

GROSS MOTOR SKILL DEVELOPMENT

In Children With Down Syndrome

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Early Infancy Issues:

Hypotonia—decreased muscle tone, floppy, poor head control, suck/swallow difficult

Heart Issues / Illness—baby devotes energy to surviving or recovering.

These lead to decreased endurance  Less practice of skills

ALL impact the baby's stamina for eating, moving, working against gravity.



For every MONTH that a child is coping with medical issues, subtract a month of growth in physical development.

Key Functional Concepts in the first 12 months:

Sits and plays with toys with both hands.

Improves cognitive opportunities

Increases exploring and attention

Moves as a way to get to things.

Moving oneself is an important CONCEPT!

Improves exploring and learning opportunities.

Gets into sitting on the floor by self.

Allows baby to Move, and then Sit.

Bears weight on feet when placed with support

Milestone	Range for Children with Down Syndrome	Typical Range
GROSS MOTOR		
Sits Alone	6 – 30 Months	5 – 9 Months
Crawls	8 – 22 Months	6 – 12 Months
Stands	1 – 3.25 Years	8 – 17 Months
Walks Alone	1 – 4 Years	9 – 18 Months
LANGUAGE		
First Word	1 – 4 Years	1 – 3 Years
Two-Word Phrases	2 – 7.5 Years	15 – 32 Months
SOCIAL/SELF-HELP		
Responsive Smile	1.5 – 5 Months	1 – 3 Months
Finger Feeds	10 – 24 Months	7 – 14 Months
Drinks From Cup Unassisted	12 – 32 Months	9 – 17 Months
Uses Spoon	13 – 39 Months	12 – 20 Months
Bowel Control	2 – 7 Years	16 – 42 Months
Dresses Self Unassisted	3.5 – 8.5 Years	3.25 – 5 Years



Most children with Down Syndrome follow a typical developmental sequence, however the timeline is delayed.

Every child with Down Syndrome is different! Some children have other diagnoses as well.

On average you could expect that they will develop physical skills at half of the rate of their peers without Down Syndrome.

Children with lower muscle tone may require much more repetition of skills to build the appropriate strength as compared to peers.

Ligamentous laxity-- need to exert a greater than expected force at the joints in order to compensate for the lack of structural (ligamentous) support.

SOMETIMES THIS IS WHY THEY RESIST BEARING WEIGHT ON THEIR FEET—ITS WORK! Use frequent but short duration practice.

Resistance to being positioned on their tummy because they must work entirely against gravity. **ITS WORK!** Adapt by positioning to lessen the work.

Limited trunk / lower hip rotation = scooting forward on their bottom in lieu of creeping on hands and knees. Needs to be taught how to use rotation.

ROTATIONAL SKILLS

Rotational movements--require coordinated use of both the front and back sides of the body as well as lengthening one side of the body while shortening on the other.



Why Rotation is Important to Develop

Rotational skills incorporate both sides of the body.

Rotational skills often incorporate Crossing the body.

Rotational movements are more mature than straight movements.

Shoulder, trunk, and hip rotation develop as skills mature---all the way through throwing a ball, kicking a ball, and walking well.

POST WALKING GROSS MOTOR SKILLS

Averages for child with Down Syndrome

Step down a curb, without hand support	35 months
Walk up a curb, without hand support	36 months
Walk fast 100 feet	37 months
Walk up stairs, two feet per stair, with one hand holding the rail	39 months
Walk down stairs, two feet per stair, with one hand holding the rail	40 months
Jump on floor with both feet together	47 months
Step down from an 8" stepstool, without hand support	47 months
Step up onto an 8" stepstool, without hand support	49 months
Run 100 feet, period of only 1 foot on floor	52 months
Walk up stairs, one foot per stair, with one hand holding the rail	56 months
Pedal tricycle 15 feet	61 months
Hop on one foot 1 time	Ages 5 - 7
True skipping pattern	Ages 7-8
Pedal bicycle without training wheels	Ages 8 - 10

Physical Therapy Services Past Age 7 – 8

After age 7 – 8 most PT services in the school decline or are discontinued.

Services are focused on adapting PE or Playground, and Teacher Assistance may be sufficient to do this.

After 3rd grade, games in PE tend to be harder to understand, so it is not just the lack of physical skill but not understanding the game that is a barrier.

Physical Therapy Services Past Age 7 – 8

Adapted sport teams, martial arts, dance, gymnastics are all good ways for the child to continue to develop gross motor skills.

The child's behavior is crucial to inclusion. Must be able to follow directions and comply with the group.

Physical therapy services are more situation specific, such as learning a particular task, and short term in nature.

Penni's Suggestions from 37 years of experience.

Start bearing weight on baby's legs early, from 4 months on.
If not bearing weight by 15 months, use a standing frame.

Use bracing / shoe supports if recommended ---preventative.

Seek help for a "runner" (past age 3) or a "dropper" (sits down and refuses to stand up. These are behaviors that get harder to stop over time. They are easily addressed behaviors, but require consistency.

Penni's Suggestions from 37 years of experience.

Start early keeping your child active. Once they can walk (or before) take them outside, to parks, go on walks.

Keep them active in grade school. Throw and kick a ball, shoot baskets, etc

Involve them in Special Olympics.

Take them places and expect them to walk up and down hills, stairs, etc.

Teach them swimming, bowling, outdoor games (bean bag toss) etc.

This will help them develop skills to be healthier adults.

Physical Skill Development

<https://library.down-syndrome.org/en-us/news-update/02/4/movement-abilities-down-syndrome/>

Gross Motor Goals for students with Down Syndrome.

<https://www.easterseals.com/our-programs/childrens-services/gross-motor-goals-for-kids.html>

Young Athletes Information and Videos

<https://resources.specialolympics.org/sports-essentials/young-athletes>