Project Naturalistic Teaching

MODULE 2

Definition and Characteristics of Disability Types

*The characteristics of preschool children aged between 3-6 with developmental disabilities are included in this book.

Funded by the European Union

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INTRODUCTION

The concept of developmental disability encompasses disabilities occur due to mental and/or physical disorders, often lifelong and usually onset beforre the age of 22 (AAIDD-American Association on Intellectual and Developmental Disabilities, 2010).

The term learning disability used in the UK; The terms intellectual disability and cognitive disability, which are used in Australia, Canada and many European countries, are used as synonyms for developmental disability. Intellectual disability and Autism Spectrum Disorder are the most prominent special needs groups included in developmental disability, but in some definitions the scope is broader and disorders such as Cerebral Palsy are also considered within developmental disability.

In this section, the most common types of developmental disabilities you may encounter in preschool inclusive classrooms and the developmental characteristics of preschool children aged 3-6 with developmental disabilities are included.

INTELLECTUAL DISABILITY

What is Intellectual Disability?

In the most basic sense, intellectual disability manifests itself in the form of basic limitations in daily life functions. These limitations include delays in mental development; making inappropriate responses to the environment; not behaving as required by the age range in cognitive, language, motor, social-emotional and academic development areas; it can be seen as difficulty in reasoning, understanding abstract concepts and performing mental operations.

AAIDD-American Association on Intellectual and Developmental Disabilities has made important contributions to what intellectual disability is and how it should be defined. The most frequently used and most up-to-date definition of intellectual disability is the definition made by AAIDD. According to the definition made by AAIDD in 2010, intellectual disability is **"characterized by significant limitations in mental functions and adaptive behaviors; It is a type of disability that manifests itself in cognitive, social and practical adaptive skills. This disability occurs before the age of 18".**

In line with this definition, in the Regulation on Special Education Services for Children with Intellectual Disability (2012) **"It refers to an individual who differs two standard deviations below the mean in terms of mental functions, who has deficiencies or limitations in conceptual, social and practical adaptation skills, these characteristics appear in the developmental period before the age of 18, and who need special education and support education services. "** defined as.

Considering the definitions made, it is seen that three main points are emphasized. These; (a) mental functions, (b) adaptive behaviors, and (c) support systems.


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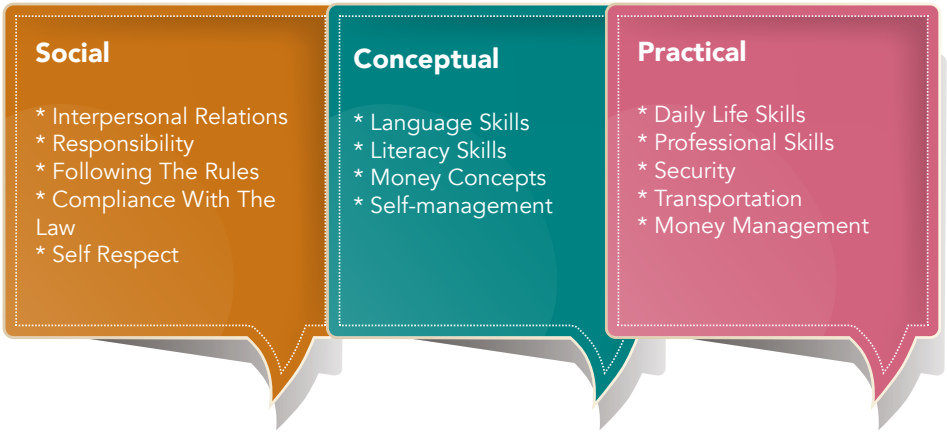
Mental Functions: It is seen that children with intellectual disability have significant limitations in mental functions. Restriction in mental functions is standardized, that is, implication and scoring processes are bound to certain rules, and the success of the individual in intelligence tests appropriate to student language and cultural background is below the (-2) standard deviation. In other words, if we use a standard intelligence test, when the average intelligence quotient score is accepted as 100, it is accepted that individuals with an intelligence quotient (IQ) score of 70 and below, that is, under (-2) standard deviation, perform below normal in mental functions.

Adaptive Behaviors: Adaptive behaviors are the whole of the conceptual, social and practical skills that children learn or need to learn in order to be independent and to show the behaviors expected from their age group and social group. Adaptive behaviors are behaviors that children use in their lives. Examples of adaptive behaviors are given below.



Support Systems: Support services can vary according to the needs of the individual and according to the time. While some individuals need more support than others, some periods may need more support than others. In this context, while children with moderate and severe intellectual disability need support in all areas, those with mild intellectual disability may need support in only one area. The support that each child needs may differ depending on the time and need. For this reason, it is of great importance that the support to be provided to children with intellectual disabilities is planned appropriately according to the needed time and situation, taking into account individual differences.

Children with intellectual disabilities can be supported in four areas: **"natural support, incidental support, general support and special support."** In the figure below, support systems are explained with examples.

Characteristics of Children with Intellectual Disabilities

Diagnosis and classification process is very important for children with intellectual disabilities to benefit from special education services. Some children lag noticeably behind their peers in academic, social, and self-care skills. Children in this group constitute a small portion of children with intellectual disabilities. Children with mild mental retardation, who are not easily recognized in the first years of their lives, and for whom teachers, especially preschool teachers, play an important role in the diagnosis process, constitute the majority of children with intellectual disability. In this respect, it is of great importance for teachers to know how intellectual disability is defined and what the general characteristics of these children are.

The success of inclusive practices in general education classrooms is directly related to the adaptations that teachers will make in teaching. Effective adaptations in teaching are important in increasing the academic success of students.

Cognitive Characteristics

- Children with intellectual disabilities have problems in collecting and using information in both long and short-term memory.
- They have difficulties in using strategies to store information in short and long-term memory.
- They have difficulty in transferring or generalizing a learned information existing in memory to different environments, times, people and areas.
- Their attention span is short. They have difficulties in discernment and problems concentrating only on a particular stimulus.
- They have difficulties in obtaining and using the information necessary for them from various stimuli.
- They have difficulty planning how to solve a problem, controlling solutions, implementing them, and evaluating their results.
- They learn academic concepts late and difficult. They show inadequacy in all areas of academic skills.
- They understand and comprehend abstract terms, definitions and concepts very late and difficult.
- Concepts of time develop very late and difficult.
- Their past failures and anxieties may cause them to make less effort to achieve a goal and to be less motivated.

Social and Emotional Characteristics

- The majority of children with intellectual disabilities have difficulties in social relations.
- Exhibiting inappropriate behaviors may cause them to have difficulties in making friends, social acceptance and interacting with their peers.
- They have trouble grasping social cues and may misinterpret the behavior of other students.
- In their social relations, they always prefer to be dependent on others in the group.
- They hesitate to take the responsibility of leadership.
- They have difficulty starting and maintaining a business on their own.
- They have difficulty in obeying the rules of the game, class and society.
- They have difficulty in responding appropriately to the wishes and expectations of the individuals around them.
- They have difficulty expressing their feelings and thoughts clearly and independently.
- They have difficulty adapting to new situations.

