

# Movement disorders



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# Participants

**Think back and remember whether you have ever been in contact with people who have motor impairments, i.e., people who had any difficulties with movement, moving their own body, balance or speech. Share your own experiences, focusing on the aspects of communication which you found challenging. Share with the group how you felt in that situation, as well as your general impressions about contacts with people who have motor impairments.**





# Movement disorders

**Movement disorders refer to gross and fine motor skills and body balance disorders, which prevent everyday functioning. In short, they denote below-average functioning of the body.**

Movement disorders encompass a very broad and varied group of motor difficulties, ranging from mild motor awkwardness to very severe movement and body posture disorders requiring the person to receive constant assistance and care.





# Classification



**Movement disorders are divided into four categories depending on the cause of the disorder, i.e., the impaired body system, that resulted in one of the movement disorders.**

These categories are as follows:

- **Locomotor system disorders**
- **Central nervous system disorders**
- **Peripheral nervous system disorders**
- **Chronic diseases**



# Locomotor system disorders

The locomotor system is an organ system that gives us the ability to move our bodies. It is made up of bones, muscles and joints.



- **Bones** are a passive component of the body and they allow us to have the body shape that we have. The skeleton provides strength and stability, forms a support structure for the muscles and protects the internal organs.
- **Muscles** are an active component of the body and they provide the body with its mobility.
- **Joints** are junctions between bones that enable better flexibility.

- The type of locomotor system disorder depends on the body part where a disease or disorder occurred.
- When it comes to bones, this can be a bone disease, bone deformity or simply the absence of them (children can be born without a certain bone). Bone deformities can occur due to diseases, fractures, etc.
- Furthermore, muscle dysfunction can lead to weakness on the one hand, and rigidity, spasms and cramps on the other.

- Finally, as a result of joint diseases or injuries, body parts and extremities may become constrained in their mobility.

**Locomotor system disorders include the following:**

- **Congenital malformations**

(hip dislocation; phocomelia: absence of arm and leg parts; spina bifida: improperly closed neural tube);

- **General affections of the skeleton**

(nanosomia: slowed growth due to pituitary gland failure; gigantism: excessive growth due to growth hormone hypersecretion; rickets: defective mineralization of the osteoid, characterized by soft and flexible bones);

- **Trauma**

(fractures; extremity amputations; pareses: muscular weakness; plegias: complete paralysis);

- **Inflammations**

(osteomyelitis: bone infection; infectious arthritis: joint infection; rheumatoid arthritis: chronic inflammatory disease of the connective tissue that is primarily evident in the joints);

- **Spinal deformities**

(lordosis: inward curvature; kyphosis: forward curvature; scoliosis: sideways curvature);

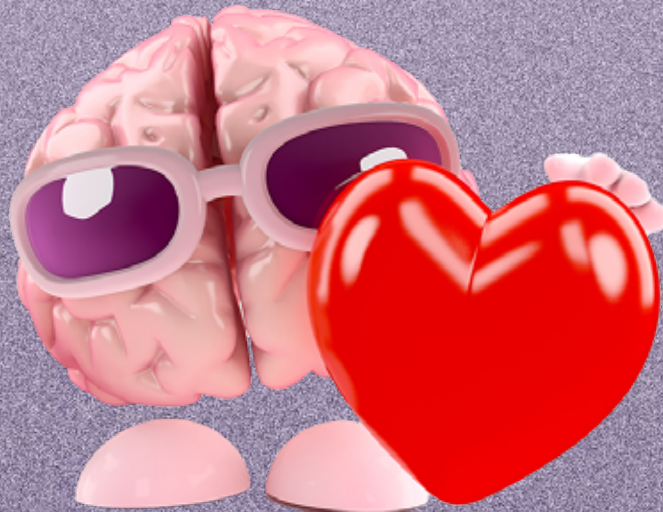
- **Progressive muscular dystrophies**

(myopathies: different types of primary muscle disease; myotonias: different types of neuromuscular disorders related to muscle tone (tension)).



