



# **HEPA guidelines for children with disabilities based on gymnastic after COVID-19**



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## INTRODUCTION

This handbook is designed under the auspices of the Health and Energy Platform of Action (HEPA), a European network dedicated to the promotion of physical health, which has been servicing health on behalf of the European Commission since 1996. HEPA's core objective is to advocate for the health and well-being of European citizens through facilitating the advancement of national physical activity policies.

Understanding the critical role of physical activity in overall health and well-being, this handbook provides a comprehensive guide to promote physical fitness amongst children with developmental disabilities through gymnastics-based exercises. Recognizing the diverse abilities and needs of these children, we have tailored our approach to provide a variety of accessible and enjoyable activities.

Gymnastics, as a sport, stimulates the brain, encourages social skills, and strengthens gross and fine motor skills. These exercises are not only beneficial for a child's physical development but also instrumental in enhancing their cognitive and social capabilities. They allow children to learn at their own pace, listen, follow instructions, take turns, and communicate with others, leading to holistic development.

This handbook, therefore, serves as a tool for educators, parents, therapists, and anyone involved in the care and development of children with developmental disabilities. The outlined gymnastics-based activities are designed to be adaptable, inclusive, and enjoyable, all while promoting physical health and overall well-being.

## **DEFINITION OF PHYSICAL ACTIVITY AND PHYSICAL EXERCISE**

To begin with, I would like to define physical activity, and the most famous is the definition by World Health Organization (WHO), which states that physical activity is "any body movement that is performed by activating skeletal muscles and that requires energy consumption". So, any activity that is performed in your free time, at work or to get from one place to another, or

all those body movements that involve the consumption of energy, and if regularly and systematically practiced, it is beneficial for health and helps us improve or maintain physical and psychological well-being. It includes the entire spectrum of activities, from very low energy consumption to maximum effort.

According to Findak (1995), physical exercise is a unique psychomotor process in which specific tasks of physical and health culture are achieved through multiple organized repetitions of physical exercises.

## **DEVELOPMENTAL DIFFICULTIES**

Many experts describe developmental disabilities as physical, emotional, or intellectual disorders that begin before birth or in early childhood. As much as 15% of the world's population - at least one billion people - have some form of disability, whether present at birth or acquired later in life, and within that percentage, almost 240 million of them are children. The Convention on the Rights of Persons with Disabilities defines life with a disability as a long-term physical, mental, intellectual or sensory impairment that – in interaction with the environment – prevents a person's participation in society on an equal basis with others. According to the presented percentages, their functioning in society, participation in society and a fulfilled life depend on the extent to which they are adapted and included in it. Nevertheless, children with developmental disabilities are among the most marginalized people in every society. Therefore, it is particularly important to devote quality time to them.

## **DEFINING CHILDREN WITH DEVELOPMENTAL DISABILITIES**

Misinterpretation often occurs with the term "children with developmental difficulties" as it is frequently equated with "children with special needs," a conceptually incorrect substitution. Children requiring special education belong to a broader category, within which we distinguish between children with developmental difficulties and gifted children.

There are three types of special educational needs as defined by Clark Brack, J. (2009) in "Learn to Move, Move to Learn":

1. A child exhibiting so-called risk factors such as premature birth, or one who is or has been exposed to an unfavorable environment (e.g., an incomplete family), may have potential special educational needs. Similarly, a child who significantly differs from other children in some aspect of development, for instance, displays slower development of motor skills, may have potential special educational needs.
2. Transient special educational needs occur in children who experience extremely stressful events that negatively impact their development, such as the death of a parent or a very close person.
3. A child with developmental disabilities may have permanent special educational needs. For instance, a child who has an innate or acquired specific condition that requires a unique, professional approach to upbringing and education. Permanent special educational needs can also develop in children whose potential or transient needs were not recognized or appropriately addressed in time.

## **ORIENTATION LIST OF TYPES OF DISABILITIES**

(Taken from: "Regulations on elementary and secondary education and education of students with developmental disabilities")

Groups of types of difficulties are:

### **1. Visual impairment**

Visual impairments are blindness and low vision.

