EARLY INTERVENTION IN LOW VISION

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AIMS

This module aims to outline the need for early intervention in low vision via developing a:

- Knowledge base of developmental milestones
- Protocol for vision correction

LEARNING OUTCOMES

After completing this module, students should be able to:

- Describe the types of intervention services
- Analyse the development of a child to meet expected milestones
- Recognise the importance of early visual stimulation for ocular development

INTRODUCTION

WHAT IS EARLY INTERVENTION?

Early intervention is characterized by the assessment and therapy of children from birth to 3-5 years to enable normal cognitive and emotional development and to prevent developmental disability or delay. The intervention is carried out by a multi-disciplinary team including clinical, education and rehabilitation practitioners.

The most important role in early intervention is played by the family/caregiver who takes responsibility to provide the necessary training and environment modification at home.

INTERVENTION SERVICES

WHAT ARE EARLY INTERVENTION SERVICES?

Early Intervention Services are services provided to young children who have or are at risk for disabilities or special needs. These services are for children who are in the age range from birth to three or five years. The services are generally comprehensive and family-based, ranging from speech and occupational therapy to general intervention and instruction.

DEVELOPMENTAL MILESTONES

WHAT ARE DEVELOPMENTAL MILESTONES?

Certain behaviours and actions are expected from a child at a particular age. These include making eye contact, following a bright and colourful object, smiling while looking at a mother's face, grabbing objects of interest, etc.
If a child does not perform the actions which children with no disabilities/delays can undertake, it is said that the child has delayed milestones.

There are five main areas of development that are considered in developmental milestones:

1. Cognitive development: refers to the child's ability to learn and solve problems.
2. Personal and social development: refers to the child's ability to interact with others and exert self-control.
3. Language development and communication: refers to the ability to understand and use language.
4. Fine motor skill development: refers to the ability to use small muscles, specifically their hands and fingers, to pick up small objects, hold a spoon, turn pages in a book, or use a crayon to draw.
5. Gross motor skill development: This is the child's ability to use large muscles. For example, a six-month-old baby learns how to sit up with some support, a 12-month-old baby learns to pull up to a stand holding onto furniture, and a five-year-old learns to skip.

Gross and fine motor development in infants and toddlers (Source: Elzouki et al. Textbook of clinical paediatrics. Springer)

Age in months	Gross motor skill	Fine motor skill
1	Head up when prone	Hold rattle
2	Chest up when prone	Grasps toy briefly
3		Hands unfisted
4	Rolls front to back	Hands to midline
5	Sits with support	Transfers objects

6-7	Sits without support	Rakes in toy, bangs blocks together (7-8 months), transfers objects from hand to hand
8-9	Pulls to stand	Immature pincher, feeds self with pieces of food
10	Cruises holding onto furniture, crawls or “cover territory”	Mature pincher – picks up small objects with thumb and fingers
12	Cruises, beginning to walk alone	Releases – put down a small toy without dropping it
15	Can bend over to pick up a toy on floor and then stand up without support	Scribbles on paper, uses a spoon to feed self but messy
18	Walks up stairs, one stair at a time holding on	Tower of three cubes, takes off shoes, socks
24	Jumps with two feet, jumps down a step from last step	Uses a spoon without spilling much, uses turning motion with doorknobs or jars
30	Walks down stairs, both feed on each step, runs well, kicks a ball	Builds bridge from three blocks, copies vertical and horizontal lines
36	Walks up stairs alternating feet	Can string beads on shoestring, copies a circle, feeds self well with fork and spoon

Early intervention programs guide parents to provide a conducive environment required by their children. The program allows parents to be aware of their child’s development in relation to other children or to the norm. In this way, they may be able to tailor their expectations to what the child can achieve, and then provide the appropriate stimulation for the achievement of different milestones.

The table below provides guidelines on the developmental milestones for a child’s development from birth to 3 years of age.

(Source: Connecticut Department of Social Sciences. Connecticut’s guidelines for the development of infant and toddler early learning: A Handbook for Caregivers of Young Children. Available at: http://www.ct.gov/dss/lib/dss/dss_early_learning_guidelines.pdf)

