

<b>Mental Retardation</b>	
Staff Name	Date
<i>Read the information about this topic, print the questions at the end of the reading material, and then answer the questions. When you have completed answering the questions, compare your answers with the answers provided at the end of this document. Return your completed questions to the office.</i>	

- Definition
- Characteristics
- Causes
- Health Issues/Complications
- Treatment/Support
- Long Term Outlook
- Questions
- Answers

### DEFINITION

Mental retardation, sometimes referred to as a cognitive or intellectual disability, is a condition present before birth or diagnosed before age 3 that is a state of permanent impaired intelligence which includes below-average general intellectual function and limitations in the skills necessary for daily living, such as:

- self-direction
- school, work, and leisure activities
- daily living, communication, and social skills

Although it is difficult to estimate the costs of caring for children with more serious forms of mental retardation, the costs may be 10 times higher than those of caring for a child without a disability. An estimated 12 of every 1,000 U.S. school children have mental retardation.

Children with retardation can and do learn new skills, but they develop more slowly than children with average intelligence and adaptive skills. There are different degrees of intellectual disability, ranging from mild to profound. A person's level of intellectual disability can be defined by their intelligence quotient (IQ) or by the types and amount of support they need. Generally, as a result of this condition, special care and training are required.

People with retardation may have other disabilities as well. Examples of these coexisting conditions include cerebral palsy, seizure disorders, vision impairment, hearing loss, and attention-deficit/hyperactivity disorder (ADHD). Children with severe intellectual disability are more likely to have additional disabilities than are children with mild retardation.

### CHARACTERISTICS

The term "mental retardation" is often misunderstood and seen as derogatory. Some think that retardation is diagnosed only on the basis of below-normal intelligence (IQ), and that persons with mental retardation are unable to learn or to care for themselves. In order to be diagnosed as a person with mental retardation, the person has to have both significantly low IQ and considerable problems in everyday functioning. Most children with mental retardation can learn a great deal, and as adults can lead at least partially independent lives. Most individuals with mental retardation have only the mild level of mental retardation. Mental retardation may be complicated by several different physical and emotional problems.

### Learning Disabilities

A distinction should be made between retardation and learning disabilities. Individuals with learning disabilities do not necessarily have retardation; however, individuals with retardation often have learning disabilities. It is believed that learning disabilities are caused by a difficulty with the nervous system that affects receiving, processing, or communicating information. Generally, learning disabilities include disorders in reading (*dyslexia*), language, writing (*dysgraphia*), and math (*dyscalculia*). They may also run in families. Some children with learning disabilities are also hyperactive; unable to sit still, easily distracted, and have a short attention span. Children with learning disabilities usually have a normal range of intelligence and some may even be "gifted", but in general their cognitive ability is significantly better developed than their ability to learn specific skills. They try to follow instructions, concentrate, and "be good" at home and in school, but, despite this effort, they are not able to master school tasks and fall behind. Learning disabilities affect at least 1 in 10 schoolchildren.

Learning disabilities are treatable, but if not detected and treated early, however, they can have a "snowballing" effect. For instance, a child who does not learn addition in elementary school cannot understand algebra in high school. The child, trying very hard to learn, becomes more and more frustrated, and develops emotional problems such as low self-esteem in the face of repeated failure. Some learning disabled children misbehave in school because they would rather be seen as "bad" than "stupid."

Some of the most frequent signals of learning disabilities include when a child:

- has difficulty understanding and following instructions
- has trouble remembering what someone just told him or her
- fails to master reading, spelling, writing, and/or math skills
- has difficulty distinguishing right from left; difficulty identifying words or a tendency to reverse letters, words, or numbers
- lacks coordination in walking, sports, or small activities such as holding a pencil or tying a shoelace
- easily loses or misplaces homework, schoolbooks, or other items
- cannot understand the concept of time; is confused by "yesterday, today, tomorrow"

There are many types of mental retardation caused by a variety of things, each with specific intellectual and/or physical characteristics depending on the severity of the condition. Although the individual with retardation may exhibit many of the characteristics of the individual with learning disabilities in language, math, and writing, typically, an individual with retardation may exhibit more general limiting behaviors such as:

- infantile or child-like behavior
- limited self-care ability

- limited learning ability
- limited adaptive behavior
- failure to meet intellectual developmental markers
- inability to meet educational demands at school
- limited physical abilities
- lack of curiosity

Mild retardation may be associated with a lack of curiosity and quiet behavior. Severe mental retardation is associated with infantile behavior throughout life.