## **2. Hearing impairment**

Hearing impairments are deafness and hard of hearing.

## **3. Impairment of language-speech-voice communication and specific learning difficulties**

Language-speech-voice communication disorders (voice, speech, language) are those in which speech communication is difficult or absent due to organic and functional damage.

## **4. Damage to organs and organ systems**

Damage to organs and organ systems is assumed to be congenital or acquired damage, deformations or disorders of the function of an individual organ or organ system that leads to a reduction or loss of the ability to perform certain activities.

## **5. Intellectual difficulties**

Intellectual difficulties are conditions in which inclusion in social life is significantly impeded and is associated with stopped or incomplete development of intellectual functioning, which was determined on the basis of medical, psychological, educational-rehabilitation and social expertise.

## **6. Behavioral disorders and mental health impairments**

Behavioral disorders and mental health impairments are conditions that, on the basis of medical, psychological, pedagogical, educational-rehabilitation and social expertise, have been determined to be conditioned by an organic factor or a progressive psychopathological condition, and are manifested by impaired intellectual, emotional and social functioning.

## **7. Existence of several types of difficulties in psychophysical development**

The existence of several types and degrees of difficulties in psychophysical development includes difficulties from two or more groups that are provided in the Orientation List of types of difficulties.



Each of the above types and degrees of developmental difficulties in children cause specific problems and needs that require (Borić and Tomić, 2012)

- application of special educational and rehabilitation procedures
- application of specific aids, means and equipment
- trained and educated rehabilitation staff

## **THE ROLE OF EXERCISES BASED ON ELEMENTS OF GYMNASTICS IN CHILDREN WITH DEVELOPMENTAL DISABILITIES**

The sedentary lifestyle that characterizes the lifestyle of a large part of today's population is connected, along with an abundant and inappropriate diet, to an increase in the prevalence of overweight and obesity and the numerous chronic diseases associated with it. Knowledge of the health hazards of such a lifestyle encourages the promotion of physical activity and healthy eating. Today, the benefits and effects of regular physical activity in the prevention of a number of chronic metabolic, cardiovascular diseases and some malignant diseases have been proven (Mišigoj-Duraković et al., 1999, 2012).

Considering that gymnastics is generally a sport that provides an environment for stimulating the brain, encouraging social skills and strengthening gross and fine motor skills, it also provides children with developmental difficulties with a type of method for learning and developing new skills. Likewise, on top of all of the above, it has multiple useful benefits for children with learning difficulties, communication with others, low self-confidence and socialization difficulties. Thus, through various exercises, children can learn at their own pace, listen, follow instructions, take turns and communicate with others, which gradually leads to progress.

The bone-muscle system of developing children is subject to deformations due to hereditary factors, external and internal factors, which lead to the formation of kyphosis, scoliosis, lordosis, and precisely for this reason, the child should be introduced to gymnastics slowly and carefully in order to allow him to adapt to the new environment and create a positive experience related to sports. Corrective gymnastics, a kinesitherapy method that includes a set of exercises dosed according to intensity, type and duration, takes on this leading role. It can be applied preventively - when the

deformity has not yet occurred, or therapeutically - when the deformity is already present, with the aim of preventing further progression of damage. With specialized equipment and safe surfaces for exercise, children can participate in activities that activate the neural pathways through activities that involve the engagement of the left and right sides of the brain, then activities for sensory development, for the development of strength and balance, or all the key patterns for a child's physical development. In addition to the many benefits already mentioned, corrective exercises should work to establish impaired coordination skills, develop a sense of space and proper movement, increase aerobic and anaerobic capacity and reduce subcutaneous fat, generally improve the health of the child. In order to achieve all this, the child should primarily be motivated, and this is achieved by using a large number of props and using games.

Programs for children with developmental difficulties are mainly based on general programs for children and young people with adaptation of activities/programs to the difficulties and health and functional status of an individual child (providing space for exercise, selection of a competent person, program and equipment adapted to the health and functional status of the child). In addition to the benefits of physical activity, a certain social aspect of that child is also sought. An important role in the implementation of these programs for children with developmental difficulties is taken by the kinesiologist as a professional who helps them develop and maintain their motor skills as well as to support them in their daily activities using various exercises and techniques to improve their motor skills with the aim of being as active and more independent in everyday life.