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
Birth to 3 moths	Social A baby: • May smile (reflexive at first). • Will smile at people who smile at her by the age of 3 months. • Begins to make eye contact. • Watches and listens to people and things around him. • Is soothed by your face. • Watches people (the first sign of socialization). • Feels better when held and cuddled. • Uses crying as a way to tell you what she needs. • Likes being held. • Likes sound and touch Feelings and Self-Awareness A baby: • Shows if they are happy or unhappy. • May cry, turn away, or tense her body when tired. • Does not yet separate himself from the world. • May be startled by bright lights or loud noises.	Large Muscle Development A baby: • Will lift her head for a short time. Continue to support her head. A baby's most important physical task is head control. • Can turn his head to clear his nose for breathing and turning toward sounds. • Has reflexive arm and leg movements, which are not under her control. Small Muscle Development A baby: • Often clenches his hands, making a fist. • Grasps things placed in her hands due to reflexive action. By the end of this period, a baby will use her hands one at a time and on purpose to bat at and grasp objects. • Looks at things, especially faces and begins to follow them with his eyes. • Brings things to her mouth. • Follows moving things with his eyes by 3 months and likes watching his own hands as he moves them through the air. • Gets comfort from sucking, which has now become voluntary. Let a baby use her thumb, fist, or pacifier to meet these natural sucking needs. • Responds to sound (see The Progression of Early Language Development page 10) and touch. A newborn's sensitivity to touch is well developed.	A baby: • Can hear a variety of sounds and is amazed by the sounds of language. • Will turn her head in the general direction of sounds heard. • Communicates through crying to let you know what he needs. A baby cries to let you know he is hungry, upset, cold, bored, tired, uncomfortable, or over stimulated. • Responds to voices. Newborns not only hear your voice, but show they like listening to it by turning their heads toward your voice. • Is sensitive to noise levels. • Begins cooing toward the end of this period. • Makes sounds with her saliva	A baby: • Begins to follow things or faces with her eyes as they move. • Responds to faces or things he sees and looks at faces. • Sucks and gums things that come near his mouth. • Shows reflexes that are the beginnings of sensory skills, which in turn help in the development of intellectual skills. • Enjoys looking at black and white and high-contrast colours. • Begins to bring her fist to her mouth, a first sign of coordination of movements. • Begins to do more than one thing at a time (looking and hearing, seeing and sucking) by the end of this period.

Activities that Support Healthy Growth and Development:
Developing Trust: Feeling your touch, hearing your voice and enjoying the comfort of physical closeness all help a baby develop trust.
What You Need: Soft Music
What to Do:
• Gently move a newborn's arm and legs. Or, tickle her lightly under the chin or on the tummy. When she starts to control her head, lie on the floor with her on your stomach and with her head on your chest. Let her reach for your nose or grab your hair. Talk to her and name each thing that she touches.
• Place the baby on your belly. Some research has shown that such contact releases chemicals called endorphins that help the baby feel comforted. In addition, such contact builds stomach and back muscle strength that is essential as he learns to crawl.
Sing and cuddle. Hold her snuggled in your arms or lying face up on your lap with her head on your knees. Make sure the head of the newborn is well-supported. Sing a favorite lullaby.
• Include happy rituals in the baby's schedule. For example, at bedtime sing the same song every night, rock him, or rub his tummy.
• Pick up a crying infant promptly. Try to learn what is wrong. Is she hungry? Wet? Bored? Too hot? Crying is a baby's way of communicating. By comforting her, you send the message that language has a purpose and that someone wants to understand her.