The positive attitudes of their normally developing peers and their social interaction with them have a great impact on the academic, linguistic, behavioral and social success of children with intellectual disabilities in the classroom environment.

Language and Speech Characteristics

- Children with intellectual disabilities (depending on the degree of disability) have difficulties in understanding language.
- Delays in language development, problems with pronunciation and fluency in speech are more common than their normally developing peers.
- Receptive and expressive language skills are limited.
- They have difficulty in initiating conversation in their conversational skills.
- They have limitations in following and giving directions.
- They have difficulty maintaining a dialogue or telling a story around a particular topic.
- They have problems in functional skills related to language such as taking turns in speaking, predicting when to speak and when to shut up, and choosing the content of speech.
- They experience delayed speech, voice production disorder, stuttering and articulation (such as voice addition and reduction, syllable addition-dropping) disorders.

It is important to include **"concretions"** in supporting the language and concept development of children with intellectual disabilities. For example, if the teacher explains a new concept with objects, models or picture cards, it will be easier for the student with intellectual disability to learn that concept.

Physical and Health Characteristics

- The psycho-motor development of approximately half of the children with intellectual disability is significantly behind their peers.
- They have difficulty in maintaining balance, movement, hand-eye coordination and adapting to rhythmic movements.
- They have difficulties with gross and fine motor skills. This may cause delays in the acquisition of fine motor skills such as grasping, using scissors, using a pencil-spoon-fork, dressing-undressing using knots or zippers, assembling small block pieces. In addition, there may be deficiencies in gross motor skills such as walking, climbing, running, jumping, jumping, jumping, throwing, catching, hitting something in the air, hitting something moving.
- They experience more health problems and get sick more often than children with normal development.
- They may have problems with feeding, swallowing, stomach and intestines.
- There may be problems with the bones and joints. Weak muscle tone may be seen.
- There may be vision and/or hearing problems.
- It can be accompanied by epilepsy disease.
- Thyroid disorders can be seen.
- Respiratory tract, ear and lung disorders may occur.

The physical appearance and health status of children with intellectual disability vary according to the degree of disability.

DOWN SYNDROME

What is Down Syndrome?

Down syndrome is the most common chromosomal disorder of all genetic disorders. Under normal conditions, each baby has 46 chromosomes, 23 from the mother and 23 from the father. Babies with Down syndrome have 47 chromosomes instead of 46. A significant proportion of infants and children diagnosed with Down syndrome have moderate intellectual disability.

Down syndrome is caused by an error in cell division that cannot be controlled yet, but it is still unknown what causes the disorder in cell division. Apart from this, Down syndrome is not specific to people from a certain race, age, geography and economic level, and it can affect people from almost every region and economic level.

Down syndrome has its own physical characteristics and when a baby with Down syndrome is born, physical examination of the baby can determine whether the baby has Down Syndrome or not. Apart from this, tests to determine Down syndrome can be done during pregnancy. Unfortunately, there is currently no treatment that can cure Down syndrome. However, with the developing medicine, there are many medical and surgical methods and applications to reduce or eliminate the quality of life and health problems of children with Down syndrome. Studies show that children diagnosed with Down syndrome show significant improvements with the early intervention and education services offered to them, and they can adapt to normal life more easily. In addition, individuals diagnosed with Down syndrome can have the knowledge and skills to work in many fields when appropriate education and support is provided.
(Batu, 2011; Connolly, Morgan, Russell ve Fulliton, 1993; Yoder ve Warren, 2004).

Physical Characteristics

- Children diagnosed with Down Syndrome are very similar to each other.
- The head is usually small and the neck is short.
- Their eyes are slanted upwards and separated from each other.
- They have smaller-than-normal noses. The nasal bone is flat and the nasal root is small.
- The mouth is usually small.
- Their tongues are often large enough to prevent them from speaking.
- There are differences in teething sequence and tooth structure, and there are deficiencies in teeth.
- Ears are small and deformities.
- They have low muscle tone.
- Junction points in joints are flexible. This causes the arms and legs to move excessively easily and uncontrollably.
- Single line on the palm is a condition that accompanies Down syndrome and this line is deeper than normal.
- Hands are usually wide, fingers short and plump.
- They are usually short in stature and have a stocky body shape. They usually have light and sensitive skin.

Observed Health Problems

- Heart disease can be seen in 40% of children diagnosed with Down syndrome.
- There is obstruction or structural disorders in the small intestine. Digestive system diseases such as reflux and constipation can be seen.
- Hypothyroidism, hyperthyroidism and diabetes are among the most common endocrine system diseases in children diagnosed with Down syndrome.
- Their immune systems are weak, and middle ear and upper respiratory tract infections are common.
- Strabismus can be seen in 57% of infants and children diagnosed with Down syndrome. Apart from this, they experience health problems such as far or near vision, astigmatism, cataracts, and clogged tear ducts.
- Hearing loss is present in 40-60% of infants and children diagnosed with Down syndrome.
- Musculoskeletal problems such as slipped kneecaps, scoliosis (deterioration of spinal smoothness), hip dislocation, and flat feet are seen.

Cognitive Characteristics

- Children diagnosed with Down syndrome exhibit significant limitations in cognitive processes due to their characteristics. The vast majority have mild to moderate intellectual disability.
- They have limitations in their ability to think, solve problems, and establish cause-effect relationships.
- Their short-term visual memory is much better than their verbal memory.
- Attention spans can be short and disorganized.
- They have limitations in the memory skills necessary to learn to speak.
- Children diagnosed with Down syndrome can read words and sentences, learn primary colors and geometric shapes, count rhythmically, and read numbers.

Communication and Language Characteristics

- Language and speech development of children with Down syndrome is delayed from the first years of their lives.
- Although speaking skills develop slowly, they are good at understanding nonverbal communication and making eye contact.
- Children with a diagnosis of Down syndrome usually start talking at about 24 months to 36 months.
- They are much better in comprehension than their expressive skills, as they have difficulties in speech-motor skills.
- They have difficulty in learning grammar rules.

Social and Emotional Characteristics

- They are generally cheerful, sympathetic, affectionate, social and able to establish good relations with their environment.
- They are good at making and maintaining friendships, and they learn these relationships by modeling and observing their normally developing peers.

Psycho-Motor Characteristics

- Children with Down syndrome exhibit some motor skills such as head control, sitting without support, walking later than their peers.
- Although they have a significantly lower speed in gait, balance, strength, hand-eye coordination, gross and fine motor skills; they can learn basic daily life skills such as walking, dressing independently, eating and arranging rooms at an early age.
- They experience limitations in postural control (the body's system responsible for coordination during motor movements) and balance due to disorders in the musculoskeletal system.
- Due to lack of tone (laxity) in the muscles while sitting, hunched body posture, widening the sitting surface, getting support by relying on the hands, providing balance by increasing the distance between the feet and inability to control the knee joints during walking and standing (going back more than normal) can be observed.

HEARING IMPAIRMENT

What is Hearing Impairment?

