director

Stepping Stones Therapy Network, Bellevue WA

Play It Forward

www.playitforwardtherapy.net

Featured In

- Puget Sound Business Journal
- OT Practice Magazine "Practitioners in the News" 2016
- Rehab Management Magazine Podcast Guest 2015

OCCUPATIONALTHERAPY.COM



Published Author

The OT Manager, 6th Ed. 2019
Contributing Author



4 National Small Business and OT Awards

1. AOTA Leadership Program
Selected as 1 of 15 OTs in the U.S.
2. National SCORE Small Business Award 2012
3. SBA Emerging Leaders Class of 2016
4. Washington State OT and OT Assistant Award



Advocate for the OT profession

Testifying on behalf of patient access to OT and mitigating barriers to insurance in WA state.

House Health Care & Wellness Committee

February 20, 8:00 am



continued

Introductions



Jessica has 20 years of pediatric experience.



Stepping Stones
Therapy Network

www.steppingstoneswa.com

Play It Forward

OT Tested & Kid Approved

www.playitforwardtherapy.net

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Handout Download Link

Download the supplemental PDF to this course.

"QUICK REFERENCE GUIDE TO GROSS MOTOR MILESTONES"

- Step-by-Step Guide To Infant Mobility (newborn to walking)
- Includes the major milestones *and the* key transitional movements to get to the next phase
- Detailed and clearly outlined to systematically guide your therapy sessions

<https://www.playitforwardtherapy.net/optin-milestones/>



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continued

Role of Motor Skills in Overall Development

Motor skills are essential for infants and toddler's participation and occupations in activities of daily living, play skills, self-care and social interactions

(Case-Smith et al., 2013)

Motor skills are key for learning and enable children to explore and learn about the world around them.



Pediatric Intervention Framework

Targeted Skill or Activity

PURPOSE

POSITIONING

PRACTICE

PLAY

PROGRESS

Jessica McMurdie OTR/L

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Primary Areas of Intervention for an OT in EI

Cross training
OT /PT

Gross Motor
Skills

Mobility

Fine Motor

Sensory

Adaptive

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The acquisition of motor skills follow a specific pattern of development.

- From head to toe (cephalocaudal)
- From the center of body to the outside (proximal to distal)

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Risk Factors For Motor Delays

- Medical and birth history
- Neurological problems
- Retained primitive reflexes
- Visual impairment
- Hypotonia (low muscle tone)
- Decreased strength & endurance
- Increased joint flexibility
- Short limbs: arm and/or leg length discrepancy



APGAR Score: 1/10



Asymmetrical Tonic Neck Reflex

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How to Adjust a Baby's Age for Prematurity

- Two important dates
 1. Birthday
 2. Expected due date
- Take the age of the infant in weeks and subtract the number of weeks born early.
- Example: 16-week-old (born 4 weeks early)



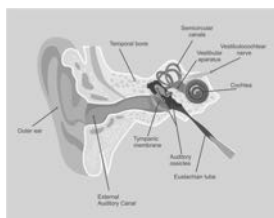
Adjusted age is 12 weeks or 3 months.

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Sensory Processing Influences Motor Skill Acquisition and Temperament

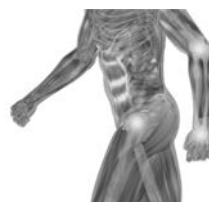
Vestibular

Receptors in the inner ear that sense of balance, position in space and movement



Proprioceptive

Receptors in muscles and joints detect deep pressure input important for body awareness



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Sensory Profile?

Motor Driven

- Seek vestibular input and/or proprioceptive input.
- May have difficulty grading force of movement.

Observer

- Tend to avoid vestibular input or have impaired sense of balance; therefore tend to be more cautious.

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continued

Developmental Progression of Gross Motor Skills

- Phase 1: Tummy Time, Side lying and Back lying
- Phase 2: Rolling
- Phase 3: Sitting, Transitions
- Phase 4: Crawling
- Phase 5: Pulling to stand, Standing and Cruising
- Phase 6: Walking
- Phase 7: Post Walking Skills: Running, Jumping, Ride on toys, Stair Climbing, Ball skills

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Tummy Time

- Parents not putting infants on stomachs for supervised play time, has impacted the rate of acquisition of motor skills (AJOT; Salls, Silverman, Gatty 2002).
- One Level II study found significant improvements in Bayley-3 scores for infants with Down syndrome whose caregivers initiated tummy time early (Wentz, 2017).



