

# Cognitive Delay

## CHAPTER 32

### Down Syndrome, Hypothyroidism, and Other Causes

Cognitive delay is a delay in a child's mental development. The child takes longer to learn things than other children his age. He may be delayed in beginning to move, smile, show interest in things, use his hands, sit, walk, speak, and understand. Or he may develop some of these skills quickly, and take longer with others.

Cognitive delay ranges from mild to severe. The child with mild cognitive delay takes longer to learn certain skills. But with help he can grow up to care for himself and take an active, responsible part in the community. The child with severe cognitive delay, as he grows older, may stay at the mental age of a baby or young child. He will always need to be cared for in some ways.

Cognitive delay cannot be cured. However, all children with cognitive delay can be supported to progress more quickly. The earlier this begins, the more ability the child is likely to gain.

**IMPORTANT:** In this chapter we look at some of the causes of cognitive delay and briefly describe 2 common forms (Down syndrome and hypothyroidism). However, cognitive delay is only one of the reasons for delayed development in children. A child with loss of vision will take longer to learn to reach and move about unless he has extra help and encouragement. A child with hearing loss will be delayed in learning to communicate unless he is helped to learn other ways than speech. A child who has a severe physical disability is often delayed in developing use of both his body and mind. Because 'developmental delay' is common with so many disabilities, we include discussion of it in several separate chapters.



With help, some children with cognitive delay can learn to read and write, and do many of the things that other children do. (Photo of a child with Down syndrome in Indonesia, by Carolyn Watson, Christian Children's Fund.)

Information on helping a child with cognitive or developmental delay is in Chapters 34 to 40. Chapters 34 and 35 discuss early child development and ways to help or stimulate a child to learn early skills (use of the senses, movement, and communication). Chapters 36 to 39 discuss learning for self-care (feeding, dressing, toileting, and bathing). Chapter 40 discusses child behavior, and ways to encourage behavior that helps learning and good relationships.

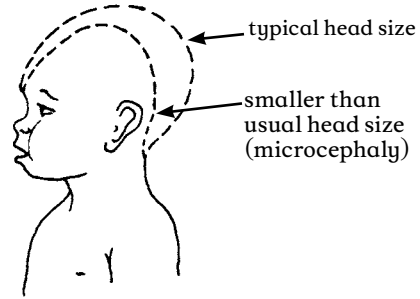
Other ideas for helping children with cognitive delay are in the CHILD-to-child activity on pages 442 to 445. The needs and challenges of children with cognitive delay as they become sexually grown up are discussed in Chapter 52, p. 495.

One important need that we do not include in detail in this book is education for children with cognitive delay. Some possibilities are discussed in Chapter 53, on education. But often specific teaching methods and materials are needed. An excellent book is *Special Education for Mentally Handicapped Pupils* (see p. 640). For toys that help a child learn, see Chapter 49.

## CAUSES OF COGNITIVE DELAY

There are many causes.

- Often the cause is not known.
- Some children are born with a very small brain, or the brain does not grow or work in the usual way.
- Sometimes there is a change in the chromosomes or the tiny chemical messages that determine what a child will be like. This is what happens in Down syndrome.
- Sometimes a mother did not get enough of a certain food or mineral during pregnancy (see "Hypothyroidism," p. 282).
- Brain injury can happen either before, during, or after birth. In addition to having cognitive delay, these children may also have cerebral palsy, vision loss, hearing loss, or seizures. Common causes of cognitive delay from brain injury are discussed in Chapter 9, and include:
  - » a mother had German measles during early pregnancy.
  - » meningitis (brain infection) from bacteria, tuberculosis, or malaria, most often during early childhood.
  - » hydrocephalus, often with spina bifida (see p. 169).
  - » Other causes such as head injury, brain tumor, poisoning from lead, pesticides (see p. 15), infection from the mosquito-carried Zika virus, untreated HIV infection, certain medicines and food, and some forms of muscular dystrophy or atrophy (see p. 110).



A child with microcephaly (small head) has cognitive delay and often also develops vision, hearing, or other physical problems. For measurements of head size, see p. 41.