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
3 to 6 months	Social A baby: • Begins to recognize you! • Identifies and responds to your voice. She may smile, make sounds and/or move her arms and legs, and wiggle her body. • Responds differently to different people. • Laughs and giggles. • Is becoming very interactive. He may babble, then wait for a response from you. • Wants to explore food and begins feeding herself finger foods by six months. Feelings and Self-Awareness A baby: • Displays a wider variety of feelings and uses his voice to express them. • Coos and babbles in response to interaction and to express feelings. • Begins to realize her hands and feet belong to her and begins to explore them, as well as exploring her face, eyes, and mouth. • Is learning to fall asleep on his own. • Reacts when she hears her own name.	A baby: • Begins to gain voluntary control of his arms and legs and is beginning to lose reflexive behaviours. • Is gaining control of her head, beginning to control and lift it when held in a standing position. • Will slowly push up and arch his back while on his stomach by using arm muscles and moving his legs. He is strengthening the arm, leg, head, neck, and body muscles that will someday help him roll over, sit, and stand in a position for walking. • Reaches, grasps, and bats objects. • Lifts her head and chest using her arms for support. She enjoys kicking and stretching her arms and legs. • May be able to roll over in both directions and begins to sit with help by 4 to 6 months. • Will move in a variety of directions providing the experience she needs to learn how to balance and gain control over her body. This includes moving side-to-side as when swaying; moving up and down as when bounced; and moving back and forth as when walking. All of these movements occur automatically when a baby is in your arms. (Brain Wonders) Small Muscle Development A baby: • Is reaching out for things with his arms. He is more actively touching and exploring things. The grasp reflex no longer takes over his hands all the time. • May reach toward something and miss. • Is getting better at scanning, following and focusing on things around her. She can see in colour, see more clearly, understand depth and adjust to different distances.	A baby: • Is beginning to listen carefully. • Coos, whimpers, gurgles and makes many other sounds. Vowel and consonant sounds will be held longer and increase in quantity, slowly changing to true babbling at around 5 months. • Listens to sounds she makes with her mouth. • Cries less often and vocalizes to initiate social contact. • "Talks" to himself and others through various sounds. You may begin to notice him making sounds or bubbles with his mouth. These are ways in which a baby experiments with new sounds and are important motor practice for later speech. Making these sounds is enjoyable for a baby. Go ahead and make them back to him. • Uses vocal and non-vocal communication to let you know her interests and to help you understand what she wants. • Develops a sense of communication as you copy the faces and sounds he is making. • Repeatedly produces strings of one syllable at a time, such as "ba", "ma" by the age of 6 months. Babies babbling will also mimic the tone of conversational speech, rising and falling in rhythm with their vocal expressions. They are becoming true conversational partners. For babbling to develop further, she must be able to hear the language that surrounds her. If a baby's hearing is impaired (e.g., by ear infections) or if she is deaf, her vocalizations will be delayed or even absent. (Brain Wonders)	A baby: • Explores everything with his mouth. Be sure toys are clean and that items that he can choke on are out of reach. Avoid things that are less than two inches around (or fit inside a toilet paper tube), have small removable parts, or sharp edges. • Responds to what she sees and pays attention to what she is viewing for longer periods of time. She is alert for more of her awake time. • Looks from one thing to another. • Is beginning to hold things on his own and play with them a little. He grasps items of interest and looks closely at them. It is through touch that he begins to know the limits of his body. • Shows signs of remembering. • Looks for the source when she hears a noise. • Looks and sucks at the same time but needs to stop sucking to listen. • Shows interest in back and forth pretend games. • Brings things to his mouth to explore. • Stops crying when you approach. • Uses her whole body and senses to play with toys and other safe things. She plays by herself, with a primary caregiver, and at times with or near other babies.

Activities that Support Healthy Growth and Development

- To entertain a baby, sing an action song. For example: If you're happy and you know it, clap your hands! If you're happy and you know it, clap your hands! If you're happy and you know it and you really want to show it, If you're happy and you know it, clap your hands!

If you don't know lullabies or rhymes, make up your own!

- Dance with the baby. To soothe him when he is upset, put his head on your shoulder and hum softly or listen to recorded music as you glide around the room. To amuse him when he is cheerful, try a bouncy tune.
- Talk to her often. Answer her coos and gurgles. Repeat the "ga-ga's" she makes and smile back. Sometimes, you can supply the language for her. For example, when the baby stretches her arm toward her bottle and says "ga-ga-ga", say, "Oh, you're ready for some more milk? Here's your milk. Is it good?"
- Lay him on his back and hold brightly coloured toys over his chest within his reach. He will love reaching up and pulling them close to him. If infant has no vision, no light perception, you can bring the toy to his hands and place his hands on the toy.
- Play with her in front of a mirror you can get very close to. The image in the mirror is twice as far away as you are from the mirror. Call her by name, point to her facial features (eyes, ears, mouth, nose, hair) and name them. If not enough vision for this, have infant touch your mouth and then touch her mouth, then eyes and nose and chin and name them. Make it a game.
- Gently tickle him and laugh together with him.
- Go to the library or search Internet resources for additional ideas. See Infant-Toddler Program at Perkins School for the Blind reference below.