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Safe Sleeping & Supervised Tummy Time

- Sleeping: Back to Sleep
- Playing: Supervised tummy time. Practice a few minutes a few times a day.

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Tummy Time: 0-3 months

PURPOSE

- Develop head control
- Increase tolerance for prone position
- Head control is an important precursor for rolling, crawling and the timely acquisition of motor skills



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Tummy Time: Baby Positioning

- Incline
- Leg position



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continued

Tummy Time: Caregiver Positioning

- Semi-reclined on caregiver's chest while reclined or lying on the couch
- Lap buddy: Face down over caregiver's lap with head higher than body. Pat bottom
- Face to Face: Eye level with each other
- Airplane carry: Face down cradled by caregivers' forearms

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continued

Tummy Time: Equipment

- Wedge (inflatable or couch cushion with pillow under it)
- Blanket rolled up to support baby's chest
- Semi-inflated beach ball



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continued

Tummy Time: Practice

- Baby Pushups: Weight bearing by propping on arms or hands
- Diapering and Dressing: After diapering and dressing, roll baby to tummy for a few seconds, gradually increasing time before moving to a new position.
- Pivoting on tummy



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BACKLYING: Newborn and Up

- PURPOSE: Back lying or supine position is the most common position for play and sleeping
- Develops core strength, strengthens shoulders and arms to reach up against gravity to play and reach for toys.



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continued

BACK LYING: Positioning

- On soft surface, blanket or towel rolled up under shoulders to assist non-preferred shoulder to reach
- Encourage turning head to the non-preferred side by positioning toys or position baby so she must look towards the nonpreferred side to watch the activities.

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continued

Preventing Plagiocephaly

- Plenty of tummy time
- Reduce the amount of time your baby lies in a car seat, baby carrier, baby swing etc.
- Rotate sides during feeding time, which also can help prevent torticollis.
- Put your baby in different positions in their crib. Your baby should lie on his/her back to reduce SIDS.



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continued

continued

BACK LYING: Practice

- Encourage lifting arms overhead to reach up, overhead batting
- Bringing knees to hands > feet to hands > feet to mouth.
- Easier without diaper or clothes on, practice on changing table



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Play Ideas

- Overhead play gyms
- Foot jingles or bells
- Foot play "This little piggy"

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continued

continued

SIDELYING: 3-5 months

- **PURPOSE:** Side lying requires good alignment of the spine and balance of the stomach and back muscles for core strength. Precursor to rolling
- Allows hands to touch each other and makes it easier to reach for toys (not working against gravity).



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continued

SIDE LYING

- **POSITIONING:** Right or left side
- **Equipment:** Rolled up blanket against back to support side lying
- Side lying with back supported by back of the couch
- **PRACTICE:** set up toys for play with hands, reach and roll
- **PLAY:** Toys and books at eye level


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continued

ROLLING 4-6 months

- PURPOSE: Baby's first means of independent mobility and exploring the environment.
- Stimulates vestibular receptors



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ROLLING

- **POSITIONING:** Firm but soft surface, start with side lying.
- **PRACTICE:** Belly to back is typically easier
- Put on tummy, roll onto back and vice versa after diaper changes
- **PLAY:** Move a favorite toy slowly to visually track.

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SITTING: 7-9 months

- **PURPOSE:** Sitting enables a new perspective and allows baby to use hands in new ways.
- Learning to sit happens gradually starting with supported sitting > pull to sit > sitting independently and transitional movements to move in/out of sitting.
- Protective extension & righting reactions



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continued

SUPPORTED SITTING

- Start by supporting high at trunk level and as baby develops strength and head control, gradually lowering your hands for support.
- Start with supported sitting...
- Corner of couch
- On your lap
- On floor between your legs



continued

Sitting Upright For Feeding

- Babies must have good head and postural control for sitting prior to using a highchair or starting solid foods.
- **Equipment:** A rolled-up towel may be used to bolster baby on the sides of the chair.
- This will help support baby's posture when placed in larger high-chairs that are meant to be grown into.