In many parts of the world, the most common causes of cognitive delay are brain injury and Down syndrome. But in some mountainous areas, it is very often caused by lack of iodine in food and water (see p. 282).

Usually there is no treatment for cognitive delay. Therefore, we often do not need to know the exact cause. Instead, we need to help the child develop the best he can. However, in some cases, certain medicines, changes in diet, or prevention of further poisoning can make a big difference. If a child has any signs of hypothyroidism or seems to be gradually losing mental ability, try to get expert medical advice.

Prevention of cognitive delay is discussed with its different causes. See especially cerebral palsy (see p. 107), Down syndrome (see p. 281), and hypothyroidism (see p. 282).

### **MENTAL ILLNESS is different**

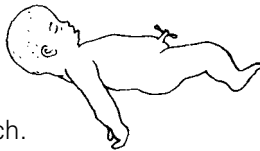
Some people confuse cognitive delay with mental illness. But they are very different. A person with mental illness may be intelligent, and may be highly educated. But because of stressful experiences, or some illness affecting the brain, his behavior becomes strange. When a person with cognitive delay behaves in a way we might not expect, it is usually because he has not learned the correct way to behave; he needs to be taught. The person with mental illness needs help—perhaps from a counselor, spiritual healer or psychiatrist. Persons with mental illness are like persons with any other illness. Often they cannot control their strange behavior. We should not blame or punish them, but give them love, protection, and understanding.

## DOWN SYNDROME

In many areas, Down syndrome is the most common form of cognitive delay. These children are take longer than others to learn to use their bodies and their minds. There are also certain physical signs. (This combination of various signs is called a "syndrome.") The baby's development in the womb is not typical because of a change in the chromosomes (material in each cell of the body that determines what a baby will be and look like).

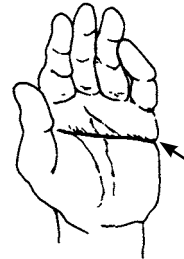
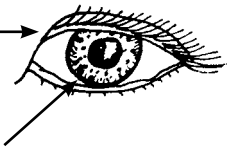
These are some typical signs of Down syndrome (not all children have all these signs):

- At birth, baby seems floppy and weak.
- Baby does not cry much.
- The baby takes longer than other babies her age to: turn over, grasp things, sit up, talk, walk.
- When suddenly lowered, the baby does not react by spreading her arms, as most other babies do.



- eyes slant upward; sometimes cross-eyed or poor sight
- ears low
- small mouth, hangs open; roof of mouth is high and narrow; tongue hangs out

- A fold of skin covers the inner corner of the eyelid.
- Eyelids may be swollen and red.
- The iris of the eye has many little white specks; like sand. These usually go away by 12 months of age.



- short wide hands with short fingers; little finger may be curved, or have only one fold
- one deep crease across the palm (sometimes in children without Down syndrome, too)

- short or small head, wide and flat in the back



- flat face
- small nose, flat between the eyes

- sometimes dislocated hips



- short neck
- rounded shoulders
- short arms and legs

- kneecap slips to one side
- "pigeon-toed"; flat feet
- big toe far apart from other toes

### Other possible signs:

- Elbow, hip, and ankle joints may be very loose and flexible.
- One out of 3 has heart problems.
- May develop leukemia (blood cancer).
- Check older children for hearing and vision loss.
- One out of 10 has neck bones that can slip and pinch the nerve cord in the spine. This may cause sudden or slowly increasing paralysis or sudden death.

## Care of children with Down syndrome and other forms of cognitive delay

Cognitive delay in children with Down syndrome can be mild, moderate, or severe. Some children never learn to speak. Others talk (and often love to talk). Many can learn to read and write. Most of these children are very friendly and affectionate, and behave well with people who treat them well. Even those who have more severe cognitive delay, with help and good teaching usually learn to take care of their basic needs, and to help out with simple work. They can live well with their families and communities.

In rural areas particularly, they can learn to do many important jobs. Sometimes they do repetitive jobs as well or better than other people.