Mental retardation may be suspected if the child's motor skills, language skills, and self-help skills do not seem to be developing or are developing at a far slower rate than the child's peers. Failure to adapt (adjust to new situations) normally and grow intellectually may become apparent early in a child's life. In the case of mild retardation, these failures may not become recognizable until school age or later.

An assessment of age-appropriate adaptive behaviors can be made using developmental screening tests. The failure to achieve developmental milestones suggests mental retardation. The degree of impairment from mental retardation varies widely, from profoundly impaired to mild or borderline retardation. Less emphasis is now placed on the degree of retardation and more on the amount of intervention and care needed for daily life.

For a newborn, testing can detect neurologic problems, such as cerebral palsy. For an infant, testing often serves to reassure parents or to identify the nature of problems early enough hopefully to treat them. Later in childhood, testing can help delineate academic and social problems and to possibly remedy them.

A diagnosis of mental retardation can be made in a variety of ways depending on the type and severity of the condition:

- Abnormal Denver developmental screening test
- Adaptive behavior score below average
- Development way below that of peers
- Intelligence quotient (IQ) score below 70 on a standardized IQ test

## CAUSES

Intellectual disability can start anytime before a child reaches the age of 18 years, but is often diagnosed before the age of 3. Mental retardation affects about 1-3% of the population. There are many causes of mental retardation, but doctors find a specific reason in only 25% of cases. It can be caused by injury, disease, or a brain abnormality and may occur before, during, or after birth. For many children, the cause of their intellectual disability is not known. Causes that take place before a child is born include genetic conditions, infections, or birth defects that affect the brain. Other causes of intellectual disability, such as *asphyxia* or cerebral palsy, happen while a baby is being born or soon after birth. Still other causes of intellectual disability may not happen until a child is older and may include serious head injury, stroke, or certain infections such as *meningitis*. Most causes of mental retardation are unknown, but 25% can be generally categorized as resulting from a specific cause. The degree of retardation in an individual varies with the severity of the condition causing the retardation.

**Infections** (present at birth or occurring after birth caused by viral, bacterial, fungal, or parasitic infections)

- Congenital *cytomegalovirus* (CMV) caused by a member of the herpesvirus family
- Congenital *rubella* caused by the virus that causes German measles usually in the first trimester
- Congenital *toxoplasmosis* caused by infection with the parasite *Toxoplasma gondii*.
- *Encephalitis* caused by inflammation of the brain
- HIV infection caused by a virus
- *Listeriosis* caused by a bacteria
- *Meningitis* caused by inflammation of the meninges (thin membrane covering the brain and spinal cord) from infection or non-infection

**Chromosomal Abnormalities** caused by missing, additional, or defective chromosomes

- Chromosome deletions (cri du chat syndrome resulting from missing a piece of chromosome 5)
- Chromosomal additions or translocations (Down syndrome)
- Defects in the chromosome or chromosomal inheritance (fragile X syndrome, Angelman syndrome, Prader-Willi syndrome)

**Environmental and Nutritional**

- Failure to thrive (prolonged failure to grow)
- Deprivation syndrome (nonorganic failure to thrive due to intentional or non-intentional neglect)
- Malnutrition (inadequate nutrition)
- Intrauterine exposure to certain medications (such as valproic acid) or high fever or lack of certain vitamins (such as folic acid)