# Central nervous system disorders

The central nervous system is comprised of the brain and the spinal cord. The brain is comprised of the cerebrum, cerebellum and the spinal bulb (medulla oblongata).



- The **cerebrum** is the largest part of the brain; it is covered by the cerebral cortex and consists of two hemispheres.
- The **cerebellum** is the brain region located below the cerebrum which plays an important role in movement control.
- The **spinal bulb** (medulla oblongata) is the lowest part of the brain which connects the brain and the spinal cord; breathing and blood pressure centres.
- **The spinal cord** is the lowest part of the central nervous system that extends through the entire length of the spine which protects it; it enables the formation of simple movements.

**Motor difficulties caused by the central nervous system disorders are the result of disease or injury to any of its parts. The degree and type of the difficulties themselves depend on the timing of occurrence, location of occurrence and extent of the primary disease and injury.**

Central nervous system disorders include the following: encephalitis, craniocerebral trauma, paediatric polio, multiple sclerosis, brain tumours, cerebral palsy, stroke (...).

- **Encephalitis, encephalomyelitis:**  
viral brain diseases.
- **Craniocerebral trauma:**  
skull and brain trauma.
- **Paediatric polio (poliomyelitis):**  
an infectious disease caused by the poliovirus; characterized by muscle paralysis.
- **Multiple sclerosis:**  
chronic inflammatory disease of the central nervous system; characterized by movement disorder or muscle weakness.
- **Brain tumours:**  
specific difficulties depending on the location of the tumour in the brain.



- **Cerebral palsy:**

a group of permanent disorders of the development of movement and posture.

- **Stroke:**

death of brain tissue caused by bleeding or a clot.

**Cerebral palsy is a comprehensive term for various disorders that affect a person's ability to move and maintain balance and posture. Same as with other diseases of the central nervous system (CNS), the severity of difficulties in cerebral palsy depends on the timing of the onset of impairment.**

It is a non-progressive disorder which occurs during the development of the foetal brain or the brain of a young child.



Motor difficulties in cerebral palsy are often accompanied by disorders of sensation, perception, cognition, communication and behaviour, epilepsy and secondary musculoskeletal problems.

Given that it occurs very early and is of an unchanging character, we call it a condition, not a disease.

There are different types of cerebral palsy (CP), which are briefly described below.

- **Spastic:** characterized by muscle weakness and stiffness; it occurs in about 70% of children with CP.
- **Choreoathetoid:** characterized by spontaneous muscle movements, without normal control; it occurs in about 20% of children with CP.
- **Ataxic:** characterized by poor coordination of movements, which are accompanied by tremors; it occurs in about 10% of children with CP.
- **Mixed:** characterized by the presence of two of the above-mentioned types, it is most often a combination of spastic and choreoathetoid types.



# Peripheral nervous system disorders

The peripheral nervous system is made up of the nerves and ganglia located outside the CNS, and connects the brain and the spinal cord with the rest of the body. Nerves are long projections of nerve cells (axons). Ganglia are clusters of nerve cells.

We differentiate nerves with regard to the sense organ with which they are connected: olfactory, visual, ocular, brachial, radial, ulnar (...).

Peripheral system disorders are caused by various diseases, infections, poisoning, trauma or heritage, and the difficulties that develop as a result of them depend on the location and timing of the impairment's occurrence. Some examples of peripheral nervous system disorders are:

- **Disc herniation**

injury to the disc, which then puts pressure on the nerve coming out of the spinal cord.

- **Amyotrophic lateral sclerosis**

**(ALS):** a progressive motor neuron disease involving a painless loss of muscle function and atrophy, and often difficulties with swallowing and talking.

- **Guillain-Barré syndrome**

a form of acute polyneuropathy that causes sudden worsening of muscle weakness, which sometimes leads to paralysis.





