

Motor Development

Ashlee Simpson, Certified Occupational Therapy Assistant

Dr. Samantha Wilson, Doctorate of Physical Therapy

Who we are:

- Ashlee Simpson, COTA/L
 - Experience in:

- Dr. Samantha Wilson, DPT
 - Experience in:

Who are you?

- Who is in the crowd?
 - Parent and age of child/children?
 - Therapists/Teachers?
 - Siblings?
 - Other?

What is child development?

- 7 stages of development
 - Prenatal
 - Conception - birth
 - Infant
 - Birth - 2 years old
 - Toddler
 - 1-3 years old
 - Preschooler
 - 3-5 years old
 - Middle childhood
 - 6-11 years old
 - Adolescent
 - 12-18 years old
 - Adult
 - 18+ years old

Developmental Milestones:

- Physical Growth
 - Height, weight, body size, etc.
- Cognitive Development
 - The ability to think, learn and solve problems
- Emotional and social development
 - Gaining a better understanding of their own emotions and grasping emotions of others
- Language development
 - Learning both verbal and non-verbal communication; later written communication
- Sensory and motor development: What we will be covering today!
 - Gross and fine motor skills

2 Months-12 Months

- What does typical development tell us?
 - Gross Motor
 - 2-3 months: Bending and straightening arms and legs while on back; beginning to bear weight on legs while supported; tolerating 20 minutes or more of tummy time
 - 4-6 months: Maintaining balance in sitting; bringing both hands to midline while on back; raises arms and legs in smooth movements on stomach and back
 - 6-8 months: moves forward up to three feet using arms; pulls to sitting position; sits unsupported and maintains balance while reaching for a toy; rolls from back to stomach; lifts head while on stomach
 - 9-12 months: Balances in standing for 5 seconds; creeps on flat surface and over a small barrier
 - Fine Motor
 - 2-3 months: While lying on back, visually tracks rattle from side to side and up and down; looks at hands for 3 seconds; tightly holds a toy for 30 seconds.
 - 4-6 months: On back, extends arms to reach and pick up toys and rattles; brings hands together
 - 6-8 months: Transfers toys from hand to hand; bangs toys on a table; pokes finger into a small hole
 - 9-12 months: claps hands; removes socks; releases small toy on purpose; isolates finger/thumb movement to pick up small item without bracing arm on table

18 Months -36 Months

- What does typical development tell us?
 - Gross Motor
 - 18 months: walks up 4 steps; walks independently for 15 feet; walks backwards; throws a ball
 - 24 months: runs forward at least 10 feet; jumps with 2 feet; kicks a ball forward; walks sideways
 - 36 months: lifts both feet to jump forward 2 to 4 inches; walks up 4 steps alternating feet; stands on one foot for 3 seconds; catches an 8-inch ball
 - Fine Motor
 - 18 months: stacks 2-3 block, places 3 simple shapes in a chunky puzzle; grasps a marker with all fingers
 - 24 months: completes a simple 3 piece puzzle; stacks 4-6 blocks; figures out where puzzle pieces go in a simple puzzle; imitates drawing of a vertical line.
 - 36 months: copies building of simple block structure; draws a circle; stacks 10 blocks; snips with scissors; strings beads

3-5 years

- What does typical development tell us?
 - Gross Motor
 - 4 years: walks down 4 steps alternating feet; runs and hops forward on 2 feet; throws a ball overhand at a target from 5 feet away
 - 5 years: skips for 8 feet; stands on each foot for 20 seconds; completes several sit-ups; runs and changes directions without falling.
 - Fine Motor
 - 3.5-4 years: cuts paper into 2 pieces, laces 3 holes; copies the drawing of a plus sign; traces a thick line; buttons and unbuttons; starting to develop a proper pencil grasp
 - 5 years: starting to color between lines; folds paper in half lengthwise; has adequate scissor control to cut basic shapes; draws a square; uses well-developed “tripod” grasp on marker/pencil

What is Physical Therapy?

