
EXIT CAN
EXERCISE INTERVENTION FOR CHILDHOOD CANCER

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Key facts

- ✓ There is an annual record of 400,000 children and young individuals (0-19 years old) who are diagnosed with cancer every year(1).
- ✓ Records show the most common types of childhood cancers are leukaemia, central nervous system tumours, lymphomas and solid tumours, such as neuroblastoma, bone tumours and Wilms tumours(2).
- ✓ In high-income countries, where paediatric patients have more access to treatments, the percentages are much higher (80%) compared to low- and middle-income countries (LMICs) where only 25% of patients survive(2)
- ✓ Childhood cancer cannot generally be prevented or identified through screening.
- ✓ Most childhood cancers can be cured with generic medicines and other forms of treatment, including surgery and radiotherapy. Treatment of childhood cancer can be cost-effective in all income settings.
- ✓ Avoidable deaths from childhood cancers in LMICs result from lack of diagnosis, misdiagnosis or delayed diagnosis, obstacles to accessing care, abandonment of treatment, death from toxicity, and higher rates of relapse(2).
- ✓ Childhood cancer data systems are needed to drive continuous improvements in the quality of care, and to inform policy decisions.

Introduction

The Challenge

Records indicate that mortality rates have decreased since the seventies, especially in paediatric leukaemia cases, however mortality in leukaemia and lymphoma cases has declined(3). Despite medical innovation, statistics from the United States show paediatric cancer is in second place on the list of leading cause of death among children aged 1-14 years old and fourth among adolescents aged 15-19 years old (4). In high income countries, 80% of children will survive cancer whereas children living in low- and middle-income countries (LMICs) where cancer is not a main public health priority, 25% survive(5).

The reasons for lower survival rates in LMICs include delayed diagnosis or even misdiagnosis, at which point when finally diagnosed correctly the disease has already advanced(2). Furthermore, inaccessible

therapy is also a factor in LMICs along with abandonment of treatment due to costs, misconceptions of caregivers or little to no access to services(2). The WHO is actively tackling cancer by directly working on improving access to care globally, including essential medicines and technologies but also indirectly by reducing malnutrition involved in cancer outcomes.

I. Paediatric Cancer

Ia. Prevalence

Paediatric cancer continues to challenge public health as cancers affect different sites and hence require that the correct treatment regime is required for successful treatment and avoidance of relapse. Paediatric cancer consists of different forms of leukaemia a, lymphoma (Hodgkin's and non-Hodkin's), tumours of the central nervous system, sarcomas of the bones and soft tissues, neuroblastoma, retinoblastoma, squamous tumours, liver kidney and tumours, germ cells and epithelial cells. Mortality rate is affected by the type of cancer but also other multiple factors including the progression of disease upon diagnoses, access to treatment and age of diagnosis(1,2).

Worldwide, 400,000 children and adolescents aged 0-19 are diagnosed with cancer each year(1). On average, in Europe and North America 200 cancer age-standardised rate of incidence/million will occur, Oceania is the highest at 240/1million and Sub-Saharan Africa alone is the lowest at 60/million(6). More geographically, in Greece, 350 children up to 15 years old are diagnosed every year while Cyprus has around 42 new cases/year but compared to the population of the country this presence an ASRW of 203.54 for ages 0-19(7).

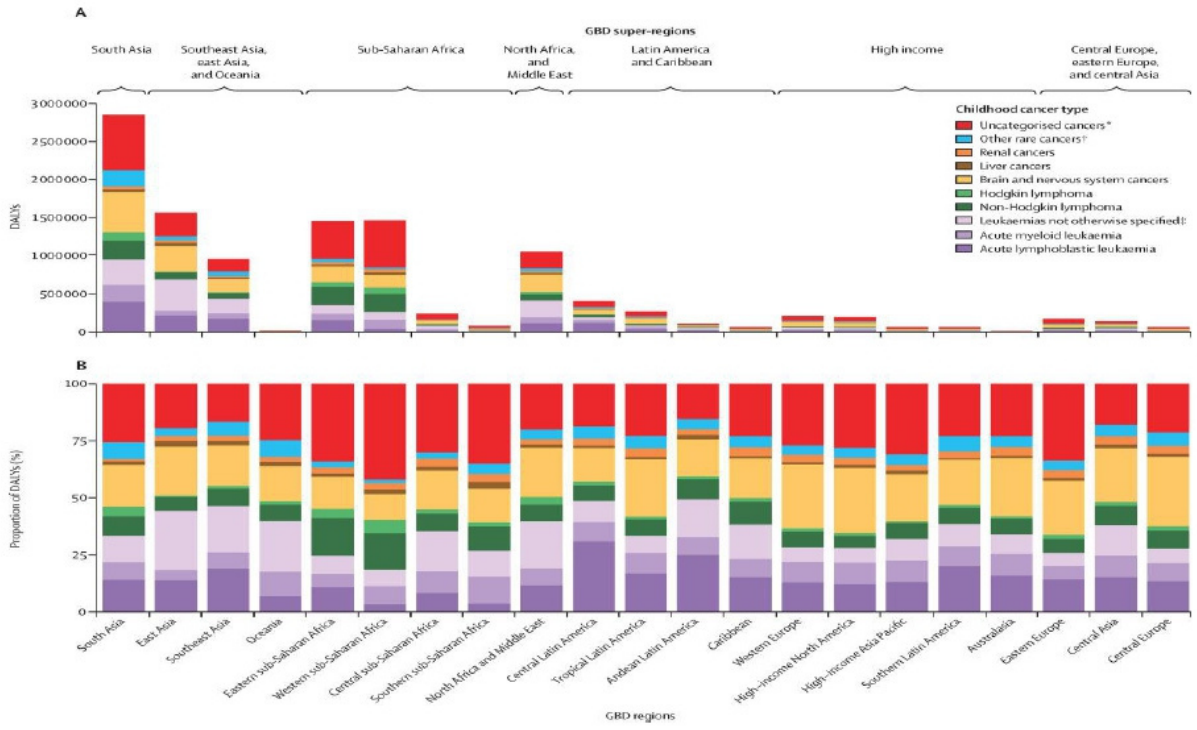


Figure. The absolute (A) and proportional (B) DALYs due to childhood (0–19 years) cancer types by GBD world region, both sexes combined, 2017 DALY=disability-adjusted life-year. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study. *Cancers without a detailed GBD cause. †Cancers with less than 1000 total deaths globally in 2017. ‡Included leukaemias not otherwise specified, chronic lymphocytic leukaemias, and chronic myeloid leukaemias.
https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2819%2930339-0/fulltext

Ib. Types of childhood cancer

Acute lymphocytic leukaemia and acute myelogenous leukaemia contribute to 30% of childhood cancers, both of which are characterized by abnormal leukocyte proliferation and a decrease in normal blood cells. Symptoms include pain in the bones and joints, fatigue, weakness, pale complexion, bleeding, fever and weight loss. Its development is quite fast and that is why chemotherapy is usually started relatively immediately (1) .