# Chronic diseases

**Motor difficulties can also occur as a result of chronic somatic impairments or chronic diseases of other systems. These are more permanent diseases that require long-term treatment. They do not have a direct, but rather a collateral effect on the motor system.**



**Motor difficulties that develop as a result of them depend on the location and timing of the impairment's occurrence. Some examples of diseases with chronic somatic impairments or chronic diseases of other systems are as follows:**

- **Parkinson's disease:** a nervous system disease with symptoms such as tremors, stiffness, slowness of movement, poor balance and other types of movement difficulties.
- **Schizophrenia:** can include symptoms such as complete immobility or sudden and purposeless movements and unusual body postures.
- **Tourette's syndrome:** an inherited disorder involving tics that begins in childhood (grimacing, head jerking, squinting, sniffing, loud and irritating speech, panting, etc.).

- **Diabetes:** disease of the endocrine pancreas whose chronic complications also include damage to nerve fibres, especially in the lower extremities (numbness, pain, hyperesthesia).
- **Cardiovascular diseases:** inadequate circulation can be related to an insufficient amount of oxygen and other nutrients reaching the extremities, thus leading to motor difficulties.
- **Respiratory system diseases:** an insufficient amount of oxygen leads to a poor supply to body parts, which then causes various difficulties, including motor impairments.



# Main difficulties



The most severe consequences of motor difficulties are made manifest upon moving around in a certain environment. How much a specific movement disorder will affect a person's overall functioning depends on the type and severity of the impairment and the age at which the impairment occurred.

The more severe the impairment and the more noticeable it is by the social environment, the greater the consequences for development.

As for the age at which the impairment occurred: an earlier onset has a greater impact on the overall development; however, a later onset leads to greater adjustment difficulties because it represents a traumatic event.

Motor skills have significant implications for everyday life. The most significant consequences of motor impairment are related to the independent mobility of a person.

As the degree of impairment increases, independence decreases, which consequently enhances the feeling of frustration. With lessened mobility, a person has a limited social circle with which they socialize, thus producing a further harmful effect on mental health.

If the disorder occurs at an early age, better adaptation to life with motor difficulties is predicted.

However, with later development of the impairment, a person perceives it as an extremely stressful or traumatic event, significantly impairing their psychological health and requiring considerable adaptive resources.



The greater the visibility of the impairment, the greater the stigmatization. However, it is important to point out that the presence of motor difficulties does not necessarily have to result in emotional disorders. If a person's basic living needs are met from the earliest days, then this forms a good foundation for later social-emotional development.



# Suggestions

In this case, communication does not require a lot of accommodation. These are adults who (most often) have no intellectual impediments in finding ways to satisfy their needs and wants. Below is a list of suggestions for more successful communication:

- Clearly communicate your desire to offer assistance;
- Directly ask for instructions in order to understand what the person wants help with and what kind of help they want;





- Express your lack of experience/ knowledge freely;
- Ask for clarification regarding any doubts you may have;
- Ask for feedback to see if you are acting correctly;
- Provide assistance for real hindrances caused by the primary diagnosis;
- Avoid being unnecessarily pleasing just because the person has an impairment.

- If a person with motor difficulties does not get overly excited about the difficulties they persistently encounter, neither should you. Be careful not to put focus on the difficulty by exercising excessive care and pity.

# Accommodation

## Accommodation in the context of informal adult education:

- **Organizational accommodations**
- **Spatial accommodations**
- **Technical adjustments**





# Organizational accommodations

**Ensure that people with reduced mobility can attend the qualification procedure without too much physical effort (ground-floor room, elevator, ramp, etc.).**

**Materials in digital form can be useful for people with motor impairments and all other participants who prefer to learn by reading on screen rather than paper.**

People with reduced mobility, who depend on organized transport or the help of family and friends to get around, will be grateful that they can sometimes join the programme even if they have already used up their right to transport and an assistant that day to go to the doctor or to some other activity. These people may sometimes need more time to express themselves in writing and speaking, take this into account when organizing your teaching.