Hearing impairment; it is a situation where there are delays in the development of language and communication skills due to partial or complete loss of hearing sensitivity, thus negatively affecting the educational performance and social adaptation of the individual. This problem in the development of language and communication skills may cause children with hearing impairment to show some delays in other areas of development, but it should be emphasized that these delays, mainly due to hearing loss, do not mean that they are different from their hearing peers. We aim to identify children with hearing impairment at an early age, benefit from hearing aid technologies, and provide early special education services to minimize these delays caused by hearing loss.

If we look in more detail, we mentioned that children with hearing loss may have multifaceted needs due to delays related to language and communication, cognitive and social areas. Accordingly, it is known that primarily hearing loss may cause delays in oral language and communication skills. It should be mentioned that children with hearing loss as a result of this delay may also experience delays in cognitive and social-emotional development areas.

In order to prevent problems such as language and communication needs, social adaptation and school failure due to hearing loss, it is very important to start a process that can minimize the effect of hearing loss by firstly intervening medically, with the detection of hearing loss at an early age. When such a process is operated, early medical intervention in a child with hearing loss can eliminate the existing hearing loss and thus the negative effects of the loss. However, if the existing problem cannot be resolved despite the intervention, it is necessary to ensure that the child benefits from hearing aid technologies (for example, hearing aids, cochlear implant) as soon as possible, simultaneously with medical interventions. At this point, it should be emphasized that early detection of hearing impairment and early device use are important in terms of language-speech, cognitive and social-emotional development of the child with hearing impairment. Early diagnosis of children with hearing impairment, provision of early special education services to these children after enabling them to benefit from hearing aid technologies and their placement in appropriate educational environments are in question. In the education process, there is a need for planning and implementation depending on the educational evaluation results.

At this point, in the planning of the educational process, teachers need to adapt their students' characteristics in order to support their academic learning as well as primarily their language-speaking skills.

Information about the characteristics of children with hearing impairment, which should be considered while providing planning and education services, is given below.

Characteristics of Children with Hearing Impairment

Language and Speech Characteristics

- Due to hearing loss, these children are likely to have problems with their listening skills. Therefore, the first important step in the acquisition of language and speech should be to develop the listening skills of children using hearing aids.
- Children with hearing impairment may have problems initiating and maintaining an interaction (for example, conversation, conversation, game) due to their hearing loss.
- Children with hearing impairment may have problems understanding verbal instructions and questions due to their hearing loss. They may also have difficulty understanding, interpreting, and drawing conclusions from other people's speech.
- Children with hearing impairment will not be able to benefit from the opportunities for hearing children to acquire language by making sense of the sounds they hear from the environment from an early age. Therefore, the vocabulary of children with hearing impairment is limited.
- Despite efforts to prevent individuals from being affected by hearing loss as much as possible, speech intelligibility problems may occur in children with hearing impairment. In this sense, problems can be observed in fluency, rhythm, tone and accents, which are important components of speech.
- Children with hearing impairment; they may encounter difficulties in expressing their wishes, feelings and thoughts verbally.

Cognitive Characteristics

- The course of cognitive characteristics in children with hearing impairment depends on two important factors.
- These factors are whether the child has an additional problem that will negatively affect learning and the level of language development.
  It is difficult to talk about a specific cognitive problem unless there are additional problems and language problems; if there are additional problems and language problems, the probability of cognitive problems is also high.
- The cognitive level of children with hearing impairment is not different from their peers with normal hearing. However, the following types of problems can be observed in other areas of cognition.
- Due to the limited auditory input, children with hearing impairment may have difficulties in thinking and reasoning, classifying and relating, and explaining skills.
- Children with hearing impairment cannot perceive auditory stimuli in the same way, depending on the type and degree of hearing loss. This may lead to capacity limitations in short-term memory and working memory. This means that the child has difficulties in long-term memory as well.
- Due to hearing loss, there may be inadequacies in speaking, learning, and receiving information. Therefore, they may experience failure in learning academic skills.
- Their attention span may be shorter than normal. This may be one of the factors affecting success in academic and non-academic areas.

Cognitive Characteristics

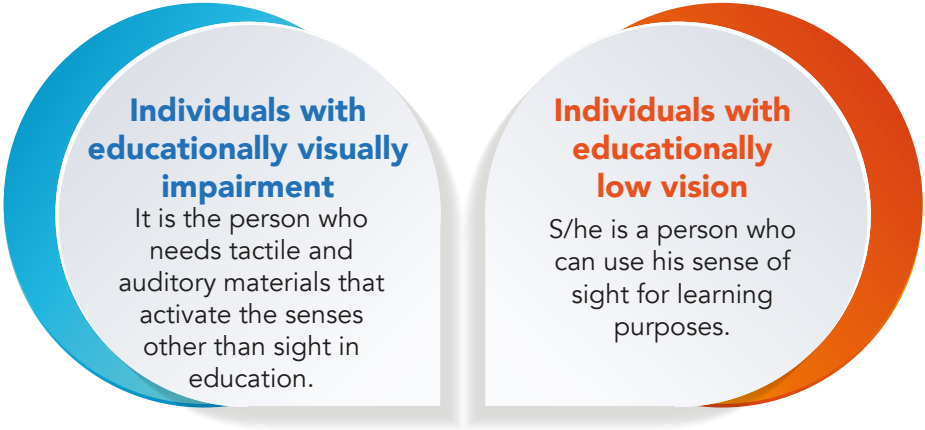
- Limited vocabulary, delays in acquiring grammatical structures and inadequacies in knowledge can cause individuals with hearing impairment to have difficulties in learning to read and understanding what they read.
- They may have difficulties in situations that require abstract thinking skills. They may have difficulty understanding expressions such as metaphors and proverbs.

Social-emotional and Behavioral Characteristics

- Children with hearing impairment may have problems initiating and maintaining interactions with individuals with normal hearing.
- This difficulty in communication can also negatively affect social and emotional development.
- Behavioral problems such as anger and irritability in children with hearing impairment may be observed partially more than their normal peers, but all this is related to the fact that the child has not received education very early more than hearing impairment.
- Children with hearing impairment may avoid social interaction and relationships due to developmental delays in communication skills. While they generally do not have problems with their hearing-impaired peers, they have trouble interacting with those with normal hearing.

VISUAL IMPAIRMENT

What is Visual Impairment?



When the definition *of an educationally visually impairment individual is* examined; this definition firstly brings to mind reading. These individuals cannot use their eyesight effectively for learning and need Braille or talking books for reading.

Individuals with educationally low vision, on the other hand, need tools such as glasses and magnifying glasses, materials such as large fonts, lighting, contrast, and tactile and auditory environmental arrangements that support learning with their senses other than vision, in order to use their visual potential at the highest level.