**Brain and Spine** (neural tube)

- spina bifida
- cerebral palsy
- hydrocephalus (genetic or acquired)

**Genetic Abnormalities and Inherited Metabolic Disorders**

- *Adrenoleukodystrophy*- resulting from a missing enzyme
- *Galactosemia*- resulting from a missing enzyme
- Hunter syndrome - resulting from a missing or malfunctioning enzyme
- Hurler syndrome - inherited, resulting from a missing enzyme
- Lesch-Nyhan syndrome - inherited, resulting from an enzyme deficiency
- *Phenylketonuria* resulting from a missing or deficient enzyme
- Rett syndrome - a neurodevelopmental disorder affecting mainly females
- Sanfilippo syndrome - inherited metabolic disorder

- Tay-Sachs disease - inherited enzyme disorder
- *Tuberous sclerosis* - rare genetic disease causing benign tumors to grow in vital organs and commonly affecting the central nervous system

#### **Other Metabolic Disorders**

- Congenital *hypothyroidism* resulting from a partial or complete loss of thyroid function leading to mental retardation if untreated
- *Hypoglycemia* (poorly regulated diabetes mellitus)
- Reye syndrome - illness that affects the brain and liver, often triggered by aspirin
- *Hyperbilirubinemia* (very high bilirubin levels in babies) causing *kernicterus*

#### **Toxic**

- Intrauterine exposure to alcohol, cocaine, amphetamines, and other drugs
- Lead poisoning
- Methylmercury poisoning

#### **Trauma** (before and after birth)

- Intracranial hemorrhage before or after birth
- Lack of oxygen to the brain before, during, or after birth
- Severe head injury

#### **HEALTH ISSUES/COMPLICATIONS**

For an individual with retardation, physical, emotional, and medical complications vary and may include:

- inability to care for self
- inability to interact with others appropriately
- social isolation
- associated medical and/or emotional conditions

#### **TREATMENT/SUPPORT**

Currently, it is not known how to prevent most conditions that cause retardation, but there are some causes that can be prevented. The primary goal of treatment is to develop the person's potential to the fullest. Special education and training may begin as early as infancy. This includes social skills to help the person function as normally as possible and evaluation by specialists for associated disorders, including affective (emotional) disorders which can benefit from behavioral approaches.

In the past, parents were often advised to institutionalize a child with significant mental retardation. Today, the goal is to help the child with mental retardation stay in the family and take part in community life. In most states, the law guarantees them educational and other services.

It is very important that the child has a comprehensive evaluation to find out about his or her strengths and needs. Since no specialist has all the necessary skills, many professionals might be involved. General medical tests as well as tests in areas such as neurology (the nervous system), psychology, psychiatry, special education, hearing, speech and vision, and physical therapy are useful. Professional consultations and tests can be used together with the family and the school to develop a comprehensive treatment and education plan.

Emotional and behavioral disorders may be associated with mental retardation and may interfere with the child's progress. Many children with mental retardation recognize that they are behind others of their own age. Some may become frustrated, withdrawn or anxious, or act "bad" to get the attention of others. Adolescents and young adults with mental retardation may become depressed. These persons might not have enough language skills to talk about their feelings and their depression may be shown by new problems, for instance in their behavior, eating and sleeping.

Early diagnosis of psychiatric disorders in children with mental retardation leads to early treatment. Medications and behavioral programs can be helpful as one part of overall treatment and management of children with mental retardation. Setting appropriate expectations, limits, opportunities to succeed, and other measures will help a child with mental retardation handle the stresses of growing up.

Techniques that may assist in preventing or reducing mental retardation include:

**Infections** Present at birth or occurring after birth caused by viral, bacterial, fungal, or parasitic infections

Vigilance, hygiene, vaccines, and education can be used to prevent many infectious agents that may cause retardation, such as *rubella* (vaccine developed in 1969), toxoplasmosis (from exposure to cat litter during pregnancy), CMV, and listeriosis (from eating contaminated food during pregnancy).