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
6 to 9 months	A baby: • Interacts with familiar people. • May respond with fear or anxiety to strangers or unfamiliar people, and even relatives whom she has not spent much time with (often called stranger anxiety). • Calls to you for help if stuck in a position he does not want to be in, or if something he wants is out of reach. • Delights in copying you and having you copy her. • Enjoys games like peek-a-boo with others. • Enjoys affectionate games. For example, he may reach out to touch your face. Feelings and Self-Awareness A baby: • Now shows an even wider variety of feelings. • May seem to have quick mood changes. • Can see the difference between herself and rest of the world. • Responds to his name. • Shows taste preferences. • May show signs of wanting to feed herself. • Is comforted by items such as a stuffed animal or a special blanket that helps him to feel safe and secure.	A baby: • Has full control of her head. • Will move in whatever way he can (rolling, scooting, dragging his body across the floor) to get where he wants. • Rolls from back to stomach and stomach to back and may use rolling as a way to get from one place to another. She may almost curl her body to a sitting position while rolling. • May creep or inch forward or backward. • Appears focused on moving his body in relation to his environment. • Begins to sit alone. • Begins to sleep through the night. • May begin to pull herself up on things in order to stand. • Delights in throwing, banging, or dropping objects over and over again. Small Muscle Development A baby: • Reaches with one arm and successfully grasps things of interest. • Holds things and plays with them using his hands. • Moves things between hands. • Investigates things.	A baby: • Responds to different voice tones and inflections. • Copies tones and inflections. • Enjoys short songs and games with words that repeat such as peek-a-boo and pat-a-cake. • Has more control over sounds she makes. • Can now make many sounds to let you know how he feels. • Is learning what words mean. • Continues to communicate though her actions. • Begins to look for things you name. • Listens closely to the sounds in his environment. • Understands a few words that he hears often, such as mommy, daddy, baby, bye-bye. • Can vocalise simple syllables “ba”, “pa”, “da”, “ma.” • Begins to babble “ma-ma”, “ba-ba”.	A baby: • Is alert during waking hours. • Knows familiar things. • Sees, reaches for and plays with things. • Looks for dropped things, which develops object permanence (the understanding that something is there even when out of sight). • Uses several senses at once. • Waits for the effects of her actions. • Has a stronger memory. • Experiments with trial and error. • Is very curious and explores the world around him. As a baby’s mobility increases, he begins to look for and explore what he can see, hear, and feel. He will repeat actions over and over. • Understands a few words that are repeated often. • Begins to see that certain behaviours bring the same response (cause and effect). • Uses toys in more difficult ways, moves from mouthing a small container to scooping and pouring. • Explores and plays with a variety of things at once.

Activities that Support Healthy Growth and Development

Touch and See!

Whenever they are awake, babies are hard at work trying to learn all about the world. To help them learn, they need many different things to play with and explore.

What You Need

• Different textured fabrics, such as velvet, cotton, corduroy, satin, burlap and fake fur.
• An old purse or basket of things into which the baby can put things and take them out.
• Measuring cups.
• Boxes and plastic containers.
• Noisemakers (rattles, plastic toy keys, etc.).

What to Do:

• Let the baby look at, touch and listen to a variety of things. Brightly coloured things that have interesting textures and make noises are particularly good. Describe the things and the sounds they make as she is exploring them.
• Put one or two things in a play area where the baby can reach them (more than two things at a time may be confusing).
• Say or read nursery rhymes or other verses that have strong rhythms and repeated patterns of sounds. Vary your tone of voice, make funny faces and sing lullabies. Play games such as “peek-a-boo” and “pat-a-cake.”

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
9 to 12 months	Social A baby: • Enjoys performing for you, teasing, copying you and doing silly things to make you laugh. • Shows interest in interactive games (peek-a-boo, pat-a-cake). • Starts and enjoys interactions with other children and adults. • Is becoming sensitive and interested in the moods and activities of others. • Plays next to other children (parallel play). • Can guess what will happen next. • Closely watches the actions of adults and other children. Feelings and Self-Awareness A baby: • Is attached to his primary caregiver and shows signs of preference for this person over others. • May fear separation and strongly protest your leaving. • Shows love and anger to you and other special people in her life. • Rejects things he does not want by pushing them away, throwing them, or swatting them out of the way. • Interacts with herself in the mirror. • May become frustrated or angry with toys that are not doing what he wants them to do. • Is developing self-help skills. She feeds herself finger foods and drinks from a cup while holding the handle.	Large Muscle Development A baby: • Crawls on her hands and knees. • Crawls carrying something in his hand or mouth. • Pulls herself up to stand. Soon she will be able to lower herself to a sitting position. • Stands alone. He may not be able to get down easily from a standing position. • Can get into a sitting position on her own. • May move along holding on to furniture (side stepping). • Moves about freely in his environment by crawling, cruising (side-stepping around furniture), or walking with help or alone. • Continues to experiment and discover effects she can have on toys: shaking, pushing, dropping, throwing, or banging. • Can throw a ball. Small Muscle Development A baby: • Can pick up small things easily with his thumb and forefinger (pincer grasp). • Explores and plays with things using her forefinger. • Is strengthening eye-hand coordination. • Uses his forefinger to point. • Turns pages in a stiff cardboard book. • Can make marks with jumbo crayons.	A baby: • Shows interest in the conversations of others. • Responds to names of familiar things. • Can carry out simple requests (things you ask her to do) so make simple requests of her such as, “Give me your book.” Or “Wave bye-bye.” • Uses words such as “ma-ma” and “da-da” and talks to himself. • Uses intonations in her vocalizations. She jabbers expressively and enjoys “talking” to herself in the mirror. • Enjoys repeating the same sounds over and over. He shouts and yells for pure delight. • Is starting to understand your words. For example, when asked, “Where’s the ball?” she will look for it. • Is starting to understand what others are saying (receptive language) before he can say the words. • Uses gestures and/or sounds to affect the behaviour of others and to join in social interaction.	A baby: • Now remembers games and toys from the past. • Can guess when people will return. • Can stay on a task (such as working on a puzzle) for longer periods of time. • Will uncover or look for a toy she has seen hidden. She remembers where she has hidden the toy. • Enjoys dumping and filling things. • Can solve simple manipulative challenges (e.g., shape sorters). • Is becoming interested in seeing the results of his actions. • Understands 10-15 often-used words. • Practices actions over and over again. This is how she figures out how things work. • Is beginning to use things symbolically. • Understands the meaning of “No.”