Tumours in the brain and spinal cord are the most common category in children and account for approximately 26% of paediatric cancers. The formation of tumours in the central nervous system starts from the lower parts of the brain and is responsible for headaches, nausea, vomiting, vision problems, dizziness, problems with balance and gait (1).

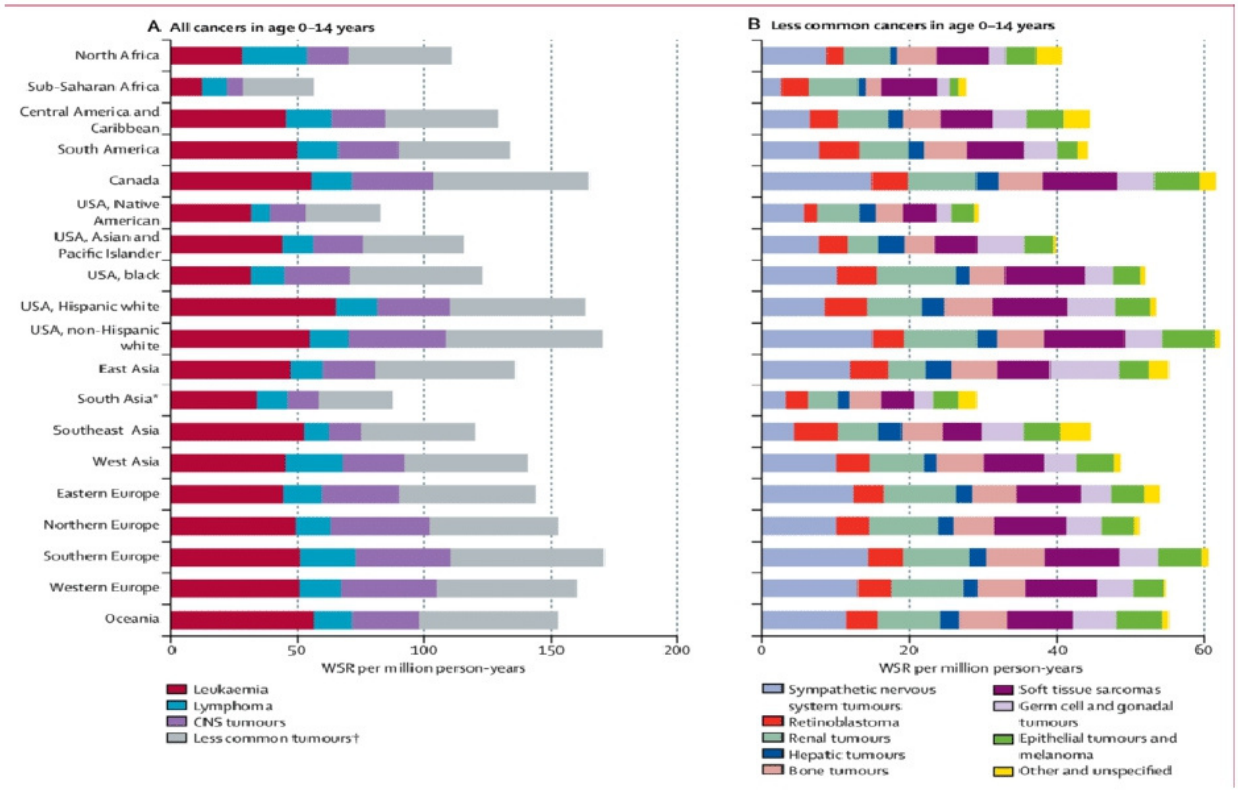


Figure 2. Incidence of cancer in children aged 0-14 years, 2001-10, by region Incidence of all tumours (A) and less common cancers (B). Tumours classified by International Classification of Childhood Cancer, volume 3. 6 Data are based on the paediatric dataset. WSR=age-standardised rate (world standard population). *Comprising data from India only. †Defined in (B). https://www.researchgate.net/figure/Incidence-of-cancer-in-children-aged-0-14-years-2001-10-by-region-Incidence-of-all_fig2_316041290

Ic. Etiology – Consequences (Causes of paediatric cancer)

Cancer occurs in people of all ages and can affect any part of the body. It begins with genetic change in single cells, that then grow into a mass (or tumour), invades other parts of the body and causes harm and death if left untreated. Unlike cancer in adults, most pediatric cancers do not have a known cause and are rare. Many studies have sought to identify the causes of childhood cancer, but very few cancers in children are caused by environmental exposure or lifestyle factors. Exposure to radiation, developmental mistakes in the womb, exposure to infections or underlying medical conditions are some of the factors believed to result in pediatric cancers. A study suggests that 8.5% of the children with cancer expressed a predisposition because of mutations in their genetic factors (8). Further research is needed to identify factors impacting cancer development in children.

Some chronic infections, such as HIV, Epstein-Barr virus and malaria, are risk factors for childhood cancer. They are particularly relevant in LMICs. Other infections can increase a child's risk of developing cancer as an adult, so it is important to be vaccinated (against hepatitis B to help prevent liver cancer and against human papillomavirus to help prevent cervical cancer) and to other pursue other methods such as early detection and treatment of chronic infections that can lead to cancer. When it comes to the etiology of cancer, few risk factors have been identified. It is estimated that 4-8% of childhood cancers are due to a genetic predisposition and there are more than 100 known genetic syndromes that may increase the risk of developing childhood cancer. As research progresses, the association of genetic mutations with various rarer cancers is expected to increase (1).

It is also true that there are large differences in cancer in adult and pediatric patients. Unlike many types that occur in adults, pediatric types are not as strongly associated with their lifestyle or environmental risk factors, with only a small fraction of them being of genetic origin. At the same time, their therapeutic approach tends to be more successful, with the only significant drawback being the impact of some therapies such as radiation as they are still in the development stage.