- Physical Therapists are movement experts who improve quality of life through improving an individual's ability to move and lead active lives
- What other things does PT look at?
 - Gross Motor Skills
 - Range of Motion
 - Flexibility
 - Strength
 - Balance
 - Coordination
 - Movement Patterns

What is Occupational Therapy?

- Occupational therapists work to improve the underlying skills to enable a child to participate in appropriate occupations or desired occupations
- What other things does OT look at?
 - Fine Motor Skills
 - Visual Motor Skills
 - Play Skills
 - Feeding Skills
 - Ocular Motor Skills
 - Visual Perception Skills
 - Sensory Processing Skills
 - Self-Care Skills
 - Emotional Regulation Skills
 - Life Skills

The biggest take-away from Developmental Milestones...

- They can be achieved!
- YOU can help your child achieve them!
- OT/PT goals and your goal should be having your child obtain the skills they need to be able to participate in any task they desire or need to complete

What Factors Influence Development in Children with Down Syndrome

- Hypotonia
 - Low muscle tone
 - Degrees vary
- Increased Flexibility in Joints or Ligamentous Laxity
 - Excessive movements in joints
 - Decreased stability in joints
- Decreased Strength
 - Improves with repetition and practice
- Short Arms and Legs
 - Makes both fine and gross motor skills more difficult to master
 - Modify your equipment to meet them where they are (smaller rattles for holding, toddler sized stairs, etc)
 - Some skills may need to wait for increased growth to be successful
- Medical Problems
 - First priority
 - Wait until strength and stamina builds up before teaching new skills; Nobody wants to work when they are sick or tired!

Our kids are master compensators!

- When learning, they may find a way to achieve a skill with compensations that help them overcome
- Minimize the compensations so they will be able to reach their full potential later

Learning Styles: Motor-Driven vs. Observers

- Motor- Driven
 - Tolerate new positions and movements and take risks
 - Want to move from one place to another and spend limited time in one position
 - Prefer to be moving and exploring rather than being held
 - Love to move fast
 - Like gross motor skills such as rolling, crawling, creeping, moving in and out of positions, climbing, pulling to stand, and walking
 - Resist stationary positions such as sitting, kneeling, and standing

Learning Styles: Motor-Driven vs. Observers

- Observers

- Are cautious, careful, and easily frightened by new movements and positions, and want to be in control
- Like to stay in one position and are content to watch, socialize and play with toys that are available; they need to have a reason to move
- Love to be held and tolerate it for long periods of time
- Prefer to move at a slower speed so they can feel balanced and in control
- Like to learn gross motor skills such as sitting, kneeling, and standing
- Initially may resist crawling, creeping, moving in and out of positions, and walking

Learning Styles and Sensory Processing:

- May have some tendencies in each category
- Over-Responsive
 - Doesn't like getting dirty
 - Picky about clothing or food
 - Insecure about falling or losing their balance
 - May be prone to car sickness
 - Battles with coordination
 - Easily over stimulated/covers their eyes
 - Avoids bright lights/loud noises
 - May gag easily on foods with different textures, temperatures, tastes

Learning Styles and Sensory Processing:

- Under – Responsive
 - Doesn't notice if they sit in something wet, if someone has touched them or if their face is dirty
 - May drop things frequently
 - Prone to falling and getting hurt
 - Swings or spins for a long time without getting dizzy
 - Only responds to active play unless it involves pushing, pulling or lifting
 - Doesn't notice obstacles in their path
 - Responds slowly to moving objects
 - Often eats spicy or hot food without noticing

Learning Styles and Sensory Processing:

- Sensory-Seeking
 - Chew on shirts or utensils
 - Loves rolling around in grass or mud
 - Constantly on the move
 - Loves being upside down
 - “Dare Devil”
 - Enjoys vigorous play
 - Loves shiny, spinning and bright objects
 - Likes the TV/tablet really loud
 - Enjoys being in noisy crowds
 - Often licking/chewing on inedible objects

Learning A New Skill

- Practice **what** they are ready to learn
- Practice **when** they are at their physical best
- Use the **best** motivators
- Know **when to quit**

Learning A New Skill

- Introduce the new skill slowly and carefully
 - Follow their lead and teach/practice what they are motivated to do
 - Don't worry about quality during introduction – frustration with perfection could make your child lose interest in the skill
 - Break the skill down into smaller parts
 - Lots of waiting!
- Allow the new skill to become familiar with practice
 - Practice first in the environment where they will be using the skill
 - Then, work on generalization in other environments
 - Give visual and tactile cues
 - When giving verbal instruction, less is more!