### **ADJUSTMENT OF PHYSICAL ACTIVITIES FOR CHILDREN WITH DEVELOPMENTAL DIFFICULTIES**

The purpose of adapting physical activities to children with developmental difficulties is to successfully include them in the process of physical exercise and to make it easier for them to perform it independently or with assistance, because each child is an individual for himself, therefore the exercise must be designed according to the degree of impairment. In order for children not to lose their motivation to exercise, the exercises themselves must be interesting, fun, stimulating, but to the greatest extent feasible for the child himself and the other children in the group.

All activities are preceded by warm-up exercises that are adjusted depending on the child's difficulty.

Some of the examples are:

## WARMING UP

### 1. IN MOTION

\* Walking with arms fully outstretched above head/ outstretched sideways/ circling back and forth/ hunched-stretched

\* Walking on toes/ heels/ outer edge/ inner edge of foot

\* Walking backwards

\* Lateral movement

\* Running over

\* "stepping" / raising the knees high

\* "crawling" on the knees

\* Quadrupedal movement

### 2. IN PLACE

\* Circular movement with the head

\* Turn your head to the side (Left\Right)

\* Circling the shoulders (forward - backward)

\* Hand circling (forward - backward)

\* Circling the hips

\* Lifting the knees to the chest

\* Bend over (bent and extended legs)

\* Move the upper part of body aside

\* Lifting on toes

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH VISUAL IMPAIRMENT**

Children with visual impairments often have delayed motor development, which is attributed to inadequate space and conditions, therefore, before starting to perform an exercise, it is very important to allow the child to tactilely explore and get to know the space in which the exercise is performed with the help of an assistant, and to make changes to it reduce to a minimum. Each motor task needs to be divided into several steps so that the child can learn it more easily.

Clark Brack (2009) states that during physical activities, children should be given verbal incentives with simple instructions so that children with visual impairments can more easily understand the instructions for performing certain activities.

When planning and carrying out physical activities, it is very important to take into account the limitations faced by visually impaired children (Kiš-Glavaš, 2016):

- No movement imitation
- No visual-motor coordination
- Presence of fear of movement
- No developed body image
- Difficulties in perceiving space
- Poor posture
- Imbalance
- Difficulties in orientation in space

Gymnastics exercises for visually impaired children:

1. Walking on a beam with the tactile assistance of a kinesiologist

2. Lifts and hanging on the rings with assistance

3. Overcoming resistance (pointing and lifting, which overcome the passive resistance of objects of different masses and shapes. Various methods of pulling, pushing and their combinations are used to overcome the forces of body segments and the body as a whole, so-called active resistance provided by a partner or opponent on the floor).

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH HEARING IMPAIRMENT**

If a hearing-impaired child does not pay attention to what the kinesiologist is doing, his immediate attention can be gained by raising his hand or turning off and on again the lights in the hall (Kiš-Glavaš, 2016). It is highly desirable to use simple sign language as well as pictorial representations of activities in addition to detailed instructions. A child mostly gets involved in an activity when he studies how the activity is performed by other children in the group.

Krampač-Grljušić and Marinić (2007) state the following procedures and strategies for teaching children with hearing impairment:

- should speak clearly and loudly
- should use simple words and sentences with gestures or pictures
- practically show them what is expected of them
- pair them with a hearing child
- check whether the child understood the instructions
- grasp the child's efforts
- use sign language for the deaf

### Gymnastics exercises for hearing impaired children:

1. Rolls on the floor are an integral part of the methodology of learning to roll, and are characterized by gradual contact of the body with the ground, without resting hands or feet on the ground and rotation up to 180 degrees around the transverse axis of the body.

2. For rolling (rolling forward and backward) it is necessary to know how to roll with a crouched body where the back is in a rounded position, the knees are resting on the chest, and the head is in a forward position (on the chest)

3. Standing on the shoulder blades, the so-called "candle." When performing a stand on the shoulder blades, support is provided on the head, neck and upper part of the torso, and when maintaining a balanced position, the arms additionally help by resting on the ground in different ways.