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continued

SITTING: Equipment

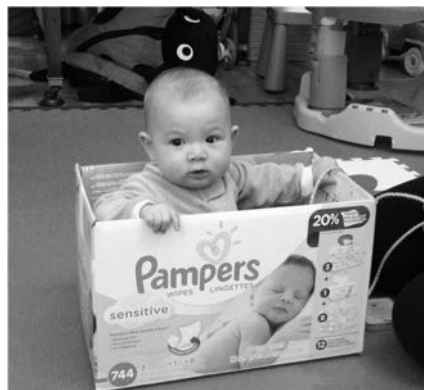
- May use a cushion as soft tray in front of baby while in supported sitting.
- Place toys on the cushion in front of baby.
- Place cushions around baby in case baby falls over so she'll have a soft place to land.
- Practice sitting in a laundry basket
- Boppy cushion
- Siblings and being social



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SITTING: Practice

- Pull to Sit: baby grasps your thumbs
- Pull to sit first with baby semi-reclined with back on pillow, then from the floor.
- Supported Sitting: Start by offering support, practice during bath time in a bath chair, laundry basket, getting dressed while seated on your lap.



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MOVING IN/OUT OF SITTING

- Practice on changing table: Help baby roll to side then push up into sitting.
- Transition from tailor sit > side sit > quadruped > crawling.
- Side Sitting is necessary to transition to tummy and hands and knees
- Avoid leaning forward into the “splits” to transition to tummy.



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Dynamic Sitting
(with duckies):
Trunk rotation &
crossing midline

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CRAWLING: 8-10 months

- **PURPOSE:** Independent mobility.
- Requires upper body, arm strength and good head control.
- Babies start by commando crawling by pulling the body forward using arms. Feet and legs are on the floor.
- This is a precursor to Crawling on Hands and Knees aka Creeping (reciprocal coordination of left and right sides of the body).

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CRAWLING: Practice

- **POSITIONING:** Practice reaching while in quadruped to work on weight shifting.

Atypical movement patterns

- Bear walk
- Bottom scooter
- Crab crawl
- Asymmetrical leg movements

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continued

CLIMBING: Practice

- Climbing on and off furniture safely
- Climbing up the stairs and down the stairs safely. Start 2-3 steps below the landing for climbing up.
- For climbing down, practice 2-3 steps from the floor going backwards. Put the toy just out of reach to encourage moving.
- **PLAY:** Balls, bead necklaces, slinky things that slide down the top surface to the floor

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CONT

Play It Forward

Play It Forward

POSITIONING, PRACTICE & PLAY IDEAS

Crawling



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continued



STANDING & CRUISING: 10-11 Months

- Pulling to stand
- Sit to Stand
- Standing
- Cruising

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continued

Transitional Movements to Standing

- Sitting to tall kneeling
- Tall kneeling to half kneel
- Half kneel to pull to stand

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continued

STANDING: Equipment

- Sit to Stand: Use a small bench, toddler chair or foot stool.
- Furniture: Take cushions off the sofa. Pull to stand from the floor to the edge of the couch.
- Low play tables with rounded corners.
- Storage bin with lid, cardboard boxes, laundry basket

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continued

Practice: Strengthening the legs

Baby Squats

- Do consecutive squats to strengthen muscles for standing.
- Encourage bending of knees which allows movement at the ankles.
- Sit to stand from sitting on mom's lap
- Pull to stand from sitting on a small chair or bench.
- Stand at surface and let toys roll off to be picked up from the floor (balls, beads, toy cars, etc.)

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Standing with Support

- Standing with back against the couch or wall
- Standing while holding onto couch or edge of a surface
- Encourage trunk rotation by reaching for toy held out to the side
- Practice with 2 hand support
- Practice with 1 hand support

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Plantigrade to Standing

- Supported plantigrade
- Supported plantigrade to standing
- Plantigrade from floor to standing



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continued

CRUISING

- **PRACTICE:** Facilitate weight shift
- **POSITIONING:** Cruising surface height at armpit level
- Strategic placement of motivators



