**Blind means more than not being able to see**

When a baby is born visually impaired or blind a global developmental delay can be expected. Why? Because vision is the stimulus for an infant to make social contact, move around and to learn to communicate. It is therefore very important that the baby is stimulated from as early an age as possible, to combat this delay. If the baby and young child with visual impairment (VI) are stimulated from an early age they can become very independent, fully incorporated in society and able to earn their own living. If not, they will become severely disabled.

**Social development**

The first social contact a baby has is with the mother. The bonding between a mother and her child begins because of eye contact during feeding or holding. This is then followed by the baby’s first smile and the mother’s reaction to it. This interaction between the mother and the baby is the baby’s first social interaction. A child who is visually impaired misses out on this interaction with the mother. The baby with VI is often quiet and does not respond to the mother and the mother feels that the baby is rejecting her and this leads to less interaction with the baby.

As the child grows up there seems not to be emotional involvement; the child may be uninterested in and non–communicative with peers, with the result that other children will use avoidance strategies or there may be over-protectiveness by caregivers. The child with VI may not know how to play because of never learning how to play. The child with VI’s social interactions are more complicated than those of the visual child because facial expressions, body language and other visual clues have never been seen.

**Sensory development**

We are born with five senses: sight, hearing, smell, taste and feeling. We actually have three more senses that are stimulated by movement: proprioception (which tells us where our body parts are; the vestibular sense, which helps with balance and coordination, and, thirdly, interoceptions, which tells us about internal sensations, like hunger and thirst. Our senses help us to perceive what is going on in the world around us, and in our brains these sensations become concepts. Perceptions now have meaning. From previous experience we know whether what we perceive is safe or dangerous, and then our nervous system will prepare our bodies to react in a suitable manner. Of our eight senses vision is the one that integrates all the information we receive from the other senses and helps us to form concepts.

The infant without sight receives bits and pieces of information from the environment through the other senses, but these are inconsistent and unverified and it is difficult to make sense of them. Hearing is the only other sense that allows us to perceive from a distance, but without verification sound is only noise. Only after much tactual, motor and auditory input, does sound acquire meaning. Sound is therefore not the strong motivator that vison is.

Very early stimulation of the other senses is therefore of cardinal importance to assist the baby with VI to form the necessary concepts. If not, the baby becomes passive and will not interact with the world around. If not exposed to a multitude of textures and tactile stimuli the child with VI may become tactile defensive. This will have a negative effect on the ability to identify objects and to learn Braille and also on the ability to move around.

**Motor development**

Motor development happens from the top to the bottom (from the head downwards) and from the inside to the outside of the body. Thus head control comes first and then shoulders and the rest of the body.

In the sighted baby the incentive to explore the world is supplied by vision: seeing objects, colours, shapes and people. The baby begins to make head movements using the sense of sight to follow the mother’s movements. This is unavailable to the infant who is blind or visually impaired, who cannot see the mother and therefore will lie still, listening, but with no head movement. Turning of the head to follow a sound develops much later.

In the first 18 months of life a child’s body is used to explore the world. This is done by:

* Watching people, objects and events
* Reaching for things
* Dropping and watching them fall or rolling away
* Copying the actions of others like waving or nodding their heads.

The baby with VI can do none of these things unless specifically stimulated to do so.

Vision is of prime importance in early gross motor development.

From 0-3 months the baby learns to lift and turn the head to look for the mother and at the world around. For the baby with VI there is no incentive to do so and this leads to a delay in head control.

The development of the shoulders and upper arms begins when the baby starts swiping at toys and things that can be seen. Without vision the child will not voluntarily repeat these actions as they do not make sense.

Not only the development of the shoulder girdle and upper arm are negatively affected, but also goal-directed movement and object permanence.

Visually impaired babies tend to demand interaction only when they are uncomfortable, wet or hungry and this reduces their opportunities for motor experiences and interactions. Caregivers often tend not to play with visually impaired children as they do not respond to them though smiles and vocalizations that will encourage the caregivers to pick them up and play with them.

As a baby gains control over movement, primitive reflexes decline. These are reflexes that a baby is born with, e.g. the grasp reflex and the tonic neck reflex. These reflexes disappear as the baby gains voluntary control over movements and may take longer to be integrated in the infant with VI.

At the age of 3 months a sighted infant becomes more active: explores own body, discovers hands and feet, and has more voluntary control over big muscle groups. There is the start of developing control over anti-gravity muscles and initial development of postural control and co-ordination. Infants with VI, on the other hand, become more passive. They tend to lie quietly, perhaps because they are listening and trying to make sense of the world around them, and are reluctant to reach out to the unknown. They need to be specifically stimulated to supply the necessary foundation for gross motor development.

At around 12 months of age the seeing child becomes very active, starting to crawl and walk independently. To be able to move opens up a world for the seeing child developmentally in the gross motor, fine motor, perceptual, psychological, cognitive and sensory fields. The child with visual impairment, on the other hand, only now begins to sit.