# **Spatial accommodations**

**If you have participants with reduced mobility attending your programme, make sure that the rooms where the learning will take place are easily accessible (elevator, ground floor).**

**If your participant with reduced mobility is able to go up the stairs on their own, make sure to support them in doing so. Arrange the way to do this with the participant.**

If you are by no means able to organize for learning to take place in ground-floor rooms or in a building with an elevator, that does not mean that you have to discontinue cooperation with the participant who has reduced mobility. Talk to them, show your goodwill and explain what resources you can make available to them. Chances are you'll figure out a way to conquer that obstacle together.



People who use wheelchairs to get around use a specially adapted toilet, so it would be a good thing if the location where learning will take place has such a toilet. If you are unable to provide it, talk to your participant and try to come up with a solution together. This is certainly not a reason to discontinue cooperation with the participant.

Some people with chronic diseases have a need to use the toilet often or urgently. Allow them to choose a place in the room that will give them unobstructed access to the toilet.

Also, some chronic diseases require more frequent consumption of food or drinks. In agreement with the participant, provide a place for storing food and drinks which will not interfere with the use of work and didactic materials and the performance of practical exercises.

In addition to the amount of lightning, the amount of air is also important, so make sure to regularly air the room, in agreement with the participants.



# Technical adjustments

In the context of people with motor disabilities and chronic diseases, technical adaptations can include anything. There are special chairs and tables that, due to their adaptability, are particularly suitable for people with motor impairments.



Also, due to difficulty in movement and occasionally acute symptoms of chronic diseases, the possibility of online participation would be a good technical adjustment. It's important to know that some operating systems offer special accessibility settings for people with motor disabilities, do some digging on your smartphones and computers.



# Teaching methods and techniques



People with motor difficulties and chronic diseases probably won't need you to make any special adjustments to your explanations, but be sure to check it with them. Be open to feedback from your participants.

Implementation of demonstration and guided instruction methods may require some accommodation, which you should agree upon with the participants themselves.



# Participants

**Form several groups (5–10). Each group has to choose a specific disease belonging to motor impairments so that each group covers a different topic. The task of each group is to read about the chosen disease (by looking it up online by themselves) and present the information they learned to other groups.**

...



# Participants

Afterwards, when all the groups have completed their presentations, they will move on to the second part of the task. In those same groups, discuss how the selected disease can influence the entire life of an affected person. What are the limitations that this person is experiencing in comparison to the general population. Discuss it publicly!