II. Improving prognosis of childhood cancer

Because it is generally not possible to prevent cancer in children, the most effective strategy to reduce the burden of cancer in children and improve outcomes is to focus on a prompt, correct diagnosis followed by effective, evidence-based therapy with tailored supportive care.

IIa. Early diagnosis

When identified early, cancer is more likely to respond to effective treatment and result in a greater probability of survival, less suffering, and often less expensive and less intensive treatment. Significant improvements can be made in the lives of children with cancer by detecting cancer early and avoiding delays in care. A correct diagnosis is essential to ensure the most effective treatment regime is selected, including surgery, radiotherapy, and/or chemotherapy.

Early diagnosis consists of 3 components [6]:

- ✓ **awareness of symptoms by families and primary care providers;**
- ✓ **accurate and timely clinical evaluation, diagnosis, and staging (determining the extent to which a cancer has spread); and**
- ✓ **access to prompt treatment.**

Early diagnosis is relevant in all settings and improves survival for many cancers. Programmes to promote early and correct diagnosis have been successfully implemented in countries of all income levels, often through the collaborative efforts of governments, civil society and nongovernmental organizations, with vital roles played by parent groups. Childhood cancer is associated with a range of warning symptoms that can be detected by families and by trained primary health-care providers.

Screening is generally not helpful for childhood cancers. In some select cases, it can be considered in high-risk populations. For example, some eye cancers in children can be caused by a mutation that is inherited, so if that mutation or disease is identified in the family of a child with retinoblastoma, genetic counselling can be offered and siblings monitored with regular eye examinations early in life. Genetic causes of childhood cancers are relevant in only a handful of children with cancer. There is no high-quality evidence to support population-based screening programmes in children.

IIb. Treatment

A correct diagnosis is essential to prescribe appropriate therapy for the type and extent of the disease. Standard therapies include chemotherapy, surgery and/or radiotherapy. Children also need special attention for their continued physical and cognitive growth and nutritional status, which requires a dedicated, multi-disciplinary team. Access to effective diagnosis, essential medicines, pathology, blood products, radiation therapy, technology and psychosocial and supportive care are variable and inequitable around the world.

Childhood and adolescence are crucial periods for developing motor skills, learning healthy habits, and laying a firm foundation for lifelong health and well-being, especially for children with cancer. Compared to children who are inactive, physically active children have higher levels of cardiorespiratory fitness, stronger muscles, lower body fat and stronger bones. Evidence shows that regular moderate to vigorous physical activity improves cognitive functions of memory, executive function, speed of processing knowledge and data received, attention, and school-academic performance.

However, cure is possible for more than 80% of children with cancer when childhood cancer services are accessible. Pharmacological treatment, for example, includes inexpensive generic medications included on the WHO List of Essential Medicines for Children (27 cytotoxic agents, 5 targeted therapies and 4 hormone treatments for childhood cancer). Children who complete treatment require ongoing care to monitor for cancer recurrence and to manage any possible long-term impact of treatment.

IIc. Palliative care

Palliative care relieves symptoms caused by cancer and improves the quality of life of patients and their families. Not all children with cancer can be cured, but relief of suffering is possible for everyone. Paediatric palliative care is considered as a core component of comprehensive care, starting when the illness is diagnosed and continuing throughout treatment and care, regardless of whether or not a child receives treatment with curative intent.

Palliative care programmes can be delivered through community and home-based care, providing pain relief and psychosocial support to patients and their families. Adequate access to oral morphine and other pain should be provided for the treatment of moderate to severe cancer pain, which affects more than 80% of cancer patients in the terminal phase.

III. Child and exercise

IIIa. The role of Physical activity in growth

Chemotherapy is the treatment of cancer using various drugs, some of which are cytotoxic leaving behind undesirable effects, which can be noticed immediately or even long-term. The side-effects involve, among others, nephrotoxicity, hepatotoxicity and DNA damage resulting in genome instability (long-term effects)(9). Evidence presence that maintaining an exercise regime for hospitalised children and adolescents improves fatigue from treatment, psychology and overall response to treatment(10).

Chemotherapy suppresses the immune system, potentially affecting normal growth and increasing the risk of developing an infection or delaying growth. Decreased physical activity has been observed both during and after cancer treatment due to the toll the disease itself and the practices used to treat it, taken on the child's body. This sedentary lifestyle negatively affects a patient's cardiorespiratory fitness. Additional side-effects of chemotherapy are malnutrition or even obesity due to the disease, reduced muscle mass, fatigue and change in functionality.

Introducing intrahospital exercise training programs for pediatric cancer patients has proven to have positive outcomes on maintaining muscle strength, flexibility, psychological status and overall health-related quality of life(10–13). Interventional exercise programs are still rare with around 46 eligible programs conducted in 10 different countries - mostly in Europe(14).The scarecity of these programs may be due to the hesitancy of encouraging exercise because of the pain, exhaustion and weakness that children have to endure due to their treatment but also the uncertainty of the adverse effects exercise may have(12).

IIIb. Definition and recommendations for exercise

Physical activity-is the activity of skeletal muscles where they utilise energy in order to create movement of the body. Regular physical activity is associated with psychological and physical health benefits.

Many global organizations, such as The Canadian Society for Exercise Physiology (CSEP), The American College of Sports Medicine (ACSM), and even the World Health Organization have issued exercise recommendations for all age groups, including children.

The recommendations for 5–17-year-olds is a 1 hour duration daily moderate to vigorous physical activity. Longer activity will result in more benefits. In fact, exercise could be prescribed as a drug, in a dose-dependent manner, which will require the collaboration of all health care professionals treating the child, to create a personalised physical activity program for the patient (15).

IIIc. Exercise and prevention

Exercise, whether organized or not, has an impact on chronic diseases. Together the growth and health of a child is measured by change in weight-height from intrauterine life and can be affected by multiple factors, including nutritional and physical activity. Regular physical exercise, including passive physical exercise can increase body weight and affect bone development by increasing arm length, bone mass and mineral content creating a strong muscle-bone frame.

Studies also support that children who exercise prior to reaching puberty have a lower tendency to develop osteoporosis, greater motor skills and decreased levels of stress in adulthood.