4. Jumping over goats, crates, mats with the use of primarily preparatory exercises for mastering the element

5. Various springing, pulling, lifting on rings

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH SPECIFIC LEARNING DIFFICULTIES**

When working with children who have dyslexia, it is very important to demonstrate and show the movements and techniques of each exercise with verbal instructions. Children with dyslexia should not be expected to be able to listen and perform tasks at the same time, and it would be preferable to make cards with rules for recall. It is very important to develop gross and fine motor skills, which can be achieved by activities such as throwing and catching a ball in pairs, rolling a ball on the floor, running with tasks, jumping with one foot, climbing and descending a ladder and the like.

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH PHYSICAL DISABILITIES AND CHRONIC DISEASES**

Working with such individuals requires knowledge of the damage, paying enough attention in working with them and an individual approach. Depending on the motor impairment, various difficulties may occur, such as the inability to handle an object, the inability to sit, stand or move for a long period of time, and the inability to cover a certain distance in a short period of time (Kiš-Glavaš, 2016). when working with them, it is important to adapt the space and props to their needs,

and in order to achieve somewhat the same progress with everyone, it is important to divide them into smaller groups so that the approach is as high-quality as possible.

Gymnastics exercises for children with physical disabilities and chronic diseases:

1. Exercise for strengthening trunk and leg muscles ("gymnastic bridge") lying on the back with bent knees. From this position, the torso should move upwards until it is in the same plane as the upper legs. The feet are fully supported on the floor, and the arms should be extended and resting on the floor.

2. Lifting the trunk from the base with the help of links while contracting and extending the arms.

3. Spinning in the shoulders using an elastic band (from the position where the arms are fully stretched in front of the body, with a taut band we go to adduction and move to engagement and return back)

4. Carrying out supports on the arms and later progression, if possible, to standing (if the arms are out of reach for a child in a stroller even though they are lowered all the way, a thick mat can be placed under him so that he can perform the given exercise)

Gymnastics exercises can be beneficial for children with cerebral palsy because they help maintain and improve strength, coordination, balance and flexibility. However, it should be remembered that the needs and abilities of children with cerebral palsy are different and that exercises should be adapted to their specific needs and abilities.

It is important that the exercises are adapted to the abilities and needs of the child, and to avoid overloading or excessive strain.

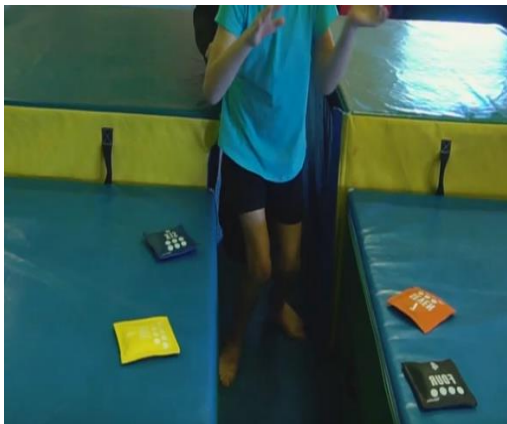
Some examples of exercises for cerebral palsy such as line walking or throwing a ball (weight bag) to improve coordination and balance.



- Crawling in a circle (because it is the primary movement before someone learns to walk).



- Raising to a standing position from a squat with stretching of the back muscles and touching the wheel with back (especially in children with shortened hamstrings).



- Walking between the mats (in the channel), with passage control.
- Methodical exercises that precede walking include crawling between mats and frog jumps.





- Walking in a "channel" using the tactile surface of balance stones to stimulate proprioceptors in the feet.



- Using "channels" to progress on the walk, while collecting bags.



- Inserting collected bags into the bucket located at the end of the "channel".