Recognizing the possible signs of visual impairment is very important for teachers to guide children to the necessary institutions and organizations for diagnosis and intervention in the early period. The table below lists possible symptoms of visual impairment:

Behaviors	Complaints	Appearance
Constant eye rubbing	Eyes itching, burning, feeling that something has gotten into them	Strabismus or gliding in the eyes
Constantly squinting or closing one eye	Inability to see well	Swelling, redness, burring of the eyelids
Raising head forward to see the board or an object ahead	Dizziness, headache, and nausea following reading or other near-sight work	Watering of the eyes
Swinging left to right or up and down the head to constantly scanning	Blurred or double vision	Recurrent infections in the eyelids
Difficulty in reading and/or near sight studies		White reflection instead of red-eye in photos taken with flash
Bringing objects closer to the eye		Constant trembling of the eyeball
Blinking the eyes more than usual		
Difficulty seeing distant objects		
Squinting eyes		
Apathy during the event or sometimes sleeping		

Starting from early childhood, many concepts and skills are acquired by observing and imitating adults without providing a systematic teaching. For this reason, the sense of sight has a very important place in the learning of many skills that allow children to observe various concepts, events and to continue their daily lives independently. For example; communication skills such as greetings; language skills, such as forming sentences by putting words together appropriately; motor skills such as walking, running; basic daily life skills such as using cutlery, dressing and undressing; Social-emotional skills such as helping each other, working collaboratively, following directions, and expressing oneself develop through observation and imitation.

Due to the important effect of vision on learning, deficiencies in the sense of sight can negatively affect all developmental areas of the individual. The extent to which the child may be affected by the disability depends on the type of disability, the time of its occurrence, and the quality of the experiences offered to him/her from the time the disability is diagnosed. For this reason, teachers have great responsibilities for the quality education that will be offered to the child in reducing the negative effects. The effects of visual impairment on developmental areas and the recommendations to be made are summarized in the tables on the following pages.

Effects of Visual Impairment on Development

Motor Development

- The most important stimulus for motor development is **"vision"**. Vision initiates movement. A child with visual impairment does not attempt to move spontaneously when lying or sitting. Does not try to get up, does not turn from right to left, does not lie down while sitting, does not try to reach or crawl. These actions are about vision-based self-perception and the willingness to change it.

- Skills that require many psychomotor movements such as holding, letting go, eating and dressing are learned through watching and imitating the model. Therefore, children with visual impairments will have less desire to look at the people, objects, movements and situations around them, such as turning their heads, reaching by crawling, walking, pointing, and making sounds compared to their peers.

- Due to their inability to move adequately, the muscles of these children cannot be strengthened, and the weakness in the muscles causes uncontrolled movements and problems in balance-related motor skills such as posture and walking.

- Activities that use auditory and tactile stimuli and that are carried out with a decreasing cue systematic should be organized in order to provide children with visual impairments with imitation skills. For example, when hitting a toy that makes a sound by hitting, it should be ensured that she understands that you are doing the action by putting her/his hand on your hand. Later, when you make a sound, it knows how you make it, so when you give it full physical help, it will not resist and will understand what you are trying to do. The hint level can be reduced gradually.

- Before becoming a model with auditory and tactile content by sound or touching a part of the body, it must be explained that it will be touched and permission must be obtained. In addition, the action to be taken to the child must be explained in advance. Over time, it will be allowed to create language for actions, even if it does not understand it at first.

- In early childhood, simple tools such as the hula hoop, which can act as a buffer in the event of a crash, can be used to teach these children independent movement, helping to regulate their movement by providing clues without crashing.

- In the pre-school period, it is necessary to start teaching the wall tracking and forearm protection movement. Wall tracking will also make it easier for her/him to follow the adaptations to be made in the school environment to make her/his life easier.

- In order to enable independent movement, the teaching of using a cane should be completed before starting school. Otherwise, being dependent on someone may prevent the development of independence.

- The most commonly used methods for the independent movement of the visually impaired; walking with the help of a guide who can see, using a cane, using guide dogs and using electronic devices to which satellite navigation systems are added. Electronic systems can be used when the accessibility problem can be resolved.

- Independent movement strategies should also be taught. Strategy teaching can also be associated with cognitive skill, but the first strategy will be about action. For example, it is necessary to remember how many steps you took when you went, backwards.

Cognitive Development

- Since visually impaired children cannot learn by observing, it is necessary to present them with real experiences (eg, touching a real tree for the concept of tree, smelling it, noticing the texture of its trunk and leaves, etc.) in order to learn many concepts.
- Cognitive development requires the use of the senses (taste, touch, sight, smell, etc.), because everything that occurs in the mind is first perceived through the senses.
- Matching, distinguishing and grouping; should be studied by creating tools related to taste, smell, texture and sound.
- First of all, by teaching systematic touching, it is necessary to help them to store in their memory by creating images of the objects they touch.
- In order to learn relative concepts, it is necessary to teach them to touch with one hand and compare two different information coming from both hands.
- The concept of size and length can be taught by basing one hand and evaluating position relative to the other.

Language Development

- Children with visual impairment cannot see the objects around them or see them very limitedly, so they are not interested in them and cannot tell them what they want by making signs or sounds.

- The first three years of life are the period when speaking is acquired and vocabulary is developed. At this point, opportunities and real lives should be created for these children to recognize and manipulate as many objects as possible. Clear and clear information should be provided to the child about objects, the child should be able to observe the people around him by touching, and in this way, understand which body parts the various movements belong to.

- Concept teaching should not be neglected because it is also important in terms of language development.

Social-Emotional Development

- The sense of sight has a key role in perceiving and understanding the behavior of other people. Communication should be initiated by frequently calling and touching in early childhood.
- The child should also be allowed to touch, and it should be allowed to determine descriptive features for those around her/him.
- First of all, it should be tried to recognize people, especially from sounds, starting from the fact that they try to recognize them by touch. During this period, their peers may feel uncomfortable being touched.
- The lack of visual cues makes it difficult for individuals to locate (eg, friends in the playroom) and initiate and maintain communication with them.
- Sounds are also important for the child's understanding of people. With these children, it can be tried to understand the emotional states of the people from their voices.
- It is very important for visually impaired individuals to be together with their peers, to support them to play games by sharing, to reinforce their socially accepted behaviors and to give feedback for their unacceptable behaviors.

Play Skills

- Early play skills are about exploring various objects and understanding what can be done with them. Observations of visually impaired children about the functions and use of objects are quite limited.

- It is important to provide children with visual impairments with direct experiences about objects and their functions. For this reason, it will be useful for learning the names of these objects to have models of all kinds of objects that can be included in their daily life as toys.

- The material, texture and sound of the toy are more important than color and detail in the selection of toys. You can even use fragrance.

- Based on these children's often tendency to play alone, they need to be taught to take turns in their interactions with parents in early childhood.

- Sharing is also one of the skills that should be studied after object permanence is gained. It is necessary to choose and pattern activities that they can win.

LANGUAGE AND SPEECH DISORDERS

What is Speech and Language Disorder

Communication is a social process involving the exchange of messages between at least two people. The interruption of this message exchange and its deviation from social standards is defined as communication disorder. Language and speech disorders are evaluated within the scope of communication disorders and are different conditions that need to be addressed separately.