**Genetic** Chromosomal abnormalities caused by missing, additional, or defective chromosomes and metabolic disorders

Prenatal screening for genetic defects and genetic counseling for families at risk for known inheritable disorders can help prepare a family for the possibility of a disabled child. Knowledge of symptoms, simple blood tests, and immediate treatment can help prevent or reduce the possibility of retardation, such as medicine and special diet for PKU, blue light phototherapy for high bilirubin levels in babies, or treatments for hypoglycemia and hypothyroidism.

#### **Environmental, Nutritional, Prenatal Care**

Government programs to ensure adequate nutrition are available to the underprivileged in the first and most critical years of life. These programs as well as early intervention, prenatal care, and education can reduce retardation associated with malnutrition and deprivation. Knowledge of how certain medications (such as valproic acid), high fevers, diet, or lack of certain vitamins (such as folic acid) during pregnancy can affect a fetus may also help to reduce or prevent retardation.

#### **Toxic**

Environmental programs to reduce exposure to lead, mercury, and other toxins will reduce toxin-associated retardation. Increased public awareness of the risks of alcohol use, which may cause Fetal Alcohol Syndrome (FAS) and drug use during pregnancy can help reduce the incidence of retardation.

## **LONG TERM OUTLOOK**

Many people diagnosed with retardation lead productive lives and function on their own; others need a structured environment to be most successful. Today, an individual diagnosed with retardation can expect to accomplish many of the things their "normal" peers do – complete school, achieve in their outside areas of interest, be successfully employed, and even move away from their family home to live as independently as they can. It is important to strengthen the individual's self-confidence which is vital for healthy development and also help the circle of support (parents, family, friends) to better understand and cope with the realities of living with a child with retardation. The success of an individual with retardation depends on:

- early intervention
- opportunities
- personal motivation
- treatment
- support system

### **Additional Resources for Mental Retardation**

Administration on Developmental Disabilities  
Administration for Children and Families  
U.S. Department of Health and Human Services  
Mail Stop: HHH 300F  
370 L'Enfant Promenade S.W.  
Washington, DC 20447  
(202) 690-6590  
<http://www.acf.dhhs.gov/programs/add/>

American Speech, Language and Hearing Association  
10801 Rockville Pike  
Rockville, MD 20852  
1-800-638-8255 or 1-888-321-ASHA  
<http://www.asha.org/>

Learning Disabilities Association of America  
4156 Library Road  
Pittsburgh, PA 15234-1349  
(412) 341-1515 or 1-888-300-6710  
<http://www.ldanatl.org/>

March of Dimes  
1275 Mamaroneck Avenue  
White Plains, NY 10605  
(914) 428-7100  
1-888-MODIMES (1-888-663-4637)  
<http://www.modimes.org/>

National Information Center for Children and Youth with Disabilities  
P.O. Box 1492  
Washington, DC 20013-1492  
1-800-695-0285  
(202) 884-8200  
<http://www.nichcy.org>

Mid-Atlantic Regional Human Genetics Network (MARHGN)  
(genetic counseling)  
Curtis Coughlin II, MS, MARHGN Coordinator  
MARGHN c/o Christiana Health Care Services Genetics Room 1988  
4755 Ogetown-Stanton Road  
P.O. Box 6001  
Newark, DE 19718  
(302) 733-6732  
<http://www.pitt.edu/~marhgn/>

National Society of Genetic Counselors  
233 Canterbury Drive  
Wallingford, PA 19086-6617  
(610) 872-7608  
<http://www.nsgc.org/>

The Arc of the United States  
1010 Wayne Avenue, Suite 650  
Silver Spring, MD 20910  
(301) 565-3842  
(301) 565-3843 - Fax  
<http://www.thearc.org>