Activities that Support Healthy Growth and Development

Baby Talk

Babies love hearing the voices of the people in their lives.

Materials You Need: No materials required.

What to Do:

• Touch her nose, ears, eyebrows, mouth, etc. and repeat the word for this body part several times. Do this with things, too. When she hears you name something over and over again, she begins to connect the sound with the object.
• Point to and name familiar things. By hearing the name of something over and over, he learns to associate the spoken word with its meaning. For example, “Here’s your blanket. Your very, favourite blanket. What a nice, soft blanket!”
• Look at books together and name things that she points to in the book.
• Show him pictures of animals and make the sounds the animals make. Encourage him to copy you: “The cow says moo!” “Can you say moo?”
• Cut a large opening in a large cardboard box. Let her crawl into it and play.
• Children enjoy quiet times and places where they can be alone. He may go to his special place himself when he wants to be alone.

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
12 to 18 months	Social A toddler: • Can follow one and two-step directions. • Looks for your approval but is not always cooperative. • Will show you when she needs your help. • Will prefer you and rely on you to give comfort, reassurance, assistance and affection. • Shows a sense of humor. • Names his own feelings and the feelings of others. • Would rather play alongside other children and will copy playmates. • Uses the word "NO" to show independence. Feelings and Self-awareness A toddler: • Shows many different feelings and responds to the feelings of others (e.g., may cry when others cry). • Focuses on himself and says things are his. • Continues to fear strangers and often, new and unfamiliar places. • Shows affection to an increasing number of familiar people. • Will make clear her likes and dislikes and moods, which are going to be her own and different from yours. • Is beginning to know the difference between what is his and what belongs to others. • May experience frustration as she has difficulty expressing her needs, desires and feelings in words. • Expresses or shows a strong will and tests the limits to strive for independence. • Shows interest in doing things for himself, including dressing and feeding.	Large Muscle Development A toddler: • Stands without support. She may take steps by herself but stills prefers to crawl as a faster way to get around. • Lifts his knees high and steps down with the front part of his foot hitting the ground first. At first, his walking appears clumsy. As he approaches his 2nd birthday, he begins to step more smoothly with a heel-to-toe movement. • Is now able to move more easily around things in her environment. Walking becomes more coordinated. • Can climb up and down stairs. This is also a time when he might try climbing out of his crib. • Runs, propels herself on riding toys, throws objects, kicks, hops on two feet, expresses herself through dance. Small Muscle Development A toddler: • May use both hands at the same time for two different reasons and prefers one hand over the other. • May undress himself or untie his shoes. This is a good time to encourage self-help skills. • Shows interest in exploring sensory materials and uses art materials. • Feeds herself finger foods, drinks from a covered then an uncovered cup, and washes her own hands.	A toddler: • Knows that words stand for things. • Recognizes named body parts. • Makes sounds and says words very similar to those he has heard most even though you might not understand the words. • May say her first words which often are the name of a person, thing or action. Words may include "hi," "bye," or "no." • May say two to eight words. Remember receptive language (the ability to understand what others are saying) develops before expressive language (the toddler's ability to speak words). • Uses non-verbal signs that he understands what you are saying, such as pointing or moving toward something you have named. • Begins to increase her vocabulary toward the end of this period. Vocabulary usually is not more than 10-20 single words. • Uses gestures and sounds together to tell you what she wants you to know. • Will repeat or try another ways of letting you know what he wants if his first try does not work.	A toddler: • Can find hidden toys and will go looking for them if you ask him to. • Has a better memory. • Can solve a problem and tries new ways to solve problems. • Often (not always) thinks about actions before acting. • Copies others who are not present. By 12 months, the brain has matured enough that it is possible for toddlers to remember things that happened a few hours or even a day earlier. Within the 12-18 month range, the toddler is able to remember what someone else did and repeat it some time later. • Has the potential to learn from what she has seen others do. You may demonstrate the use of a particular toy such as banging on a musical instrument or placing a peg in a hole. While the toddler may not repeat the action immediately, she may display it in some form at a later time in the day or week. (Brain Wonders) • Becomes more and more familiar with stories and remembers sequence and details. He delights in his excitement over being able to guess what comes next. Do not be surprised if he becomes upset when you try to skip pages in his favourite book. • Is starting to role play and use props in pretend play