More specifically, in paediatric cancer it helps to better manage the symptoms. Paediatric cancer is characterized by aberrant cell growth and division, causing dysfunction of tissues and organ systems as dysfunctional cancer cells replace healthy, functional cells. Treatment includes surgical removal of the tumour, topical or total radiotherapy, chemotherapy, or a combination of these. Chemotherapy and radiotherapy are both non-specific cytotoxic treatments that can affect the long-term health and function of paediatric patients, with one of these consequences being reduced exercise resistance (16).

Physical activity is a key factor in a child's development and appears to improve cardiorespiratory capacity, strength and the ability to successfully complete daily activities in a wide range of paediatric chronic diseases (13). At the same time, it is encouraging that more than 80% of children who become ill will survive. However, treatment does not come without cost. During treatment, children experience nausea, fatigue, sleep disturbance, pain, anxiety and depression. In addition, approximately 70% of children who survive childhood cancer are more prone to develop complications in adulthood, including cardiomyopathy, obesity, insulin resistance, stress, osteoporosis, and chronic fatigue (3).

It is estimated that 62% of adults who have survived childhood cancer have more than one chronic health problem due to treatment, 38% more than 2 and 28% some very serious problem such as cardiomyopathy. Decreased endurance exercise promotes the disruption of their aerobic and anaerobic fitness, the reduction of their muscular strength and the

disruption of their neuromuscular coordination, balance and flexibility. Complications that persist due to treatment and affect the physiology of children vary by type of treatment and dose. For example, intravenous chemotherapy and total radiotherapy cause systemic inflammation and oxidative stress, which may damage vascular endothelial cells and skeletal muscle cells, disrupt oxygen uptake during oxygenation.

Promoting physical activity in both children with cancer and children who have survived is very important, as these children are at greater risk of developing a sedentary lifestyle and comorbidity for the rest of their lives (10,13). There is extensive data demonstrating long-term sedentary behaviour in children resulted in lower cardiorespiratory capacity, mental health and cognitive function, while it contributed to obesity and high stress levels health (17–20). The literature review so far suggests that early participation in exercise programs prevents or reduces serious effects on the muscular system(13,16). Despite the low physical activity while undergoing cancer treatment, some patients did increase their physical activity after treatment, however the levels of exercise were still lower than those compared to healthy children(21). This supports that the body is suffering from long-term side-effects/damage.

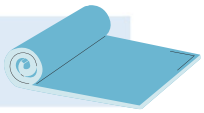
IV. Physical activity recommendations

Physical exercise interventions during and/or after cancer treatments are safe and do not increase the risk of mortality, recurrence or associated adverse effects in childhood cancer(22). Regular exercise instead helps eliminate the effects of some of those unwanted side-effects of cancer treatments, such as fatigue, muscle atrophy, depression but also morbidity, by significantly improving the physical function of the child's body so that it can continue to fight with cancer (22–25). Increases in cardiorespiratory fitness, musculoskeletal strength, functional mobility, mental health, and weight management are among the potential mechanisms by which physical activity benefits pediatric cancer patients (23).

Physical activity and/or exercise recommendations in paediatric cancer patients can be divided into 3 phases, depending on the stage of treatment (26). Briefly, Phase I refers to any exercise and/or physical activity interventions during the cancer treatment, Phase II takes place shortly after the treatment, and Phase III begins when there is no longer any physical limitation, and the child can follow

the general WHO recommendations towards physical activity for children and adolescents (60 minutes per day). More importantly, the type of treatment, the individual child is undergoing, as well as any complications the patient may have underwent due to either the disease itself and/or the treatment, need to be considered to determine the duration the child will need to spend and in which of the phases (23). For instance, extremely vulnerable children (due to osteopenia or immunosuppression) may remain in Phase I and Phase II for longer periods.

Exercise Environments



During and after a malignant disease, every patient should be physically capable of completing 60–180 minutes of physical activity daily, depending on age, as suggested by Rütten & Pfeifer in "National Recommendations for Physical Activity and Physical Activity Promotion"(27). This signifies the importance of hospitals investing in creating settings for physical activity and making sure clinical exercise physiologist are available to patients.

Active Involvement of the children and adolescents

- Discuss and explain to the child or adolescent the options for physical activity their bodies can endure in their current physical capacity. Children and adolescents have the right to refuse the physical activity scheme presented to them or enquire to make some alterations either in the type of exercise, the intensity, or its duration. They also hold the right to refuse physical activity altogether.

Physical activity interventions should be integrated in treatment plans

- Provided the benefits of physical exercise during the acute and off phase of treatment, protocols for treatment should integrate targeted physical activity from the day of diagnosis. This will promote movement, improve patients' psychology, and potentially help with treatment of the patient. Clinical exercise physiologists should be consulted to design a personalised and goal-oriented regime and will be overseen by the professional.

Aftermaths of cancer treatment. Patients in palliative and survivors

- Cancer and anti-cancer treatments prompt fatigue, joint symptoms, breathlessness, and reduced ability of physical function among other associated adverse effects. Physical exercise

support should take into consideration every individual's condition, physical state and be adapted to the living conditions, the motivation, and the clinical restrictions of the patient. This comprises (a) exercise interventions and/or (b) counselling on the promotion of movement in everyday life and physical exercise interventions. A focused and active support offer are especially crucial in:

- · Children/adolescents/young adults with physical or mental impairments
- · Children and adolescents with a very inactive lifestyle
- · Adolescents close to transitioning to adult medicine

Collaboration & Communication

- To ensure the patients is receiving the best treatment for their condition, all health-care professionals must be in constant communication and collaborate. Information must therefore be exchanged in a timely manner between the doctors, nurses, clinical exercise physiologist and parents. This is especially important in cases where diagnosis of the patient changes.
- Of course, in this endeavour, parents or caregivers of the children also need to be very well informed about the exercise schedule to help encourage the participation of the children(25).

Selecting appropriate physical activities to reduce fatigue and enhance physical well-being.

- Paediatric cancer patients and survivors should work closely with physicians, rehabilitation specialists, and exercise professionals at their cancer treatment facility for physical activity recommendations tailored to the child's specific needs to maintain appropriate growth and development milestones.
- Importantly, the type of treatment, the individual characteristics of the child as well as the complications that are often revealed due to either the disease itself and/or the treatment need to be accounted into the abovementioned phases. Impaired physical function due to disease and/or treatment but also fatigue present of targeted interventions to reduce these side effects of cancer treatment.
- Physical activity may therefore be necessary from the beginning of treatment and throughout all phases of treatment and afterwards to reduce deterioration of the body and maintain a steady "healthy" physical state(23). The Multidisciplinary Network ActiveOncoKids suggests 15 to 30 min exercise at least twice to begin with and present desirable effects.(28).