Before moving on to language disorders, it is necessary to look at what language is. Language is an abstract and symbolic process used for communication purposes. In other words, we use language to convey the thoughts in our heads. Language is two-dimensional: receptive and expressive language.

Thus, language impairment is impairment in using and/or understanding symbol systems. In other words; it is the condition of having difficulty in understanding what others say (receptive language) or adequately conveying their feelings and thoughts (expressive language).

Receptive language: A child who has difficulties in receptive language skills may have difficulty in perceiving and applying instructions, which can sometimes be interpreted as carelessness. These children often demand that what has been said to them be repeated or expressed a little more clearly. These students have difficulties in following the instructions, understanding abstract concepts and proverbs, idioms, finding allusions and main ideas, and words that have more than one meaning.

Expressive language: on the other hand, manifests itself in the ability to encode the message it wants to convey. In other words, this situation manifests itself in the form of having language skills behind the peers in terms of self-expression, and it manifests itself more clearly compared to receptive language skills. These children sometimes have less attempts to com-

municate. In addition, they have difficulties in grammatical errors, finding the right word, and solving the disconnections that occur when the other person does not understand the message they want to convey. Some children with impaired expressive language skills may tend to use gestures and facial expressions or try to express their needs in one- or two-word sentences.

While only expressive language disorder can be seen in children, receptive and expressive language disorders can also be seen together.

Therefore, **"language disorder"**; phonetics/phonology rules regulating the sound system and sound combinations of a language, morphemic/morphology rules regulating word structure, word forms, root and suffixes in words, syntax rules regulating the order of words to form sentences, semantics rules regulating the meaning of words and sentences, pragmatics is the situation where there is a problem in understanding and/or using one or more of the rules regulating the appropriate use of the language components as mentioned.

Generally, language acquisition is a process that is carried out by children spontaneously and without much difficulty. However, some children can sometimes have difficulties in language acquisition for different reasons. Normally developing children start to produce their first words around 11-13 months and it is expected that children can produce 50 words around the age of two, but this is an individual process and the language acquisition speed of children can show some individuality. However, it can be said that a child who has reached the age of 2-3 and cannot produce words has **"language and speech delay"** and it is recommended to go to a speech and language therapist.

Some children aged three and over who have a delay in expressive language cannot use language directly. They try to use gestures and vocal sounds. Children in this group can often catch the language characteris-

tics of their peers, albeit with a delay. Children with expressive language delay have better receptive language skills than expressive language skills. While some of the children with delayed speech and language start to speak late, they catch up with their peers, while some cannot catch up and may exhibit language-related problems throughout their lives. Various studies have shown that children who catch their peers are the ones who try harder to express themselves and use gestures. Delayed language and speech may be caused by various disability groups (autism, intellectual disability, cerebral palsy, hearing impairment, etc.) or there may not be a specific reason for this situation.

Some of the children who speak late may be diagnosed with specific language learning difficulties in the future. Specific language learning difficulties; performance in language tests below the calendar age, inconsistency between language skills and non-verbal skills, and unexplained language deficiency in children.

"Specific language disorder" is a language disorder that is not caused by mental, social, motor development, sensory problems such as any vision or hearing, neurological reasons, or any retardation in general mental functions, and has significant limitations in language.

Both qualitative and quantitative differences are observed in the language development of children with specific language disorders, when compared to children of the same intellectual age with normal development. Language-based performance of these children is lower than their non-verbal mental performance. Children with specific language disorders have difficulty in learning language rules, adapting language according to context, and arranging meanings corresponding to words. There are qualitative differences such as difficulties in starting a conversation, giving inappropriate answers to the context, and not being able to prevent the conversation from being interrupted by other children.

These children do not have a standard language impairment. While receptive or expressive language may sometimes both be affected, different aspects of language may also be affected in different ways, but still the form of language seems to be more affected than other aspects. Although there is no perceptual problem in children with specific language disorders, their language acquisition rate is slower than their peers. Their language processing speed, auditory discrimination and auditory memory are weaker than the performance of their typically developing peers. These children have difficulty distinguishing some sounds from each other, keeping in mind what they hear. These features also cause problems in processing linguistic input.

Language is not always transmitted verbally. It is also possible to transfer messages and express themselves in sign or in writing, but still "**speech"** is the most commonly used method of expressing language in the world.

Speech is a neurophysiological process. In other words, it is a way in which we encode and convey our thoughts through the sounds produced through the organs involved in the speech. The organs involved in the speech require a healthy hearing mechanism. Speech impairment is a condition in which speech comprehensibleness varies and becomes difficult for structural or functional reasons. The most common disorder we encounter in school age is **"articulation disorder"**.

"Articulation disorder" is defined as disorders in the production of speech sounds, such as distorting and changing sounds, mixing up sounds, skipping sounds. Acquisition of all sounds does not happen at the same time, these sounds are acquired in a certain developmental sequence and this process continues until the end of the age of 5. Only /r/ sound can be acquired up to 6-7 years of age. In this process, instead of the target sound, the sound that is in the child's vocabulary and closest to the target sound is produced. These strategies are called sound **"informational acquisition strategies"**.

A child who has just started school should now be able to produce the sounds of his mother tongue without the need for these strategies. If this cannot happen, the child's intelligibility and communication can be significantly impaired. In the future, these problems can be reflected in reading and writing. For this reason, if there is still a problem with intelligibility and the production of sounds (except for the r sound) after the age of 5, a speech and language therapist should be consulted.

Another speech disorder is **"stuttering"**, which is considered within the scope of fluency disorder. **"Stuttering"** is the condition in which the fluency and rhythm of speech is interrupted by sound and/or syllable repetitions, prolongations and blocks. All of these features can be seen in the child at the same time, or one or different combinations can be seen together. Stuttering can change over time, it can start with prolongations and syllable repetitions can be added to it. For example, stuttering usually begins in the preschool years. The type of stuttering, also called developmental stuttering, can be seen in 5 out of 100 children between the ages of 2 and 5, and it resolves spontaneously in 4 of these children.

However, it can be permanent in one of them. It cannot be predicted which one it will be permanent, but **"say it again, try again"** etc. to the children in this situation. Without intervention, it is appropriate to listen to the child's speech patiently and refer him to a speech and language therapist.

Some of these deficiencies can be completely eliminated by providing the necessary educational services, while others can be reduced significantly, if not completely. The important thing is to start the early diagnosis and intervention process as soon as possible for children with speech and language disorders, and then to include them in the education processes by making the necessary adaptations in educational environments suitable for the performance and characteristics of the children.

AUTISM SPECTRUM DISORDER

What is Autism Spectrum Disorder?

Autism Spectrum Disorder (ASD) is defined as a neurodevelopmental disorder characterized by inadequacy in social communication and interaction and limited repetitive behaviors (DSM-V, 2013). Autistic individual; It is defined as **"an individual whose limitations in social interaction, verbal and non-verbal communication, interests and activities emerge in early childhood and who need special education and support education services due to these characteristics"**.

Autism Spectrum Disorder (ASD) is used as the most recent term in the Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association, which has a highly respected place in diagnosis.