 The child with VI cannot see the floor and does not know that it continues. This may be the reason why they are reluctant to move forward and shuffle their feet. They also do not have protective reflexes to save themselves when they fall. At this age they are at a huge developmental disadvantage. They often do not crawl and this has an effect on balance reactions, bilateral co-ordination and shoulder girdle stability.

At the time when the seeing children start running, jumping and balancing, Babieswith VI shuffle their feet as they are scared to lift them from the ground. They cannot carry things around as they have to use their hands for balance and guidance. This hinders exploration and crossing of the midline and the ability to interact with the world. For the child with VI, all these things need to be specifically stimulated in a safe environment where there are people who have been trained to do this.

What is happening is that parents do not know how to stimulate babies with VI and by the time they are three years old they are already two years in arrears in development. Then they go to a nursery school where the teacher also does not know what to do and these children are left sitting and are unable to interact with the other children. The delay in development therefore increases and by the time they reach school-going age they are three to four years behind in their development. Not a good start for an academic career.

Fi**ne motor development**

A toddler with VI has significant delay in functional hand use. It is a misconception that all blind peoples’ tactile skills are better developed than those of visual people. In most cases children with visual impaired are tactile defensive. This can cause a major barrier in the development of fine motor skills. Children with visual impairment need three times more time to explore and discover the environment than a sighted child. These children are often not exposed to enough opportunities to discover and make sense of the world around them. Therefore, they must gradually be exposed to as many textures and objects as possible and this must be accompanied with verbal labelling. This will also help with the reinforcement of concepts.

**Communication and language development**

Communication and language development is another area in which the child with VI is seriously developmentally delayed. The acquiring of language happens according to a set pattern in the visual child.

Stage 1: Preliminary skills

Stage 2: Pre-verbal skills

Stage 3: First words

Stage 4: Early sentences

Stage 1: Preliminary skills

Before visual babies start talking they can make use of pointing, symbolic play and copying. These are pre-language indicators. These actions are absent in children with visual impairment as they cannot see to copy the adults around them. They have a restricted range of facial expressions and do not vocalize as often as the visual child.

Stage 2: Pre-verbal skills

These skills include **interactions between the mother** and the baby, the bonding with the mother through reciprocated smiles, vocalizations etc. but these are absent in the baby with VI and may have consequences for the building of relationships, and in language and cognitive development.

**Eye contact** is from the start a means of communication. It is a way of getting attention, reading the facial expressions of others and copying others. This is not possible for the child with VI.

**Object permanence** is the knowledge that something you cannot see still exists. With a sighted child this develops around the age of 4-10 months. For the child with VI a thing does not exist unless it can be heard or touched. This is critical in the development of concepts. Thus object permanence is a critical skill that must be taught to the child with VI.

 **Turn-taking** is an important skill in language development. Children with VI need to be taught to wait their turn as this forms an important part of making conversation.

**Imitation**

Visual cues provide the impulse to speak and are critical for learning of language. Without that babies with VI show an increased ability only to imitate speech sounds, words and phrases. As the auditory system is isolated this results in an extended time of echolalia even up to four years longer than the norm.

 **Early vocalizations**

As has already been mentioned, preliminary and pre-verbal skills are minimized or absent because of the lack of vision. The acquiring of first words is therefore also delayed. Where the sighted child’s first words are usually nouns, the child with VI will rather use verbs, things that can be done. Then come names and only after that will nouns be used. Children with VI tend to be echolalic, that means they repeat words as they hear them, for far longer than the sighted child. Children with VI also take longer than sighted children to establish personal pronouns. They tend to refer to themselves by name instead of I and me.

**Stage 3: First words**

The first words children with VI acquire are very different from those of their sighted peers. Their first words usually concern body movements or routines they are familiar with. They often are echolalic even up the age of three or four. The order in which they acquire words is:

* Verbs ( usually their own actions)
* Names (those of family members and self)
* Nouns (objects they have direct contact with)
* Function words like more and gone

**Stage 4: Early sentences**

 The language of the child with VI is often described as semantically empty. They often say whole sentences or phrases without understanding what they are saying. When they ask for something it is seldom objects they ask for, but rather things to satisfy a personal need, like thirst or hunger. Their language is primarily conversational and not conceptual. The sentences are grammatically correct but often echolalic.

Children with VInalso have a problem with personal pronouns. They keep referring to themselves by name rather than using the pronouns I and me. The reason for this is that they have a problem with body image because of the lack of vision and mobility.

It is essential that all the above are stimulated from as early as possible to prevent global delay in development of the baby with VI. They should therefore attend an early childhood development centre with people who have been trained in intervention strategies for the child with VI. This will have a life-changing effect on the development and subsequent independence and functionality of the person with VI.