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH REDUCED INTELLECTUAL ABILITIES**

In such children, we observe motor disorders such as spasticity, coordination disorders, clumsiness and slow reactions. In addition to insufficiently formed general motor abilities, we observe deviations in the organization of fine motor skills that provide fine, differentiated movements during the execution of work processes. Therefore, the main guidelines and tasks for such children are the development of general and fine motor skills; strengthening of weakened muscles, work on coordination and spatial orientation, prevention and correction of posture disorders. It is desirable to leave out some elements of the game, such as complex rules, too difficult tasks, or adapt these tasks to suit the children's abilities.

According to Clark Brack (2009), when working with children with Down syndrome, care should be taken to avoid injury to the spinal cord. It also states that it is desirable to avoid all activities that could lead to extreme flexion or extension of the neck such as forward rolls, transfers, jumping on a trampoline or demanding dances

### Gymnastics exercises for children with reduced intellectual abilities:

1. GROUND FLOOR - warm-up exercises, strength, coordination, stretching, flexibility exercises can be performed on it
2. PARTER - method of forward roll and backward roll
3. Learning the gymnastics star movement with the help of a wall of mats
4. Standing on the shoulder blades, the so-called "candle." When performing a stand on the shoulder blades, support is provided on the head, neck and upper part of the torso, and when maintaining a balanced position, the arms additionally help by resting on the ground in different ways.
5. Various springing, pulling, lifting on rings

## 6. Jump over low mats

## 7. Various conventional exercises using standard gymnastic practical methods



- Snow jumping over several rows of small spongy obstacles



- Swinging reach with the legs from initial to the second springboard while holding on to the rings



- Walking with your full foot on a low beam with a large mat placed underneath



- Moving on all fours on a low beam with a large mat placed underneath



- Raising and keeping one leg raised while balancing on a low beam with a large mat underneath



- Hold with both hands on one of the parallel handles while the legs are raised



- A great exercise to keep your extended legs raised while your body is resting on a large rubber ball placed on a springboard



- Lowering the legs just so that the toes do not touch the springboard while we are on the rubber ball placed on a springboard



- Blue mat side : Climbing the Swedish ladder to the top and back
- Yellow mat side : Front roll



- Holding a squat with your hands in front of you on a specific area marked with a color



- Jump from the trampoline to the previously marked line, staying in the landing shown in the previous exercise



- Hold on with arms outstretched on one of the parallel arms



- Hang upside down with bent legs



- Sunny jump from one springboard to another



- Endurance in a handstand while the legs are resting on the wall



- Endurance with outstretched arms on the small parallel bars while the legs are bent and feet off the ground



- Table position set with the hips raised high. Hands and feet are placed on small parallel bars



- Walking like a bear on small parallel bars





- With assistance, stand on outstretched arms while the legs are stretched horizontally



- With assistance, on a slight soft slope, performing a roll backwards



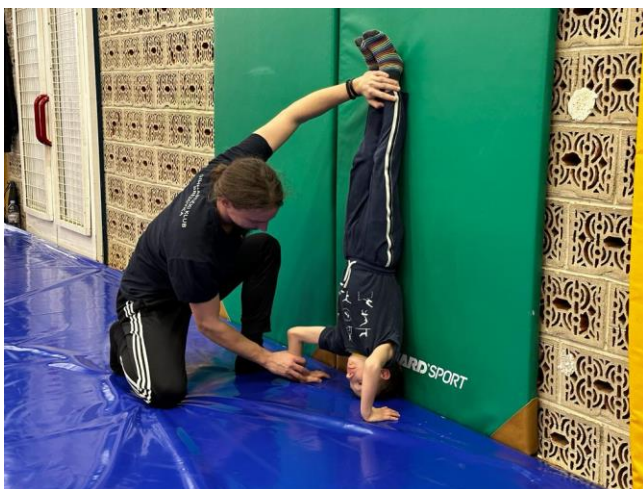
- With assistance, moving along one of the parallel bars while holding on with both hands and the legs crossed



- With assistance, walking on a standard beam with arms in abduction



- With assistance, taking the front scale position



- With assistance, taking a headstand position

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH AUTISM SPECTRUM DISORDER**

For children with autism, it is necessary to create and organize a physical education lesson that corresponds to their needs. The environment must be one in which the child feels safe, and the devices and aids must be such as to awaken his interest and develop his abilities. When working with children with an autism spectrum disorder, it is desirable to support their behavior with positive comments in order to gain self-confidence. The space where the child exercises should not change in order for the child to feel safe. If the exercise location is changed, the child may feel anxious and upset.