The American Psychiatric Association updated the ASD diagnostic criteria with the DSM-V published in 2013. According to DSM-V, the characteristics of ASD are:

a. Continuous lack of social communication and social interaction observed in different contexts,

b. Restricted and repetitive patterns of behavior, interest, and activity,

c. Symptoms appear in early childhood

d. Disruption in daily living functions.

DSM-V includes a scale showing the intensity of symptoms. In this scale, level-1 corresponds to the need for support, level-2 corresponds to the need for intensive support, and level-3 corresponds to the need for very intense support. The table below lists these levels and the grading of ASD.

ASD Intensity Level		Social Communication/Interaction	Limited Repetitive Behaviors
Level 3	**"Requires very intense support."**	Severe disruptions in verbal and nonverbal social communication skills lead to severe inability to function. Very limited attempts at social interaction and minimal responsiveness to others' attempts at social interaction are observed.	Preoccupations, fixed rituals and/or repetitive behaviors significantly impair functions in all domains. Significant discomfort is observed when rituals or routines are interrupted, very difficult to divert from fixed interests, or return to fixed interests in a short time.
Level 2	**"Requires intense support."**	Significant deficits in verbal and nonverbal social communication skills, social deficiencies that persist even in the presence of support, limited social interaction attempts, and inadequate or unusual responsiveness to others' social interaction attempts are observed.	Rituals and repetitive behaviors and/or preoccupations or fixed interests markedly impair functions in various domains. When rituals and repetitive behaviors are interrupted, marked displeasure or frustration is observed, and it is difficult to divert from fixed interests.
Level 1	**"Requires support."**	When support is not provided, social communication disruptions cause significant inadequacies. Has difficulty attempting social interaction and shows distinctive examples of responding atypical or unsuccessfully to others' attempts at social interaction. He seems to have little interest in social interaction.	Rituals and repetitive behaviors cause significant problems in one or more contexts. Resists attempts by others to interrupt rituals and repetitive behaviors or divert them from fixed interests.

It can make a positive difference in the development of the child if the preschool teachers are aware of the students with ASD in their classrooms, give direction and adapt the education-training program and environmental regulations according to the characteristics of the child. Therefore, it is important to know the characteristics of children with ASD. Below are the features of OSB. Each of these features may not be completely in a student, or the duration, form or effect of the feature may be different for each student.

Characteristics of Students with Autism Spectrum Disorder

Social Interaction and Communication Area

- Avoidance of eye contact can be observed in children with ASD. When you make eye contact, he may turn his gaze to the other side.
- Inadequate imitation skills can be observed in children with ASD. May not be able to imitate other people during play or learning activities. For this reason, the adult may need to be able to use prompts, which are the help technique, in line with the child's needs.
- In the behavior of children with ASD, apathy, shyness, and introversion can be observed. These children may prefer to work alone in group activities and avoid their friends.
- Inappropriate laughing and giggling behaviors can be observed in children with ASD. For example, these children may suddenly laugh or giggle during an activity where silence is required, such as a story-reading activity.
- Inappropriate use of toys and objects can be observed in children with ASD. For example, these children may turn the wheels of the car instead of driving the car during the free time activity.

- It can be observed that children with ASD depend on their routines, and that suddenly changing routines cause them discomfort. For example; these children may become restless if the feeding activity is at the same place and at the same time every day, when the place or time of the day changes.

- It can be observed that children with ASD exhibit behaviors such as sorting and arranging objects, and being uncomfortable when the order is distorted. For example, a child with ASD might line up the puzzle pieces he plays in a certain pattern. When you break this order, it can exhibit problem behavior.

- Repetition of words (echolalia) can be observed in children with ASD. These children may repeat certain words without appropriate context.

- It can be observed that children with ASD give inappropriate reactions to simple instructions. For example, a child with ASD may walk as if he did not hear when asked to "sit".

- The behavior of not making a request for something they want to achieve can be observed in children with ASD. For example, a child with ASD may not want water when thirsty.

- Children with ASD may not respond to communication. For example, a child with ASD may become unresponsive when his name is called, and may turn his head and gaze away.

- Children with ASD may use pronouns inappropriately. For example, he may refer to himself as **"by his/her name"** or as **"you"**.

- Children with ASD may give inappropriate answers to questions about a short story or a situation.
For example, when you ask the name of the hero in the story you read in the Turkish language activity, s/he may say the name of an object instead of the name of the hero.

- In children with ASD, a monotonous emotionless or distorted speech may be observed. A child with ASD may speak with a robotic tone of voice, without intonation.

Limited Repetitive Behaviors and Interests / Indicator Examples

- A tendency not to eat certain foods can be observed in children with ASD. These children may refuse to eat some foods at feeding time.
- Tasting behavior of inedible objects can be observed in children with ASD. For example, a child with ASD may suck on toys, pens, try to eat.
- Repetitive sniffing behavior can be observed in children with ASD. For example, a child with ASD may smell objects or human hands or hair.
- Repetitive turning behavior can be observed in children with ASD. A child with ASD may exhibit spinning behavior around himself or in circles.
- The behavior of rotating objects not designed to be rotated can be observed in children with ASD. For example, a child with ASD may rotate objects such as plates, cups or glasses.
- Sudden movements can be observed in children with ASD. When a child with ASD moves from place to place, he may jump and move suddenly.
- Children with ASD may exhibit self-stimulating behaviors. For example, a child with ASD may make high-pitched or different sounds to stimulate himself (like iii-iii).
- Swaying behavior can be observed in children with ASD. For example, a child with ASD may sway back and forth while sitting or standing in a chair.

ATTENTION DEFICIT HYPERACTIVITY DISORDER

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common problems in childhood and is investigated by educators, families and experts. The disorder, which was previously known as hyperkinetic dysfunction, organic impulsivity, and attention disorder, has been referred to as ADHD in recent years. ADHD is a disorder that begins in childhood and is manifested by symptoms such as unusual mobility, attention problems or inability to control impulses unless necessary interventions are not made. From early childhood, individuals try to understand and interpret their environment, and in these processes, they gain the basic requirements for advanced learning skills. One of the basic requirements that individuals need when obtaining the aforementioned gains is defined as attention. The short attention span of young children makes it difficult to learn these gains appropriately, and in cases accompanied by ADHD, it becomes more difficult for children to acquire basic skills such as sequencing, communication initiation, listening, etc.

The effect of attention and focus on the social and educational processes of the individual starting from early childhood manifests itself in development areas such as cognitive development, motor development, language development, and the delays that occurs in these needs due to ADHD can negatively affect the developmental areas of the individual. There is a strong relationship between the rate at which disabilities affect the individual and the interventions received, the way the disability occurs, and time. In this context, parents, teachers and other stakeholders who play a role in the child's life have great responsibilities to minimize the effects of the problems caused by disability by using appropriate education and interventions. In this respect, knowing the symptoms of ADHD in individuals will help the stakeholders who play a role in the child's life in minimizing the negative impact of disability.