Learning A New Skill

- Encourage your child to collaborate and participate with executing the skill
 - Practice together!
 - Decrease support as soon as possible
 - Practice as long as your child is performing at their best
 - Quality of time is more important than quantity
 - End the practice on a happy experience
- **Build mastery**
 - Refine the skill
 - Continue to decrease any compensation

2 months – 3 months: Gross Motor Interventions

- Bending and straightening arms and legs while on back
- beginning to bear weight on legs while supported
- tolerating 20 minutes or more of tummy time

4-6 months: Gross Motor Interventions

- Maintaining balance in sitting
- bringing both hands to midline while on back
- raises arms and legs in smooth movements on stomach and back

6-8 months: Gross Motor Interventions:

- moves forward up to three feet using arms
- pulls to sitting position
- sits unsupported and maintains balance while reaching for a toy
- rolls from back to stomach
- lifts head while on stomach

9-12 months: Gross Motor Interventions:

- Balances in standing for 5 seconds
- creeps on flat surface and over a small barrier

2-3 months: Fine Motor Interventions

- While lying on back
 - visually tracks rattle from side to side and up and down
 - looks at hands for 3 seconds
 - tightly holds a toy for 30 seconds

4-6 months: Fine Motor Interventions:

- On back, extends arms to reach and pick up toys and rattles
- brings hands together

6-8 months: Fine Motor Interventions:

- Transfers toys from hand to hand
- bangs toys on a table
- pokes finger into a small hole

9-12 months: Fine Motor Interventions:

- claps hands
- removes socks
- releases small toy on purpose
- isolates finger/thumb movement to pick up small item without bracing arm on table

18 months: Gross Motor Interventions

- walks up 4 steps
- walks independently for 15 feet
- walks backwards
- throws a ball

24 months: Gross Motor Interventions

- runs forward at least 10 feet
- jumps with 2 feet
- kicks a ball forward
- walks sideways

36 months: Gross Motor Interventions:

- lifts both feet to jump forward 2 to 4 inches
- walks up 4 steps alternating feet
- stands on one foot for 3 seconds
- catches an 8-inch ball
- walk up a 4" curb without support

18 months: Fine Motor Interventions:

- stacks 2-3 block
- places 3 simple shapes in a chunky puzzle
- grasps a marker with all fingers

24 months: Fine Motor Interventions:

- completes a simple 3 piece puzzle
- stacks 4-6 blocks
- figures out where puzzle pieces go in a simple puzzle
- imitates drawing of a vertical line

36 months: Fine Motor Interventions:

- copies building of simple block structure
- draws a circle
- stacks 10 blocks
- snips with scissors
- strings beads

4 years: Gross Motor Interventions:

- walks down 4 steps alternating feet
- runs and hops forward on 2 feet
- throws a ball overhand at a target from 5 feet away
- pedal a tricycle
- kicks a ball

5 years: Gross Motor Interventions:

- skips for 8 feet
- stands on each foot for 20 seconds
- completes several sit-ups
- runs and changes directions without falling
- walks backwards

3.5 – 4 years: Fine Motor Interventions:

- cuts paper into 2 pieces
- laces 3 holes
- copies the drawing of a plus sign
- traces a thick line
- buttons and unbuttons
- starting to develop a proper pencil grasp

5 years: Fine Motor Interventions:

- starting to color between lines
- folds paper in half lengthwise
- has adequate scissor control to cut basic shapes
- draws a square
- uses well-developed “tripod” grasp on marker/pencil
- has a distinct dominant hand

Gross Motor: Beyond Elementary Years!

- Exercise
- Sports
 - Gymnastics
 - Equestrian
 - Swimming

Fine Motor: Beyond Elementary Years!