Improving quality of life.

- To ensure physical activity has a positive impact on patients, adaptation must be allowed in terms of type of exercise, duration, and frequency of exercise per week. Physical activity must

be an enjoyable activity so it can also have a positive impact on patients' mood and overall health. Elements to tackle to ensure improvement of life is self-perception, avoiding unwanted stress, and encouraging day-to-day activities and socialising with peers(28).

- It is recommended that the exercise program be conservative and monitored by a specialist throughout treatment. In the initial phase of the prescribed exercise, the transition from sedentary behavior to any movement is the primary goal. This exercise may include supervised walking, strength training with physical therapy, or post-surgery rehabilitation exercises. The duration of the exercise should be increased before increasing the intensity of the exercise and when at least 30 minutes of continuous activity at low intensity is possible, the intensity of the exercise may be increased (4).
- Before beginning any form of exercise, the child should be adequately hydrated and fed to avoid any possibility of hypoglycemia. Exercise should also be avoided if hematological, musculoskeletal, gastrointestinal, cardiorespiratory and neurological conditions are not met (4). Therefore Medical authorization to participate in structured activity is also critical.
- Phase I ('in patients' or 'early stage' phase) consisted of any exercise and/or physical activity interventions from the onset of cancer diagnosis and during the cancer treatment. This phase typically includes patients' mobilization by initiating light activities within the hospital setting(26). The main goal of Phase I is to tackle sedentary behaviours of children during their treatment, predominantly because of physical and mental exhaustion. Indeed, children and adolescents reported 74% and 91% reduction of their physical activity during in-patient or home stays respectively(29). It is reasonable that children will be more lethargic and, hence, more inactive on the treatment day or the following days. However, light activities such as taking a brief walk around with the hospital staff or decorating their room with pictures, may still be feasible and efficient to break sedentary time(26). Activity trackers appeared to be a promising strategy to increase physical activity in paediatric patients during treatment periods [13]. When feasible, children may begin activities at higher intensities. Indeed, studies applied more intensive exercise training ~3 days/week at moderate-to-high intensity during the cancer treatment, demonstrating superior endurance capacity and muscle strength in exercised kids compared to controls, without affecting their clinical outcomes (31,32). To conclude, exercise and/or physical activity should be encouraged during ongoing treatment with the primary goal to eliminate sedentary time as much as possible.

Phase II

- ✓ Does not need to be conducted in a hospital but must be supervised structured exercise training(27).

- ✓ During this phase the child will be able to increase muscle strength, endurance capacity, flexibility and balance to reach the milestones of his/her growth.
- ✓ Exercise intensity and duration should be increased gradually, depending on the physical capacity and health status of the child(24,27).
- ✓ Resistance training, stretching, and balance exercises are introduced and performed by either structured or unstructured activities (i.e. games)(27). Building muscle strength through exercises like climbing on playground equipment and walking like a bear or crab are also beneficial.

Resistance Training	Core strengthening
Bodyweight exercises such as climbing, push-ups or games with a weighted ball or resistance bands	sit-ups, crunch, push-up, flutter kicks, leg raises and planks

Once the child can endure the 60 minute milestone suggested by the WHO then they can enter Phase III(33). Children should remain in Phase II till they reach an adequate level in all parameters of physical fitness such as endurance capacity, anaerobic capacity, balance and flexibility. Some may take longer than others.

Phase III - The 'maintenance phase'

- ✓ Follow the general WHO recommendations for physical activity as their peers(33).
- ✓ Individuals who reported regular postdiagnosis exercise had significant reductions in the risk of all-cause mortality and cancer recurrence compared with those who did not exercise regularly postdiagnosis(34).

How to educate kids healthy lifestyle choices

Sarcopenia and childhood cancer

Maintaining adequate skeletal mass both in quality and quantity is essential to maintaining the best state of health throughout life. The term sarcopenia is essentially characterized by reduced muscle mass, strength, and physical performance. In 1964 the phenotype in children with reduced muscle mass was first discussed. As in adults, reduced muscle mass and strength in children contribute negatively to health (5).

Children with chronic diseases also show changes in muscle mass and strength, with the degree of muscle loss being able to affect both the severity of the disease and treatment. Studies in children with acute lymphoblastic leukemia, a very common type of childhood cancer, reveal a significant

reduction in lean muscle mass after treatment. High doses of steroids during induction therapy cause myofibril atrophy due to myosin heavy chain degradation and decreased myosin synthesis. Deficiencies in muscle mass seem to persist after treatment. For example, a long-term epidemiological study for showed that 50% of people <18 years of age had low muscle mass even after ten years of diagnosis (5).

Intervention programs and pediatric cancer: best practices

According to a meta-analysis conducted in 2016, which included 6 studies all based on exercise programs performed at home under the supervision of a specialist aimed at improving the physical condition of children. Total exercise time differed from study to study with a duration range of 15-60 minutes. The duration of the exercise intervention between the studies ranged from 10 weeks to 2 years. However, despite its positive effects on body composition outcome, flexibility, muscle strength and overall quality of life, more well-designed studies are needed (4, 6).

Indicative Intervention Programs

WHO response

In 2018, WHO launched, together with partners, the Global Initiative for Childhood Cancer, to provide leadership and technical assistance to governments to support them in building and sustaining high-quality childhood cancer programmes [4]. The goal is to achieve at least 60% survival for all children with cancer and reduce suffering, globally, by 2030. This represents an approximate doubling of the current cure rate and will save an additional one million lives over the next decade. The objectives of the Initiative are:

1. to increase capacity of countries to deliver best practices in childhood cancer care; and
2. to Increase prioritization of childhood cancer at the global, regional, and national levels

The **Cure*All*** framework and its accompanying technical package are used have been developed to support implementation of the Initiative. The package is intended to help countries assess current capacity, set priorities, generate investment cases, develop evidence-based standards of care and monitor progress. An information-sharing portal has been created to facilitate sharing of expertise between countries and partners.

WHO and the International Agency for Research on Cancer (IARC) collaborate with the International Atomic Energy Agency (IAEA) and other UN organizations and partners, to:

1) Increase political commitment for childhood cancer diagnosis and treatment

2) Support governments to develop high-quality cancer centres and regional satellites to ensure early and accurate diagnosis and effective treatment for children with cancer
3) Develop standards and tools to guide the planning and implementation of interventions for early diagnosis, treatment and palliative and survivorship care, all of which take account of the specificities of childhood cancer
4) Improve access to affordable and essential medicines and technologies

- Support governments to safeguard families of children with cancer from financial ruin and social isolation because of cancer care.