Hyperactivity Symptoms	Attention Deficit Symptoms
Restlessness	Inability to follow the given instructions to the end
Inability to sit when required	Difficulty concentrating on work
Inability to play or wait calmly	Don't seem to listen when the other person is talking
Don't talk too much	Inability to focus or overlook details
Tend to constantly bump into something	Inability to establish or maintain order
Having trouble getting in line and waiting	State of forgetfulness
Inability to wait / interrupt the work or the end of the conversations	Rapid shift of interest
Constant movement of hands and feet	Avoiding doing homework, activities, etc.
Don't act without thinking of the consequences	Unfinished business

In early childhood, children exhibit behaviors such as being active by nature and not being able to control their impulses. Therefore, not all children who exhibit these behaviors are affected by ADHD.

To say that a child is affected by ADHD, he or she must have shown 2/3 of the above symptoms **"together"** and these symptoms must be observed before the age of 7. It should not be forgotten that many of the above symptoms can also be observed in children with normal development.

What is Attention Deficit Hyperactivity Disorder?

ADHD is both a multi-structured and a common disability. For this reason, individuals affected by ADHD display quite different and diverse behaviors from each other. However, the definition frequently used when describing individuals affected by the relevant disability; It is in the form of **"distracting attention, excessive activity and exhibited impulsive movements, and consequently affecting the individual's social life, learning activities and communication, and negatively affecting the individual's family and school environments"**.

Symptoms of Attention Deficit and Hyperactivity Disorder

1. *Excessive Activity (Hyperactivity):* Hyperactivity is used to mean intense activity without cause and purpose. There are important differences between normal mobility and the mobility seen in ADHD. Mobility levels of active children only increase when they are bored or excited, and the level of mobility can vary from environment to environment. The activity levels of children with ADHD are often independent of boredom or excitement and are evident in almost every setting. Children with ADHD are tireless reservoirs of living energy. Excessive activity can sometimes be accompanied by disobedience, stubbornness, feelings of anger and aggression.

2. *Attention problems:* Symptoms such as difficulty in concentrating on a point, being easily distracted by external stimuli, forgetfulness, losing their belongings or toys frequently, and disorganization indicate that children have attention problems. These children cannot learn and follow the rules due to carelessness in friendships and games. They cannot concentrate for more than a few minutes even on activities that are of great interest to them, with the exception of visual and auditory stimuli such as video games.

3. *Impulsivity: (impulsiveness)* is used to mean taking action without thinking, that is, without calculating the consequences of one's actions. Children with this disorder are unable to delay their reactions, prevent them, wait in line, or act appropriately. Features such as haste, not being able to delay requests, responding very quickly to questions and interrupting others' words indicate that children have impulsivity problems.

ADHD can be seen in the way that excessive mobility prevails, in a way that lack of attention is predominant, or in a way that impulsivity prevails; these three sets of symptoms can also come together.

Although ADHD is a disorder on its own; Learning difficulties, conduct disorder, oppositional defiant disorder, tic, depression and anxiety are also common in these children.

CAUTION! Not every active or naughty child is ADHD. There are important differences between normal mobility and the mobility observed in ADHD. These differences are shown in the table below.

Normal Mobility:	ADHD Mobility
It is purposeful.	Often the purpose is unclear.
It is the usual characteristic of the developmental stage.	It can be seen at any developmental stage.
It differs depending on the context. For example, you can be active at home and calm at school.	It does not differ according to the context, it can be observed in any environment.
It is seen more often in stressful and exciting situations.	It can be observed in any mood.

Prevalence Rates of Attention Deficit and Hyperactivity Disorder

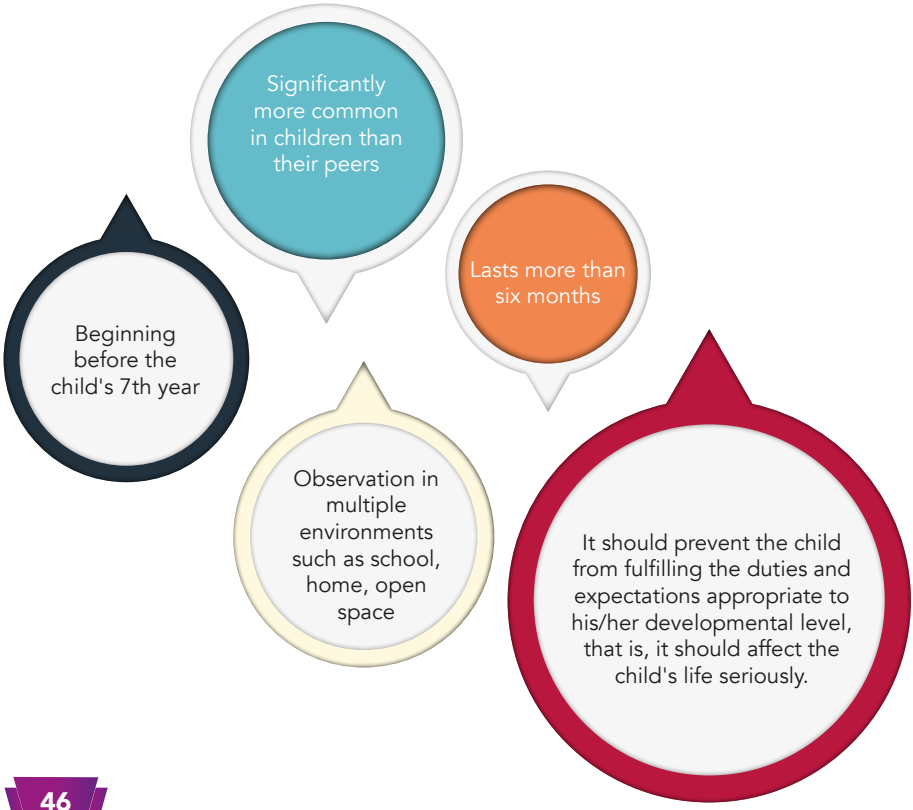
ADHD has become a very common problem nowadays. Although the prevalence rates and numbers vary according to societies and studies, the accepted values vary between 4-10% in western societies, while the incidence in school-age children in Turkey is 5%. It is known that the rate of ADHD in boys is 3-5 times higher than in girls.

Possible Causes of Attention Deficit Hyperactivity Disorder

Although the possible causes of ADHD in the historical process have been explained by relating to the anatomical structure of the brain, researches reveal that the related problem does not have an anatomical basis; however, some recent studies emphasize changes in the chemical structure of the brain and emphasize that there may be a relationship between this disorder and hormones that provide message transmission such as dopamine, serotonin, and norepinephrine. In this respect, ADHD is included under the umbrella of neuro-developmental disorders in the final classification systems. Again, a well-known fact is that these children have problems with information processing. Although the reasons leading to ADHD are not fully known, it is reported that 25% of the relatives of children diagnosed with ADHD have this problem, and this rate indicates that one of the possible causes may be hereditary (genetic-based) causes.

In Which Situations Should Children Suspect ADHD?