### Gymnastics exercises for children with autism spectrum disorders

1. Ground floor - climbing and dismounting from the gymnastic cube
2. Lifting the gymnastic cube with both hands above the head while achieving and maintaining maximum extension in the hands
3. Gymnastics candle with assistance
4. Bear walk according to the markings on the ground from the beginning to the end of the ground floor, holding the knees above the ground and looking straight ahead
5. Walking on a low beam with assistance

## **ADAPTATION OF PHYSICAL ACTIVITIES TO CHILDREN WITH BEHAVIORAL DISORDERS**

It has been proven that exercise has useful benefits in children with ADHD by making them less tense and increasing their motivation and self-confidence. Such children are often accused of interfering with the work of others, so they should be rewarded through positive reinforcement so that their self-esteem grows. The pressure to perform activities in such children can have a negative effect, also these children should be well looked after in order to avoid possible injuries.

### Gymnastics exercises for children with behavioral disorders

1. Different variations of the forward and backward rolls
2. Gymnastics bridge with assistance
3. Performing cartwheel with assistance
4. Pull-ups on rings
5. Various elevations on rings
6. Jump over the gymnastics goat
7. Hold with straight arms on the parallel bars
8. Roll backwards on the parallel bars
9. Horizontal Bar pullover

## **CHILDREN AND YOUTH LIVING WITH DISABILITIES IN COVID – 19 SOCIETY**

All children and youth require continued physical activity, low levels of sedentary behaviour, and assumed quality sleep to stay good and healthy. According to Moore S.A., Sharma R., Martin Ginis K.A., Arbour-Nicitopoulos K.P. (2021), children and youth living with

disabilities (CHILDREN AND YOUTH LIVING WITH DISABILITIES) tend to have fewer opportunities for participation in physical activity and outdoor play compared with their typically developing peers. In turn, CHILDREN AND YOUTH LIVING WITH DISABILITIES are typically less active and more sedentary, on average, compared with their peers.

The COVID-19 pandemic reduced opportunities for many children and youth to participate in physical activity and outdoor play

While there is growing evidence on the impact of the pandemic on children's and youth's movement behaviours, very few studies have included or focused specifically on CHILDREN AND YOUTH LIVING WITH DISABILITIES. In a recent scoping review that identified 150 studies on childhood movement behaviours during the first year of the COVID-19 pandemic, only 4 empirical studies and 2 commentaries focused on movement or play behaviours of CHILDREN AND YOUTH LIVING WITH DISABILITIES.

Children with disabilities are disproportionately impacted by COVID-19 and the containment response. Their caregivers must now adapt to increased stressors such as lack of access to needed therapies, medical supplies, and nursing care. Prior to COVID-19 these families were already marginalized, and this has only worsened during the pandemic. As a vulnerable population, children with disabilities have not been the focus of much discussion during the pandemic, likely because the disease disproportionately impacts older individuals. Nonetheless, children with disabilities should be a focus of evaluation and intervention to mitigate the negative consequences of COVID-19 and the resulting containment strategies. Their needs should be included in future crisis planning, as well.

## **PHYSICAL ACTIVITY AND EXERCISING IN PANDEMIC**

The coronavirus 2019 (COVID-19) pandemic has created profound challenges for communities, families, and individuals. While some of the challenges that characterized the initial phase of the pandemic have eased in their intensity, such as the need for quarantine and physical isolation, continued guidance on the effects of and response to the virus and the pandemic is needed. All points in this book are focused to children and adolescents who are participating in

physical activity, as well to those children who does physical activity in primary school or attend organized sports activities.

In their paperwork Amatori, S., Sisti, D., Perroni, F., Brandi, G., Rocchi, M. B. L., and Gobbi, E. (2022), writes that approximately 35 to 45 million youth 6 to 18 years of age participate in some form of athletics.