Activities that Support Healthy Growth and Development

Shop 'Til You Drop

Shopping for groceries is just one of many daily routines that you can use to help a toddler learn. Shopping is especially good for teaching new words and for introducing him to new people and places.

What You Need: A grocery shopping list.

What to Do

• Pick a time when neither you nor the toddler is hungry or tired.
• At the store, put him in the shopping cart facing you. Take your time as you walk up and down the aisles. Let him feel the items that you buy - a cold carton of milk, for example, or the skin of an orange. Talk to him about the items: "The skin of the orange is rough and bumpy. Here, you feel it."
• Be sure to name what you see on the shelves and talk about what you are seeing and doing: "First, we're going to buy some cereal. See, it's in a big red and blue box. Listen to the great noise it makes when I shake the box. Can you shake the box? Now we're going to pay for the groceries. We'll put them on the counter while I get out the money. The cashier will tell us how much money we have to pay."
• Encourage the toddler to practice saying "hi" and "bye-bye" to clerks and other shoppers.
• Leave the store before he gets tired or grumpy.

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
18 to 24 months	Social A toddler: • Is becoming aware of other people's points of view. He begins to understand that others have feelings and becomes very interested in them. • Plays make believe (dramatic play) and pretends to be a character in a book or movie with you or others. • Uses words or pictures to tell you what she is interested in… "Look, airplane!" • Continues to enjoy copying adult behaviors and activities. • Is interested in helping with day-to-day activities around the house. Feelings and Self-Awareness A toddler: • Shows increased interest in the dressing process. Taking off his clothes is becoming a big hit! • Is becoming an independent person who wants to do things by herself. "NO" becomes one of her most powerful words; she enjoys saying it and trying it out in many contexts. • Temper tantrums may be on the increase as he realizes he cannot do everything he wants when he wants, or tell you in words exactly what he is feeling. • May be refusing to eat. This is often a sign of both her growing independence and a decrease in appetite and rate of growth. • Is drinking from a cup without a lid, using a spoon to feed himself and performing many other simple tasks by himself. • Is beginning to gain some bladder and bowel control.	Large Muscle Development A toddler: • Is beginning to walk faster and in a more coordinated manner. • Runs, but awkwardly. • Will walk up stairs holding a hand. • Is learning to master body movements by stooping, walking, kicking, throwing, climbing and running. • Can bend over to pick things up without falling. Small Muscle Development A toddler: • Can use a crayon to scribble, as well as copy marks. • Is gaining better control when feeding herself.	A toddler: • Can respond to personal pronouns (me, her, him). • Can follow 2-step commands (e.g., "Please pick up your shoes and put them in the closet"). • Listens to gain meaning from what is heard. • Begins to use more words than gestures when speaking. • Is using her words to gain attention and indicate her wants, sometimes very forcefully. • Uses words to tell you about specific things, people, or actions. • Uses words such as "I", "me" and "your." • Has a vocabulary that is growing by leaps and bounds – around 9 new words a day. He understands simple questions, can speak about 50 words and understands about 300 words by age 2. • Speaks in short, two-word phrases like, "Me up!" meaning "Please pick me up!"	A toddler: • Is beginning to solve problems in her head. • Is quickly learning new words. • Is beginning to enjoy imaginative play and role playing, such as being a "dog" - walking on 4 legs and barking (symbolic play). • Knows some sounds that animals make and enjoys copying them. • Takes things apart and tries to put them back together again. • Will figure out how to move past things, such as climbing on a chair to reach something he wants that's too high for him to reach from the ground. • Is calling on past experiences to figure out new challenges. • Continues to be very curious about her surroundings and new environments. • Begins to notice tiny details. • Is experimenting with cause and effect. He is a little scientist, causing things to happen and then watching to see what happens next. For example, he may roll a ball into blocks and watch them fall. Then he may roll a ball into a chair and see that it doesn't move. • Is using one object to represent another (using a block as a phone). • Recognizes herself in the mirror.