The Global Initiative for Childhood Cancer is part of the response to the World Health Assembly resolution Cancer Prevention and Control through an Integrated Approach (WHA70.12), which urges governments and WHO to accelerate action toward the achievement the targets specified in the Global Action Plan for the Prevention and Control of Noncommunicable Diseases (NCDs) and 2030 UN Agenda for Sustainable Development, including the reduction of premature mortality from NCDs and the achievement of universal health coverage.

- **Pediatric cancer survivors Engaging in Exercise for Recovery (PEER)**

It is a program for children 2 - 17 years old who have been diagnosed with any type or stage of cancer, cancer survivors and their siblings. It first took place in 2012 by an interdisciplinary team and the main goal is to improve the quality of life, encouraging children to become physically active.

- **Yoga Thrive for Youth (YTY)**

They are 12-week programs of yoga sessions for children who have been diagnosed with any type or stage of cancer, cancer survivors and their siblings. Their goal is to improve patients' quality of life by increasing their physical well-being, cultivating their self-confidence, and promoting their creativity and relaxation.

- **The VIE study**

The study evaluated how feasible it is to exercise in a multidimensional intervention in pediatric oncology patients. The intervention team was monitored for more than 2 years. The study highlights the need for evaluation through psychological and physical tests for better understanding and ultimately for health professionals to encourage patients and their families to participate in such programs.

- **Quality of Life in Motion (QLIM) study**

This is an intervention in the field of exercise and psychology in which oncology patients aged 8-18 years old who had undergone chemotherapy and / or radiotherapy at least 1 year ago participated. The intervention included 12 weeks of combined resistance training and aerobic training (2 times a week lasting 45 minutes). The psychological part concerned 6 sessions lasting 60 minutes based on the cognitive-behavioral approach. It therefore appeared that participation in physical activity programs and quality of life improvement is likely to be maintained or enhanced.

Policies in Greece

- National Register of Children and Adolescents with Neoplastic Diseases

According to a government announcement, the National Register of Children and Adolescents with Neoplastic Diseases has become a reality. Its purpose is to collect real life data that will be used to draw conclusions about: the prevalence of tumors, the distribution by age, the course of the disease, the monitoring of outcomes, the effectiveness and safety of the treatments applied assessment of the use of health services.

- SIOPE Strategic Plan 'A European Cancer Plan for Children and Adolescents'

It is the European project presented in 2015 and includes the need to design individualized exercise programs to meet the needs of children (9).

- Standards of Care for Children with Cancer

In 2008, the European Community of Pediatric Oncology published European standards for the care of children with cancer. This publication emphasizes the need for exercise as a means of rehabilitating treatments (10).

Hospitals in Greece

In Greece there are 7 organized pediatric oncology units.

- Pediatric Hematology-Oncology Clinic University of Crete (University General Hospital of Heraklion (PAGNI))
- 2nd University Pediatric Clinic of AUTh (PGNTH AHEPA)
- Department of Pediatric Oncology (IPPOKRATIO GENERAL HOSPITAL OF THESSALONIKI)
- Department of Pediatric Hematology-Oncology (TAO) ("AGIA SOFIA" CHILDREN'S GENERAL HOSPITAL Oncology Unit "Marianna V. Vardinogianni-Elpida")
- Department of Immunology and Histocompatibility / Hemorrhagic Disposal Unit (and Hemophilia Children Center) / Bone Marrow Transplant Unit (MMMO) / First Pediatric Clinic of the University of Athens Hematology-Oncology Unit (GENERAL HOSPITAL "I AGIA SOFIA")
- Oncology Department of Aglaia Kyriakou (OTAK) (GENERAL HOSPITAL OF CHILDREN P & A KYRIAKOU)
- Oncology Clinic for children and adolescents ("MITERA" CHILDREN'S HOSPITAL)

All centers in Greece have excellent cooperation with each other under the auspices of the Hellenic Society of Pediatric Hematology - Oncology (EEPAO) which is the exclusive scientific

body for doctors working in the field. EEPAO and Greek physicians are actively involved in the actions and working groups of the European Society for Pediatric Oncology (SIOPE. The helpers of the actions and of EEPAO but also of all the units are the associations of parents and support of children with cancer, such as: "Floga", "Elpida", "Pisti", "Lampsi", "Iliaxtida", "Karkinaki" etc. (11)

Alternative exercise programs

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Recommendations for health professionals and physical instructors

Children need a minimum level of physical activity for normal and physiological development despite their health status. As cancer treatment often interferes with a patient's daily activities, especially those involving physical activity, it would be ideal for medical professionals to "prescribe" physical activity as a routine treatment. Personalised exercise programs can be created for the young patients which will ensure their safety and prevent further damage to the combination of exercise and their health. Suggesting participation in daily activities and events which also include physical activity can also help, such as taking a walk, gardening, cooking or trying out yoga which also improves flexibility. All propositions will help reduce the sedentary lifestyle patients adopt.

The extent of physical activity depends on age, cancer type, stage of cancer, severity of side-effects from treatment and limitations caused by the disease itself or complications of treatment (2). For children who are extremely frail (osteopenic, immunosuppressed, low cardiorespiratory capacity), certain adjustment is necessary (less time, lower intensity and frequency and lower workload). Therefore, the frequency, intensity, time and type (FITT) of exercise used by the WHO for healthy children may not be applicable to this population.

Symptoms to observe prior to designing exercise plan include aerobic capacity, lack of strength, fatigue especially towards the end of treatment, which lead to reduced physical activity and obviously obesity, with all that this implies in cycles of co- morbidity. The most appropriate period for starting physical activity is the inpatient phase, when the foundations can be laid for a higher quality and healthier lifestyle, because children are more likely to exercise in hospital.

There are three phases of treatment under which exercise is recommended but must be conservative and supervised,

1. **Treatment Initiation**: may include supervised walking, strength training with the help of a physiotherapist. The duration of aerobic exercise may start from 5-10 minutes per day with moderate increases during the workout.