# Addendum: Workshop exercises

## Make It Work, Buddy

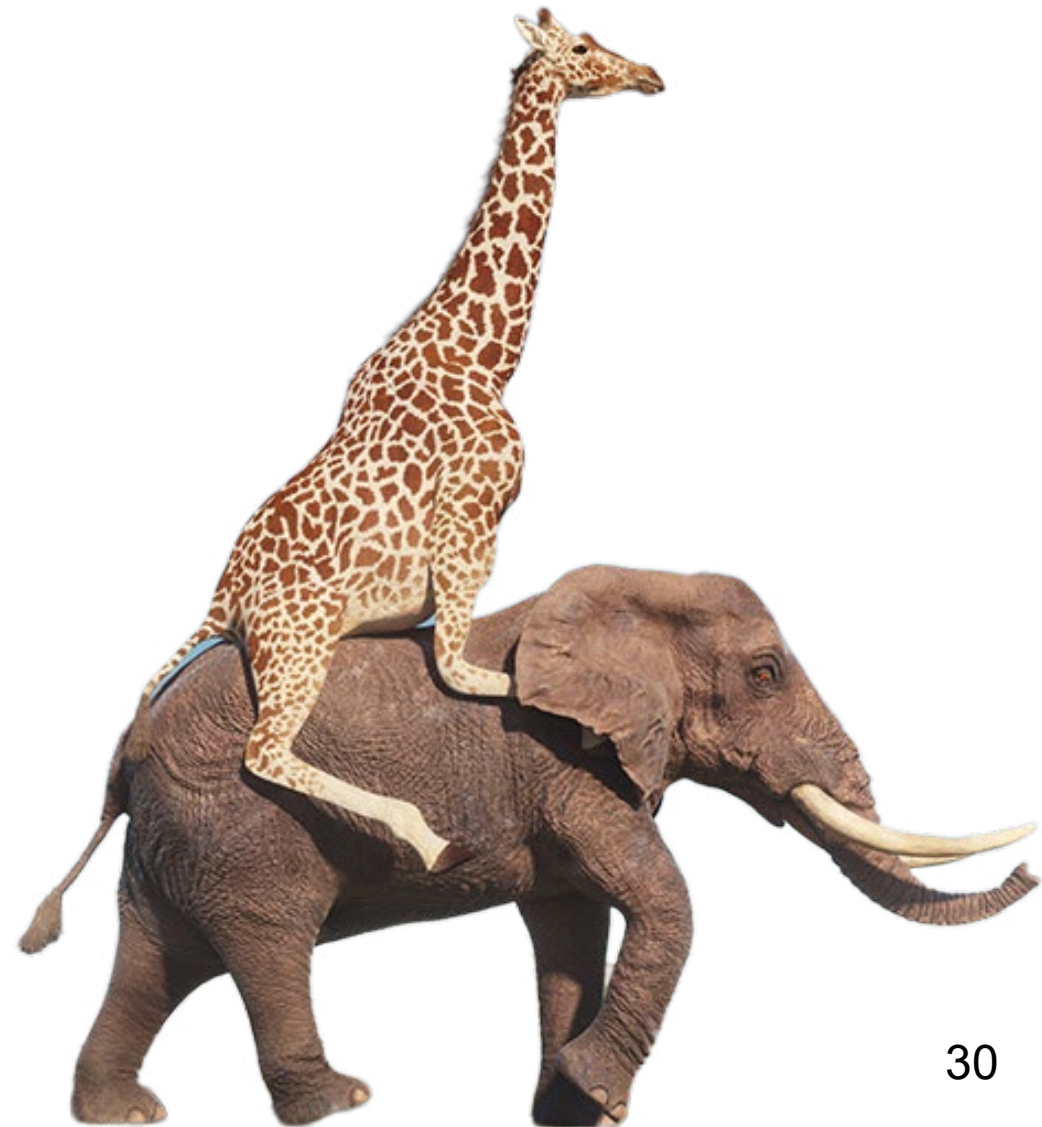


**Required materials:** a lot of accessible objects, regardless of their shape and purpose, laid out on one surface (table, floor), 2 groups with a same number of members.

**Instructions:** Arrange the objects on one flat surface. Prepare the location (another flat surface on the other side of the room). Form two groups of people and position them within reach of the arranged items. One group of people will have their dominant arm immobilized. The other group of people will have their dominant leg immobilized.

The task for both groups is to carry as many objects as possible from one side of the room over to the other side.

**Purpose of the exercise:** Life challenges faced by people with motor difficulties are no different from those faced by people without motor difficulties. The difference between them lies only in the way they perform certain tasks. If you see an opportunity, lend them your “arm” or “leg”.





# Addendum: Workshop exercises

## Cut It Out



**Required materials: two people**

**Instructions:** One person will be given a task to perform an activity (drink a glass of water, read a text, write on paper using a pen or write a text on a computer, etc.). Another person will be given a task to physically disrupt the person performing the activity (by poking them, tickling them, blocking their view, grasping a part of their body, nudging them, etc.).

**Purpose:** Various symptoms accompanying movement disorders are often unpredictable and very disruptive. A person's successful completion of an activity is often constrained by the inability to control one's own movements. Such situations represent their everyday routine. Don't pay them any greater attention than those people themselves do.





# Dig In: Movement dissorders



Real Stories from People living  
with Cerebral Palsy



The Theory of Everything  
(2014)



The Fundamentals of Caring  
(2016)