Activities that Support Healthy Growth and Development:

Make your own play dough: 2 cups flour, 1 cup salt, 2 tablespoons cream of tartar, 2 cups water, 1 tablespoon mineral oil, Food colouring. Mix all ingredients in a saucepan. Cook over medium heat, stirring until stiff. Allow to cool, then knead. Store in a zip lock baggie. It will last a long time. Use cookie cutters to make different shapes. Poke a hole near the top of each shape. Let air dry. Put string through the holes and hang from a hanger to make a mobile.

Make your own finger paint: 1/4 cup cornstarch, 2 cups water, Food colouring. Mix ingredients in a saucepan. Boil until mixture thickens. Allow to cool, then pour into jars or other storage containers and colour with food colouring. Best used on a glossy paper (butcher or shelf paper) that's taped to a surface like the floor or a low table.

Age	Personal and social development	Physical development	Language development and communication	Cognitive development
24 to 36 months	Social A toddler: • May want to keep what belongs to him close by and often will not want to share. • Will play for longer and longer periods of time. • Is more involved and interacts more in play with other children. • Begins to seek out play with other children on his own. • Plays make believe with one or more children. Feelings and Self Awareness A toddler: • Begins to understand the idea of personal property and may say, "That's mine." • Begins to show independence and continues to show pride in his accomplishments. • May say "no" at first, even to something she wants. • Still finds it hard to describe how he feels even though his vocabulary is growing and he is able to put more words together. This can be frustrating for him.	Large Muscle Development A toddler: • Enjoys running but may have difficulty stopping and turning. He also likes hopping, skipping, jumping and climbing. • Walks up and down stairs using one foot then the other. • Throws a ball and kicks it with one foot. • Begins to balance on one foot. • Pedals a tricycle. Small Muscle Development A toddler: • Helps to dress herself with clothing that's easy to put on. She may still need your help with snaps, buttons and zippers. • Begins to brush his own teeth with help. • Can use a spoon, fork and cup but may still spill. • Can turn pages of a book one by one. • Enjoys messy, creative play such as painting with a paint brush, finger painting, scribbling, gluing and taping under your careful supervision. • Begins to favour one hand over the other. • Begins to cut with safety scissors, draws straight lines, and can copy a circle.	A toddler: • Enjoys expressing himself through language. He talks about what he is doing while doing it, trying out what he has learned about communicating with others in new contexts. He expects even strangers to be language partners with him. • Can talk about the past. • Can say her own first and last name. • Has mastered vowel sounds and many consonant sounds although he still may have trouble with articulation. • Will use personal pronouns such as I, me and you, although not always correctly. • Enjoys telling and retelling stories and short jokes (sometimes forgetting the punch line). • Takes cues from others, laughing out loud when others are laughing. • Enjoys talking on the phone and pretending to talk on the phone. • Enjoys "reading" familiar books to you and other playmates. • Understands "How" and "Why" questions. • Uses phrases or sentences to ask a question about something she wants to do (e.g., "Go to playground?") with inflection. • Has conversations with adults and peers that make sense, often with four or more back and forth comments on a variety of topics. • May speak between 800 - 900 words and understands more than 1,000 words by the end of this period.	A toddler: • Is beginning to solve many problems on his own and will try many ways to solve a problem that he is facing. • Will stay focused on a task for longer periods of time. • Enjoys simple puzzles (4-5 pieces), and simple jokes. • Knows most of her body parts and can name them on dolls and people. • May count two or three things. • Enjoys comparing sizes – "big" and "small." • Notices differences in size, shape and colour, and enjoys matching and grouping things that are alike. • Remembers events and places he has been and enjoys telling others about his experiences. • Begins to explain WHY she wants to do something. For example, "Why do you want the apple?" "Because I'm hungry."

Activities that Support Healthy Growth and Development:

• Puppets (home-made will do just fine) offer an opportunity for children to safely express their feelings through pretend play. For directions on making puppets, check the Internet, sewing patterns at fabric stores, and your own imagination! Puppets can be made from all kinds of materials: socks, fabric scraps, felt, paper maché, poster board, paper bags, paper plates and cups, and even vegetables!

• Mirrors and dolls also inspire toddlers to engage in pretend play. Mirrors enable him to see himself during dress-up play as he explores different roles using related props. (Dombro, Colker and Dodge 228)

• Dolls that are about 12 - 15 inches long and can be carried in one hand are preferred. Dolls should reflect different ethnic backgrounds to promote his understanding and acceptance of diversity in the larger world. (228)

• Using a paper bag or a shoe box, design a "mystery" box or bag for her to explore. Toddlers enjoy the surprise of reaching into a mystery box to discover hidden objects that must be identified by their shape, texture, or smell.(229)

"Toddlers naturally gravitate to toys that promote their independence. Self-help boards, cards, or frames for practicing fastening and unfastening Velcro strips, snaps, buckles, hooks, and zippers are always favourites". (229)

• Push and pull toys, blocks, riding toys, climbers, and even large cardboard boxes continue to be popular with this age group.