But their physical and mental development takes longer than other children's. So parents and all those who take care of these children must be very patient with them and from a very early age do all they can to help them develop their mental and physical capabilities. To avoid or solve behavior problems, parents need to be very consistent in how they treat their children and in what they expect of them. The child needs a lot of praise and encouragement for things he does well (see Chapter 40).

Some children with Down syndrome can go to school, but they will need extra help. It is important that teachers understand their disability and help other children to treat the child with respect. Unless the child is given understanding and extra help at school, in rural areas it may sometimes be better for the child with Down syndrome to be educated at home through helping his family around the house and in the fields.

There are 3 main concerns in caring for a child with Down syndrome:

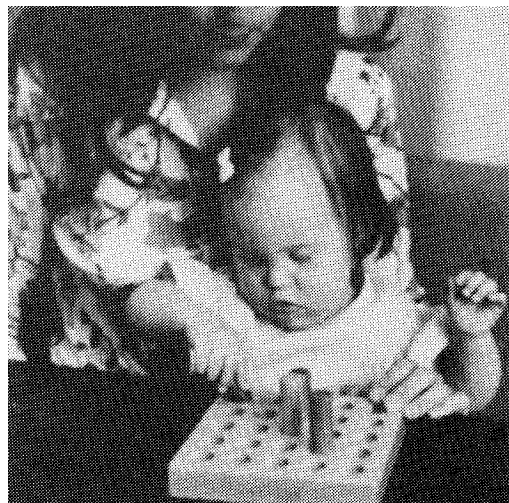
1. Help the child to develop her or his mental and physical abilities.
2. Protect the child from infectious diseases.
3. Prevent or correct deformities.

Here we will discuss the last 2 concerns. The first we will cover in other chapters.

**IMPORTANT:** For a child who has Down syndrome or cognitive delay, be sure to read all the chapters on early child development and learning basic skills. Chapters 33 to 41.



In one village, a young man with Down syndrome works hauling water from the river, a job he is happy and proud to do.



A child with Down syndrome learns to remove pegs from a pegboard. Later she will learn to place the pegs. Photo from *Teaching Your Down's Syndrome Infant* by Marci J. Hanson.

## Protection from infections

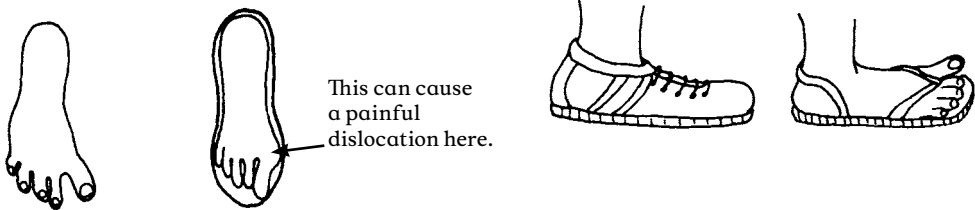
Children with Down syndrome get sick more often than other children. They can easily catch colds, bronchitis, pneumonia, and other infections. So it is very important to protect their health.



- **Breastfeed** the child as long as possible. Breast milk has antibodies that help the child to fight infections. (If he cannot nurse well, milk your breasts and feed him the milk, using a spoon or any way that works.)
- Like any baby, at 6 months **start giving her other foods** such as fruit, beans, eggs, and rice, but also continue to breastfeed her. (Like any baby, weigh her each month at the health center to be sure she is growing well.)
- **Vaccinations** can protect her from many childhood diseases. A child with Down syndrome who catches measles or whooping cough can easily get pneumonia.
- **Early medical attention** When she gets a sore throat, earache, or bad cough, take her to a health worker as soon as possible.

## PREVENTION of foot deformities and other conditions

- Check all newborns for possible dislocated hip, so that it can be corrected as soon as possible (see p. 155).
- For the child whose big toe sticks out, do not use hard shoes that bend the big toe inward like this. It is better to wear tennis shoes, or other soft shoes, or sandals.