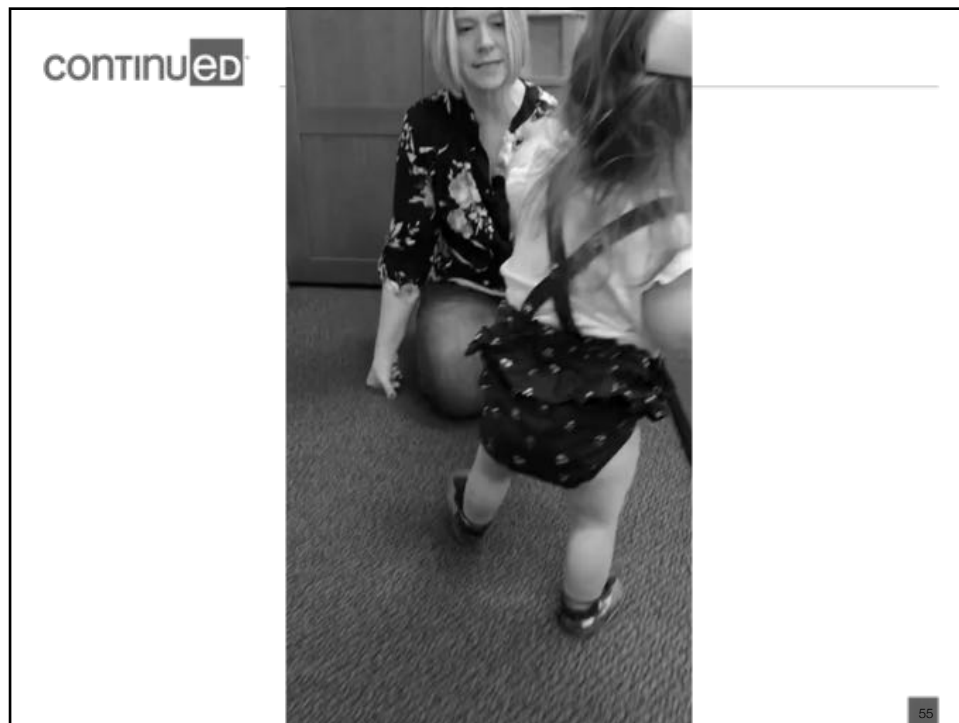
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STANDING: Play Ideas

Practice standing....

- In front of mirror
- Play kitchen
- Sit to stand by putting hats or necklaces on other people while seated on a bench
- Sing songs
- Blow bubbles

continued



continued

Walking 12-15 months

PURPOSE: Walking independently gives baby a new sense of independence.

PRACTICE:

- 2 hand support
- 1 hand support
- Walking with a push toy
- Walking while holding an object
- Walking on flat, even surfaces.
- Progress to uneven surfaces

continued

WALKING

- **POSITIONING:** Start with back supported on a wall to take a few steps towards you
- **PRACTICE:** Some babies may need to practice knee walking first to become more comfortable with reciprocal leg movements when walking upright.
- Walk to highchair when it's time to eat or to bath time at the "baby spa".
- **PLAY:** show your enthusiasm baby, big hugs, pretend play, sing songs, blow bubbles

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continued

WALKING WITH A PUSH TOY

- Push toy: Start on carpet to slow it down and avoid sliding in all directions.
- Weight it down as needed.
- Baby carriage or baby stroller
- Pushing a push toy or laundry basket area.

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continued

Post Walking Skills

- Running
- Ride on toys
- Stairs
- Ball skills
- Jumping

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CONT

Play It Forward

Play It Forward

POSITIONING, PRACTICE & PLAY IDEAS

Walking



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continued

continued

Gross Motor Milestone Markers

- Primitive Reflexes (presence and integration)
- 0-3 m: Prone/Supine, hands to midline/mouth
- 4-6 m: Side lying, Rolling, reaching, transfers toy
- 7-9 m: Sitting independently, belly crawling, transitional movements in/out sitting
- 8-10 m: Crawling hands and knees, pull to stand
- 10-12 m: Standing, cruising along furniture
- 12-15 m: Walks independently, squats to pick up toy

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continued

SUMMARY OF LEARNING

- Overview of Motor Development
- Pediatric Intervention Framework (Purpose, Positioning, Practice, Play, Progress)
- Developmental Progression of GM Milestones
- Continued clinical conversations

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Questions?

Let's keep the clinical conversations going!

3 ways to connect with me

- Text me your e-mail address at 425-215-1971
- E-mail me at jessica@playitforwardtherapy.net
- FREE Cheat Sheet : Quick Reference guide to Gross Motor Milestones.
<https://www.playitforwardtherapy.net/optin-milestones/>



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