Most of the symptoms associated with ADHD are experienced by children in the normal development process, and with the nature of childhood, activity and distraction may occur in cases of extreme excitement, but it is not a correct practice to diagnose children with these symptoms as hyper-activity or distraction. Natural mobility in childhood and movement in ADHD are significantly different from each other. In order to be able to talk about ADHD in an individual, the symptoms associated with hyperactivity, inability to control impulses and lack of attention;



CEREBRAL PALSY

What is Cerebral Palsy?

Cerebral Palsy (CP) is defined as a permanent group of disorders in the development of movement and posture, which manifests itself with uncontrolled muscles in the body as a result of damage to the motor centers in the neurological system. CP causes a decrease in the activity level of the child and limitation due to non-progressive damage to the neurological system. Although the expression **"non-progressive"** stated in the definition of CP is valid for the neurological system or brain tissue, the effect of this system on the musculoskeletal system over time is inevitable. To put it more clearly, it is known that muscle, tendon, joint, bone and other structures, which are the elements of the movement system, will be affected by this neurological problem over time and leading to some problems depending on activity limitation.

The main problem in CP is **"muscle tone"** as stated, and secondary problems occur in the movement system such as shortening of the muscles and deterioration of coordination, and decrease in joint movements over time. At the same time, problems such as epilepsy, respiration and nutrition accompanying the main problems and secondary problems are also observed in children with CP. The existence of the mentioned multiple problems, the intervention and education process of children with CP, the team including different specialists (pediatric neurologist, orthopedic surgeon, physiotherapist, occupational therapist, speech-language therapist, special education teacher, psychologist, social worker, orthotic technician, nutrition and dietetics specialist and other experts) requires an interdisciplinary model.

Cerebral palsy
It is a non-progressive and comprehensive neurodevelopmental disorder that causes various disorders and problems depending on the effect of motor centers in the brain.

Cerebral palsy
In simpler terms, CP is a movement and posture disorder that occurs as a result of damage to the motor regions of the brain.

Symptoms and Problems of Cerebral Palsy

The main problem in CP is muscle tone and accordingly difficulty in movement and posture, and its main symptoms in children are; retardation in motor milestones (gross motor skills such as walking, running, jumping, jumping and climbing; difficulties in fine motor activities such as writing, holding a pencil, page turning, etc.), quality of movement and problems with initiating and maintaining movement against gravity. In addition, if children with CP do not have the ability to walk independently or with motorized mobility, these children may use rolling or crawling to move from one place to another, and sitting on the floor in a W-shape. In children with independent walking CP, walking at the fingertips or swinging the lower leg and foot out are typical symptoms of CP. CP is a neurodevelopmental disorder in which not only the motor development process is affected, but other areas of development, such as language-speech and cognitive, can be affected. Therefore, muscle tone disorder, which is the main problem caused by damage to motor areas in the brain, and consequently difficulty in movement and posture, may also be seen in children with CP. Therefore, the characteristics of children with CP vary due to the accompanying problems.

Disorders Accompanying Cerebral Palsy

Sensory Disorders

Since movement problems are common in CP, it causes sensory problems to be overlooked. Sensory disorders are very common (97%) especially in children where spasticity affects half of the body, and sensory disorders in the limbs on the affected side are very common. Problems such as inability to distinguish between two stimulated points of the body, sensory deficits in muscle, joint, tendon and ligament structures, and inability to recognize the touched object are among the sensory disorders seen in children with CP.

Visual Impairments

Motor and cognitive problems in children with CP sometimes make it difficult to detect visual impairment. As the severity of CP increases, the severity of visual impairment in children also increases. **"Cross-eye"** is one of the most common problems. In addition, blindness, farsightedness, blindness in the eye on the affected side, spatial-visual (90%) and visual-perception (60%) problems can be seen in children with CP in which one side of the body is affected.

Hearing-Speech Disorders

Hearing disorders are seen in approximately 25% of CP, and speech disorders are seen frequently between 42-81%. Sensory-neural hearing loss, especially in children with CP; It is associated with congenital problems such as poisonings, rubella, and jaundice.

Cognitive Problems

It is difficult to establish a direct relationship between CP and cognitive problems, and the existence of many sub-heterogeneous types of this neurological disorder prevents the generalization of cognitive disability to children with CP. Cognitive development is more risky in children with severe muscle involvement, and the mental processes of children in all subgroups should be carefully evaluated and educational arrangements should be made if necessary.

Psychological Problems

Although various prevalence rates are given for the presence of emotional and behavioral problems in children with CP, there are no very valid results. However, children with CP are likely to have different levels of mood disorders such as inattention, unhappiness, irritability, low self-esteem, anxiety and worry. In addition, especially with advancing age, the activity levels of school-age CP children, like their peers, are not sufficient for school and their participation levels are limited, and these children may experience problems in developing and maintaining friendships.

Epilepsy Problems

Epilepsy problems are encountered especially in children with CP where the disorder is more severe and whole body involvement is present. Adjusting the doses of antiepileptic drugs by a pediatric neurologist is important in the fight against epilepsy.

Oral-Motor Control Problems

It is more common in children with high CP severity. Inadequate swallowing coordination, uncontrolled maneuver of the tongue and biting reflex can cause feeding problems and escape of food from the mouth to the trachea. Control problems make it difficult to control saliva and other fluids in the mouth. In addition, defects in the tooth structure can lead to the formation of oral hygiene and some oral diseases.

Nutritional Problems

Inadequate and unbalanced nutrition problems are encountered in children with CP. Weak fine motor and oral-motor skills, reflux, difficulty in independent feeding, difficulty in expressing hunger reveal feeding problems. Nutritional problem, on the other hand, is a health problem and causes other difficulties on body systems such as blood and immune system.

Urinary and Reproductive System Problems

Bladder control develops late in children with CP. Especially in children with CP who have cognitive processes and whole body involvement, urinary control problems may become evident.

Respiratory Problems

Problems in the control of respiratory muscles, ineffective coughing, difficulty in swallowing, reflux and low endurance of the heart and respiratory systems can lead to problems and diseases such as wheezing, infection of the lungs, pneumonia and insufficient lung ventilation by causing problems in the respiratory tract.

Musculoskeletal Problems

Muscle tone and related problems with movement and posture, which are the main problems in CP, commonly cause musculoskeletal problems in the long term in children. Spastic muscle and its extension cause deformities on the bone structure and joint over time, loss of movement in the joint, and deficiencies in functions. In children with CP who have the ability to walk, toe walking may develop due to spasticity in the hind leg muscles, and as a result, deformity in the ankle and fingers, and the big toe tends towards the second toe. Due to spasticity, the knee joint remains bent, the knee joint angle decreases, and accordingly, losses in hip and waist movements may develop. As a result of all this; It can cause difficulty in standing upright, changes in the structure of the spine, increased hunching, curvature of the spine, increase in the lumbar pit, excessive bending of the elbow, wrist and fingers, and functional inability to use it, and loss of joint movements over time.

Gait Disorders

Increased muscle tone (spasticity) in the lower limbs of children with CP leads to the observation of some gait types. Scissor gait, bent-knee gait, stiff knee gait, toe gait are the most common gait disorders specific to CP.

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NOTES

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