The COVID-19 pandemic has affected many aspects of the lives of children and families, including youth sport activity. As children present for health supervision visits and preparticipation physical evaluations, parents and athletes likely will ask questions about how best to ensure safety when considering a return to sports participation and physical activity.

## **CHILDREN AND YOUTH LIVING WITH DISABILITIES - PSYCHOLOGICAL WELL BEING IN PANDEMIC**

It is known that exercise is associated with reduced risk of all-cause mortality, cardiovascular disease, stroke, and diabetes, but its association with mental health is equally important. The biggest research ever made in this area (Chekroud SR, Gueorguieva R, Zheutlin AB, Paulus M, Krumholz HM, Krystal JH, Chekroud AM. (2018), aimed to examine the association between exercise and mental health burden in a large sample, and to better understand the influence of exercise type, frequency, duration, and intensity. In the cross-sectional study, were analysed data from 1 237 194 people aged 18 years or older in the USA from the 2011, 2013, and 2015 Centers for Disease Control and Prevention Behavioral Risk Factors Surveillance System survey.

All exercise types were associated with a lower mental health burden than not exercising. The largest associations were seen for popular team sports (22·3% lower), cycling (21·6% lower), and aerobic and gym activities (20·1% lower), as well as durations of 45 min and frequencies of three to five times per week. In a large US sample, physical exercise was significantly and meaningfully associated with self-reported mental health burden.

COVID - 19 pandemic has created profound challenges for communities, families, and individuals. While some of the challenges that characterized the initial phase of the pandemic have eased in their intensity, such as the need for quarantine and physical isolation, continued guidance on the effects of and response to the virus and the pandemic was and is needed.

As we earlier said the COVID-19 pandemic has affected many aspects of the lives of children and families, including youth sport activity. As children present for health supervision visits and preparticipation physical evaluations, parents and athletes likely will ask questions about how best to ensure safety when considering a return to sports participation and physical activity, especially children with developmental difficulties. All this time was very important to mitigate risk and prevent the spread of SARS-CoV-2, the virus that causes COVID-19, to others within sports and other physical activities, especially among children and children who lives with disabilities.

On the other side, many studies have shown visible benefits from exercising and physical activity, for example improved motor functions of children with cerebral palsy attending different community programs. In a randomized controlled trial (n=99) Davis et al. showed the positive effect of a 10-week horseback riding on quality of life and physical functions. Another study showed the positive effect movement and swimming intervention on respiratory functions and water orientation skills of 46 children with cerebral palsy (Gitimoghaddam, M., McKellin, W. H., Miller, A. R., Weiss, J. A., Majnemer, A., Mâsse, L. C., ... & Collet, J. P. (2019).

Similarly, a few studies showed the positive effects of horseback riding in children with autism using. One study with 42 children showed improvement in self-regulation, adaptive and motor skills over a 10-week period. Another study of 34 children showed improvements in their social function after 12 weeks, but the authors did not assess the changes in motor function. One small study examined the effects of a therapeutic skating intervention for children with ASD and showed

improvement in physical functions. Finally, one study conducted in 90 young individuals (12–25 years of age) with physical disabilities showed the beneficial effects of a 6-months reverse-integrated basketball activity on quality of life and perceived social competence.

According to Sedaghati, P., Balayi, E. & Ahmadabadi, S. (2022). some studies are aiming the importance of considering physical activity for children with NDD and to promote research in this area.

For them the most comprehensive model is Activity Theory's social cultural model of learning and child development according to which child's learning happens in the context of social environment and community through a series of activities in which the child develops high executive functions such as self-regulation or working memory, and higher levels of social integration, communication, self-esteem, and daily life functions.

The most important results to emphasize are results from a Pilot Feasibility Study (2019) which was research of Gymnastic-Based Movement Therapy for Children who has Neurodevelopmental Disabilities. That study reported improvement in most of the children's physical and psychosocial abilities; they also indicated improvement in some of the family parameters (Gitimoghaddam, M., McKellin, W. H., Miller, A. R., Weiss, J. A., Majnemer, A., Mâsse, L. C., ... & Collet, J. P.).