## REFERENCES

<http://www.cdc.gov/ncbddd/factsheets/mr.pdf>

<http://www.cdc.gov/ncbddd/dd/mr2.htm>

<http://www.cdc.gov/ncbddd/dd/default.htm>

<http://www.cdc.gov/ncbddd/dd/resources.htm>

<http://www.nlm.nih.gov/MEDLINEPLUS/ency/article/001523.htm>

QUESTIONS	
Staff Name	Date
<p>Fill in your name and the date. Read each question carefully and select the correct letter of the answer or complete the question with a word, phrase, or explanation. Circle the correct answer, fill in the blank, or write a short answer, phrase, or explanation. Check your own answers after you have completed the questions. Return your unmarked training booklet and your completed answer sheet to the office.</p>	
1	<p>Mental retardation</p> <ul style="list-style-type: none"> <li>a. may be referred to as cognitive disability</li> <li>b. may be called intellectual disability</li> <li>c. is a state of permanent impaired intelligence</li> <li>d. limits one's skills for daily living</li> <li>e. all of the above</li> </ul>
2	<p>A person who has learning disabilities will also be retarded.</p> <ul style="list-style-type: none"> <li>a. True</li> <li>b. False</li> </ul>
3	<p>Characteristics of an individual who has mental retardation include:</p> <ul style="list-style-type: none"> <li>a. child-like behavior</li> <li>b. limited adaptive ability</li> <li>c. lack of curiosity</li> <li>d. failure to meet developmental markers</li> <li>e. all of the above</li> </ul>
4	<p>The range of mental retardation ranges from profoundly impaired to mild or borderline impairment.</p> <ul style="list-style-type: none"> <li>a. True</li> <li>b. False</li> </ul>
5	<p>Specific reasons causing mental retardation can be found:</p> <ul style="list-style-type: none"> <li>a. in 1-3% of the population</li> <li>b. in 25% of cases</li> <li>c. in 75% of cases</li> <li>d. in 25% of the population</li> </ul>
6	<p>An example of an infection causing mental retardation is:</p> <ul style="list-style-type: none"> <li>a. Down syndrome</li> <li>b. Lead poisoning</li> <li>c. Galactosemia</li> <li>d. Rubella</li> </ul>
7	<p>An example of a chromosomal abnormality causing mental retardation is:</p> <ul style="list-style-type: none"> <li>a. Cerebral palsy</li> <li>b. Listeriosis</li> <li>c. Hypothyroidism</li> <li>d. Cri du chat syndrome</li> </ul>
8	<p>Environmental and nutritional causes of mental retardation include:</p> <ul style="list-style-type: none"> <li>a. HIV</li> <li>b. intrauterine exposure to certain medications</li> <li>c. severe head injury</li> <li>d. hypoglycemia</li> </ul>
9	<p>Techniques that may help in preventing or reducing mental retardation include:</p> <ul style="list-style-type: none"> <li>a. education</li> <li>b. genetic counseling</li> <li>c. vaccines</li> <li>d. all of the above</li> </ul>
10	<p>Which of the following would NOT help in preventing or reducing the possibility of retardation:</p> <ul style="list-style-type: none"> <li>a. blue light phototherapy</li> <li>b. special diet</li> <li>c. medicine</li> <li>d. avoiding folic acid during pregnancy</li> </ul>

<b>ANSWERS</b>	
1	Mental retardation e. all of the above
2	A person who has learning disabilities will also be retarded. b. False
3	Characteristics of an individual who has mental retardation include: e. all of the above
4	The range of mental retardation ranges from profoundly impaired to mild or borderline impairment. a. True
5	Specific reasons causing mental retardation can be found: b. in 25% of cases
6	An example of an infection causing mental retardation is: d. <i>Rubella</i>
7	An example of a chromosomal abnormality causing mental retardation is: d. Cri du chat syndrome
8	Environmental and nutritional causes of mental retardation include: b. intrauterine exposure to certain medications
9	Techniques that may help in preventing or reducing mental retardation include: d. all of the above
10	Which of the following would NOT help in preventing or reducing the possibility of retardation: d. avoiding folic acid during pregnancy