Treatment ongoing: transition from sedentary behaviour to any movement is the primary goal. The adverse side effects the patients is experiencing should also be considered at this point. Completing bed exercises or a walk around the ward with help from a nurse or physiotherapist will also work. Children should be encouraged to train at an intensity level between 1 and 5 of the Subjective Fatigue Expectancy Scale (RPE 10) and not to exceed level 6 during this phase, and before each training session, the child should be adequately hydrated and properly fed to avoid any hypoglycaemic state (35).

2. **Post-treatment: Depending on the physical state of the child/adolescent, physiotherapy may be required** or rehabilitation exercises following surgery to gain back coordination, mobility, and movement agility. Should the child return home without hospice care then the parents are advised to undergo some training and seek an exercise professional to regularly visit the house

Exercise duration should be increased before increasing exercise intensity while also considering how the assessments may carry low risk (e.g. body composition) or have higher risks (e.g. maximum oxygen uptake) for each individual patient. Assessing children in all three phases involves a variety of measurements, as well as recommendations on how exercise should be safely performed, and thus obtain information relevant to pre- exercise assessment and will serve as a bridge between the concepts of preventive health screening, fitness assessment, and clinical exercise testing concepts. During the inpatient phase, anthropometric assessments, including height, weight, BMI, circumferences, and skin folds measurements are deemed necessary. Monitoring changes in height, weight,BMI and fat distribution pattern will give us information regarding nutritional status and normal growth including act as indicators of health and prognosis. Regional obesity, characterised by more fat on the trunk (i.e. abdominal fat), increases the risk of hypertension, metabolic syndrome, type 2 diabetes mellitus, dyslipidaemia, CVD and premature death, compared to individuals of female obesity (i.e. fat distributed in the hip and thighs). Waist-to-hip ratio (WHR) refers to the ratio of the circumference of the waist (above the iliac crest) divided by the maximum circumference of the buttocks. Health risk increases as WHR increases and risk patterns vary with age and gender.

BMI or the Quetelet index (kg/m2) = mass (kg) / height $(m)^2$

BMI	Weight Class
Below 18.5	Underweight
18.5-24.9	Normal
25.0-29.9	Overweight
30.0 and up	Very Overweight

Analysis of body composition using bioelectrical resistance or DEXA scanning can provide more detailed information on overall body composition (36). Bioelectric Conductance measures the resistance of body tissues to a low-intensity electric current. Thus, based on the resistance of the tissues to the current flow and using equations, the devices calculate the percentage of adipose tissue.

Orthopedic evaluation is necessary to exclude any syndromes (kyphosis, scoliosis, lordosis, hyperplasia, Upper Crossed Syndrome, Lower Crossed Syndrome), and the presence of edema, possible skin scars and dysfunction during gait should be investigated. Function, testing on a floor ergometer (treadmill) is considered the gold standard, with adjustments always made to the ergometer to suit the dimensions and size of the child. It can provide information on aerobic capacity, haemodynamic response to exercise and metabolic response (37). Variables measured include

electrocardiogram, power or workload (speed and incline), heart rate, oxygen saturation, blood pressure and Subjective Fatigue Perception Scale (RPE) assessment (38).

Bicycles are good for sub-maximal testing and are often used for diagnostic tests. They are lower cost, portable, and offer greater ease of taking BP and ECG measurements (if necessary). A submaximal test on a cyclo- ergometer (bicycle) with a specific power that will induce a heart rate of 150 beats/min will record the child's power (39). Among the variables that can be measured are submaximal power range, respiratory rate, heart rate, and can detect possible latent hypertension, pulmonary disease (e.g., ascending asthma), abnormal ECG changes, and cardiovascular disorders (e.g., ischemia, arrhythmia, congestive heart failure)(40,41). All of the above test should be completed by professionals of the field who have full knowledge of the physiological basis of the functions under evaluation, the appropriate validated equipment required and appropriate protocols.

Spirometry assesses the integrated mechanical function of the lung, chest wall, respiratory muscles and airways by measuring the total volume of exhaled air from a full lung (total lung capacity) to maximum expiration (residual volume). This volume, the forced vital capacity(FVC) and forced expiratory volume in the first second of forced expiratory volume (FEV1) can give us evidence of restrictive or obstructive airway disease caused by radiation and pulmonary fibrosis, and respiratory muscle weakness (42).

Orthosomatic assessment can also be recorded using videography, where a childs performance can be digitally analysed for quantitative evaluation. There are no standards for posture and gait analysis in pediatric cancer patients. Flexibility is the ability to move a joint through its full range of motion (ROM). Maintaining flexibility of all joints facilitates movement and can prevent injury. Laboratory tests usually quantify flexibility in degrees or centimetres. Flexibility is an important parameter of functional capacity and is essential for safe and efficient movement. Range of motion and the anatomical condition of a joint are important to assess in children with cancer. Imaging assessment methods such as MRI, Ultrasound, CT, and 3D-capture, along with the use of conventional methods such as electronic goniometer,Sit&Reach Test, Back Scratch Test etc., can give us the picture of joint range of motion.

Muscle strength is also an important factor in children's development and is the basis for movement. Muscle strength is correlated with age, height and weight in prepuberty, and there is a linear increase in muscle strength in both boys and girls across all age groups (43). To ensure patients adhere to these characteristics physical activity, of a certain intensity and quality, is essential. Hand strength measurement can be used as an assessment that requires minimal equipment and provides an estimate of overall strength (44).Neuromuscular coordination can also be assessed using the timed exercise test (TUG) and the 30-second chair test(17) .

The aim of all these tests is to help delay physical frailty and improve functional mobility among children with cancer. Quality of life depends largely on enabling children to continue to do what they were meant to do as children, what they want to do, without pain, for as long as possible. Designing effective exercise programs that can help them to maintain or improve their mobility and assessing functional performance regularly is an essential element in designing effective exercise programs. Recoring effort with a telemetric system which is captured by the change in Heart Rate, oxygen saturation and possible dysp nea of the child during exercise are data that must be evaluated in real time for the safety and effectiveness of the exercise programs implemented. The quality-of-life questionnaire consists of a set of questions that determine the general quality of life, their physical environment, health, living situation, community and other factors. There are many factors involved

in determining quality of life, such as physical health, well-being, social relationships, functional roles and subjective sense of satisfaction with lifestyle (45).

Physical ability assessments provide a wealth of information about the health and functional status of a child with cancer. Each component of the assessment can be conducted through several approaches based on the availability of equipment, facilities, staff training, and the health status of the child being tested. Following the recommendations for assessments allows for an individualized and safe approach. When results from each element of the assessment are available, they are compared with the relevant Standards(46).