When the big toe sticks out a lot, its position can sometimes be corrected with surgery, so that shoes will fit more comfortably.

- If the child has severe flat feet, a special insole may help (see p. 118).
- If any sign of paralysis or lack of feeling develops in the hands, feet, or body, get advice from an orthopedist or a neurosurgeon.

## PREVENTION of Down syndrome

One out of every 700 children is born with Down syndrome. Down syndrome is more likely to occur in babies of parents older than 35 years of age. Individuals or families may want to plan to have no more children after age 35 (see *Where There Is No Doctor*, Chapter 20). Also, if a couple already has one child with Down syndrome, the chance of having another is increased (about one in 50).

In some countries a test (amniocentesis) can be done at about 4 months of pregnancy to see if the child will have Down syndrome. If so, the family can consider abortion.

## HYPOTHYROIDISM




Hypothyroidism is a delay in both mental and physical growth that comes when a child's body does not produce enough thyroid hormone. This is a substance that controls a child's growth and body functions. Without it, everything goes slower.

Thyroid is produced by a gland in the front of the neck. To produce thyroid, the gland needs iodine. Most people get enough iodine from water and food. But in some areas, especially in the mountains, the soil, water, and food have very little iodine. In an attempt to obtain more iodine, the thyroid gland sometimes grows very large, forming a swelling called a goiter.



In areas where there is little iodine and a lot of people have goiters, hypothyroidism is common. In these areas, many children have difficulty hearing or have cognitive delays. Although they do not show all the typical signs of hypothyroidism, the cause is probably the same. Occasionally, in areas where goiter is not common, hypothyroidism occurs for other reasons than lack of iodine.

**SIGNS** Below we show some of the typical signs of hypothyroidism and compare them with Down syndrome, which hypothyroidism resembles in some ways. It is often difficult to tell if a newborn baby has hypothyroidism. She is often born large and then does not grow in the usual way. The baby may have feeding difficulties, or breathing difficulties or make noises because of having a large tongue. She moves and cries little. By 3 to 6 months the mother often becomes worried because the baby takes so little interest in things, sleeps so much, and is delayed in development.

Signs of HYPOTHYROIDISM	Signs seen in both HYPOTHYROIDISM and DOWN	Signs of DOWN SYNDROME (that are most useful in telling it from hypothyroidism)
 <ul style="list-style-type: none"> <li>• hair low on forehead</li> <li>• puffy eyelids</li> <li>• flat base of nose between eyes</li> <li>• puffy face, hands, and feet</li> <li>• fatty swelling here</li> <li>• grows very slowly; increasingly short for age</li> <li>• severe constipation (may go days without shitting)</li> <li>• often hearing loss</li> <li>• As child grows, knees may get large and painful.</li> </ul> <ul style="list-style-type: none"> <li>• temperature below normal</li> <li>• thick, dry, cool skin</li> </ul>	<ul style="list-style-type: none"> <li>• delayed mental and physical development</li> <li>• widely separate eyes</li> <li>• round face, dull look</li> <li>• tongue sticks out of open mouth</li> <li>• short neck and limbs; wide, short hands</li> <li>• big belly and sway back</li> <li>• often hernia of the navel</li> </ul> 	<ul style="list-style-type: none"> <li>• hair starts high on forehead</li> <li>• slant eyes with lid fold over inner corners</li> </ul> <p>For other signs, see p. 279.</p> 

**WHAT TO DO** Early and continued treatment with thyroid medicine helps improve growth, physical appearance, and sometimes can reduce or prevent cognitive delay. For best results, treatment should begin during the first month of life. As soon as you suspect that a baby might have hypothyroidism, get skilled medical advice.

To help the child develop mentally and physically, and learn basic skills, read Chapters 34 to 41 and use the ideas that can help meet the child's needs. With early treatment and guided learning, many children with hypothyroidism can learn to care for themselves and do simple but important work in the community. For ideas on managing constipation, see p. 212.

**PREVENTION** In areas where goiter is common, hypothyroidism (and hearing loss) can be greatly reduced by encouraging everyone to use iodized salt.