It is important to be able to identify developmental delays in children since early detection can have a significant impact on reducing negative consequences through early intervention.
The intervention is based on:

- Functional assessment compared to normal developmental milestones
- Observation of behaviour and responses during activities
- Information from parents and guardians
- Existing case reports (if available)

The assessment can inform specific therapy and an individualised treatment plan.

The success of an intervention is based on a team approach in which relevant professionals and the family are involved. The severity and nature of the disabilities present will inform which people constitute the team. They may include:

- Parents and family members
- Treating Optometrist or Ophthalmologist
- Low Vision Optometrist or Ophthalmologist
- Rehabilitation Counsellors
- Social worker
- Physiotherapist
- Speech therapist
- Clinical psychologist
- Occupational therapist
- Special educator
- Orientation and Mobility Specialist

The focus of the early intervention addresses:

- Gross motor, orientation and mobility skills
- Fine motor skills
- Sensory stimulation
- Cognitive development
- Communication and early literacy skills
- Social and emotional development
- Compensatory skills (touch, hearing, along with assessing amount of useful vision)

VISUAL STIMULATION FOR A NEWBORN

The senses play a significant role in a baby's development. The brain of the baby is disorganised and receives input from all the senses.

If poor vision is suspected in an infant, an eye examination to determine the cause of the loss, best treatment and best eyeglass correction is very important as soon as possible and periodically reviewed as the infant grows and develops. The amount of vision can be measured in a young infant because the infant responds to black and white stripes with reflexive eye movements once the stripes are bold enough for the infant to see. Testing is done at a close distance of 8-12 inches with a spinning striped drum or by giving the infant the choice between a plain grey card or a striped card, a testing technique called preferential looking.

Stimulation of vision is very important for infants and young children because the potential for visual development will not be known or measured accurately for several years. Wearing the best glasses correction, which may change frequently during infancy and early childhood, is important to be able to stimulate the development of the retina and parts of the brain involved in vision.

Vision, while it is one of the least developed senses at birth, plays a critical role in the development of the baby's nervous system. Since the retina is not fully developed at birth, a baby is only able to detect large contrasts of light and dark, or black and white. Soft pastel shades alone do not give adequate stimulation.

In the absence of visual stimulation (e.g. cataracts) the visual cortex in the occipital lobe of the brain would not be able to develop and vision development would not occur. If there is no disruption of visual stimulation, the baby receives constant input, and the retina, optic nerve and visual cortex of the brain develop to their potential during infancy and early childhood.

Below are some activities that parents can undertake with their child to provide adequate vision stimulation (source).

- Surround the baby's bed with stripes – buy crib bumpers that contrast with the sheet and wallpaper.
- Surround baby's play area with stripes – babies have a "quiet alert state." Baby is awake, eyes are open, and baby stares intently at whatever grabs their attention. This is the perfect time to place a black and white striped book, picture, or toy about 8 to 12 inches from baby's face. If the stripes are bold enough and separated enough for the baby to see the toy, the baby will fixate on this and stare, seeming as if almost glued to it.
- Black and white or light and dark contrasting toys – mobiles, rattles, the first teddy bear, and other favourite toys will grab your baby's attention better if they're the right colours. Resist the pretty pale blue and green rattle and go for the black, white and red one!
- The right distance – newborns can see clearly about 8 to 12 inches away. Whenever you interact with a baby, whether it's with a toy, your hand, or your face, try to stay within 12 inches.
- Great expectations – don't expect your newborn baby to stare wide-eyed at you for hours on end. Babies spend most of their first weeks eating and sleeping. Take advantage of the quiet alert times and don't waste them. Baby will love to fixate on your face, and will begin to focus on your eyes in the early weeks. After a month, the baby will even begin to follow you with her eyes as you slowly move from side to side.
- Dress the part – for those who want to take visual stimulation seriously, try to wear a wide striped shirt, apron or jacket as often as you can. Wear contrasting colours.

CONCLUSION

Early intervention is not a one size fits all approach. It is highly individualised and depends on numerous factors including the severity of visual impairment, the age, abilities and needs of the child. It is also dependent on "family priorities, home culture and language, location, and program resources".

"An effective early intervention service helps parents learn how their child is developing in relation to other children; tailor their expectations to what the child can achieve, and provide stimulation, to match the child's readiness for the different milestones."

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