The most researched topics in pandemic that were explored were how families and practitioners saw the practical changes the pandemic imposed on children and young people; how families adapted to these changes in the environment and how their needs were impacted; what implications they saw this as having for different aspects of children and young people's wellbeing and development; how families were supported by services and wider civil society, including what worked well, what did not work so well and how services could be improved; and what families' and practitioners' priorities and lessons were for recovery from the impact of COVID-19. All European researched showed that impacts of these global and local COVID -19 measures in some one way cause the negative impact on mental health and psychological well-being. As well, COVID-19 has a negative impact on education, development and employment; and double disadvantage for children and young people with disabilities and special educational needs (Theis N., Campbell N., De Leeuw J., Owen M., Schenke KC., (2021).



The imposition of lockdown impacted the mental health and wellbeing of young people. Participants in studies mostly reported feeling more socially isolated and anxious as they tried to deal with the change to daily routines in new measures in lockdown.

Study of Moore S.A., Sharma R., Martin Ginis K.A., Arbour-Nicitopoulos K.P. (2021) shows that the COVID-19-related restrictions hampered habitual physical activity, particularly affecting the more vulnerable, such as people with Down syndrome. A repeated measures multivariate analysis of variance showed negative effects of restrictions. Moreover, the importance of addressing the needs of the disabled community including the whole family is highlighted. This study also provides evidence of the collateral consequences of the COVID-19 virus outbreak and related public health restrictions on children and youth living with disabilities and their families. The results demonstrate that most children and youth living with disabilities were not engaging in sufficient healthy movement behaviours during the pandemic.

This study adds additional evidence demonstrating that children and youth living with disabilities are experiencing declines in health as a result of the pandemic and related restrictions and highlights the important role that parents play in supporting their child's healthy movement and play. It also indicates that it is important that parents of children and youth living with disabilities feel they have the capability and opportunity to support their child's healthy movement and play. We anticipate our study's findings can support return to movement and play recommendations and guide efforts to mitigate potential health risks to children and youth living with disabilities and their families during future pandemics.

## CONCLUSION

Every child with some disability has huge impact on family and social environment. It is very important to understand cause of functional needs, high level of medical attention, and challenges related to behavioral and emotional adjustments on development. Their psychological well – being is crucial to positive development and progress.

The pandemic has been and still is a major shock to the entire world. Studies showed that the multiple reverberations of this shock are experienced more acutely by children with disabilities and their families. In response to COVID-19, many professionals were redeployed to the front line, leaving large gaps in service provision, which impacted negatively on children living with disabilities. Most statutory services were also either closed or suspended. Variety of voluntary and community sector organisations, while not providing substitute services, were able to continue providing practical and emotional support to such families and in some instances were deemed essential services. For most young people, there were less opportunities for physical exercise which caused higher levels of stress and anxiety among parents and families in terms of their own mental health and in terms of their children's.

The journey of nurturing a child with developmental disabilities is filled with unique challenges that extend not only to the child but also to their families and social environment. These children require attentive understanding, a higher degree of medical attention, and significant focus on their behavioral and emotional adjustments. Their psychological well-being plays a pivotal role in their development and progress, highlighting the need for supportive resources and guides such as this handbook.

The recent global pandemic has profoundly impacted this demographic, amplifying the importance of such resources. Children with disabilities and their families have been disproportionately affected, with a shift in professional attention towards frontline services and a subsequent reduction in dedicated services for them. Despite this, many community organizations have been instrumental in providing practical and emotional support to these families, proving that resilience and adaptability are at the heart of our communities.

This handbook serves as a testament to this resilience. It seeks to provide strategies, exercises, and activities to promote physical health and psychological well-being amongst children with developmental disabilities, despite the challenges presented by a rapidly changing world. A reduction in physical activity opportunities brought about by the pandemic has heightened stress and anxiety levels, making the importance of this guidebook all the more apparent.

We understand that the journey may be tough, and the challenges may be many, but it is our hope that this handbook will serve as a reliable companion, providing guidance, encouragement, and practical solutions. By prioritizing the physical and psychological well-being of children with developmental disabilities, we can help shape a more inclusive, understanding, and healthy society for all.

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