There is now sufficient evidence that exercise is a safe adjuvant therapy in childhood cancer, both throughout cancer treatment and during recovery, for all types of cancer. To date, although there are no recommendations regarding the supervision of the proposed protocol, and its site of application (e.g. at home, in the gym, or in-hospital), it is clear that the treating physicians' team should coordinate the effort and, together with health and exercise professionals in harmonious collaboration, co-decide the level of intensity, duration and type of exercise and the level of medical supervision needed on a case-by-case basis.

All evidence suggests that exercise tends to delay the development of cancer at any given point and regular physical activity can reduce the risk of lung cancer(21,47,48). As a rule of thumb physical inactivity should be avoided and children should be encouraged to return to normal daily activities as soon as possible. Should patient symptoms worsen with physical activity then the exercise program should be revised and the present symptoms should be the main guide for the Exercise Prescriped during treatment.

Inpatient phase- Activities with emphasis on balance, jumping, throwing and dexterity are considered essential at this stage. Resistance training programmes include bodyweight exercises, games, obstacle course running to develop dexterity and coordination, and simple gymnastics, with an emphasis on overall body awareness and proprioceptive feedback. Initial warm-up and recovery should be an integral part of the children's routine. Adherence to specific sets and repetitions should be encouraged, while fatigue and improper body position and posture, or biomechanical deviation, should serve as an indicator for termination of a particular activity. Training frequency/week is recommended to be 2-5 times and the duration of aerobic exercise can start from 5- 10 minutes per day based on health status, and progress with moderate increases in the duration of the session up to 60 minutes. Intermittent aerobic exercise is a method that can help us increase the volume of our workout. Exercise intensity should be between 50-70% of HRmax; in cases where laboratory assessment cannot be performed, the intensity should be between 40-60% of HRR. If we use the Borg Subjective Fatigue Perception Scale (1-10), we should encourage children to train at an intensity level of 1-5, and not to exceed 6, emphasizing basic movement and fun patterns.

Transition phase with parental supervision– Returning home and under the supervision and monitoring of the parents the duration of aerobic training should be increased from 30 to 45 minutes and each session should include a low-intensity warm-up and recovery with stretches and Myofascial Release techniques. Heart Rate can reach from 50-85% of Maximum Heart Rate or at level 1-7 on the Borg scale (10-point RPE).

Children should be encouraged to continue strength training (recovering from orthopaedic surgery or correcting muscle imbalances), add flexibility exercises, and continue with the development of motor skills. While planning training program, emphasis should be on increasing aerobic capacity, motor skills of basic movement patterns, and of course, fun. Increase the training frequency per week to 3-5 times,

maintaining the same intensity as in the inpatient phase, with the duration of aerobic exercise increased to 20-60 minutes per session. All other characteristics of the exercise regimen parameters remain the same as those of the inpatient phase.

Transition phase without parental supervision-children should be encouraged to participate in regular structured exercise to maintain health or even participate in sports activities. In cases where children wish to participate in competitive sports, they should consult the medical team monitoring them. In such a case, additional assessment of mobility, joint stability and movement patterns, and strength development will be required using a similar methodology followed by increased strength training. Activities such as swimming and team sports can be added, and the intensity of the effort can be increased with time, which can exceed 70-90% of the Maximum Heart Rate or level 1-8 on the Borg scale (10-point RPE).

In all three phases of rehabilitation a daily exercise diary should be kept to record activities and be regularly monitored by the medical team. Overall, the general guidelines of the Exercise Syndicate focus on 3 pillars of activity. Aerobic Exercise, resistance programs and flexibility programs.

IN-HOSPITAL PHASE	
FITT	**RECOMMENDATIONS for flexibility exercising**
FREQUENCY	**At least 3 times/week - Suggestion daily**
INTENSITY	**Moderate (RPE of 9-11) to severe (RPE of 12-13)**
TIME	**>30 minutes/session - Can be continuous, or in 10-minute intervals** **10-30 seconds of Static Stretching**
TYPE OF EXERCISE	**Enjoyable and developmentally appropriate aerobic physical activities with body weight. These can include casual walking, brisk walking, playing with a ball, yoga, chair-based exercises, cycling** **Strength training may also help in building muscle mass. This includes lifting weights, exercise with resistant bands etcetera (not suggested for patients whose cancer has metastasised)(49)**
PROGRESS	**Evaluate physical well-being during regular check-ups**
ESTIMATES	**Avoiding physical inactivity, 30 minutes can be divided into several sessions, physical activity should be pleasant for the child (playing games is better than just walking)**

TRANSITION TO HOME UNDER PARENTAL SUPERVISION	
FITT -VP	**RECOMMENDATIONS FOR AEROBIC TRAINING**
FREQUENCY	**At least 5 times a week**
INTENSITY	**Moderate (RPE of 12-13) to intense (RPE of 14-17) - Intense for at least one day a week. 40-60% of HRR**

TIME	More than 20-60 minutes a day
TYPE OF EXERCISE	Enjoyable and developmentally appropriate bodyweight aerobic physical activities such as running, brisk walking, dancing, kickboxing and various sports.
VOLUME	1,250-1,600 MET/minute/week
PROGRESS	For as long as the child can stand it and it is pleasant. If the child reaches 10 minutes of continuous exercise, then add another 5 minutes from the 2^{n} week of adaptation onwards
ESTIMATES	Physical activity can be divided into multiple sessions if necessary, leave time for rest and recovery, encourage the child to play sports for socialization, physical activity should be enjoyable for the child (playing games is better than just walking)

TRANSITION TO HOME UNDER PARENTAL SUPERVISION	
FITT -VP	RECOMMENDATIONS FOR RESISTANCE TRAINING (STRUCTURED PROGRAM)
FREQUENCY	2-3 times a week
INTENSITY	Medium to High intensity (RPE of 12-17) 40-60% of HRR
TIME	10-15 reps, Light to Medium intensity for 2-4 sets or 8-10 reps, Medium to High intensity for 2-4 sets
TYPE OF EXERCISE	Exercises with body weight, elastic straps and small weights
REST	2-3 minutes rest between sets
PROGRESSIVENESS	Progressively from 40-50% of 1 RM - Resistance or repetitions to be increased progressively when the child easily performs 8-15 repetitions in each exercise
ESTIMATES	Multijoint exercises should be the focus of our workouts, Give 48 hours of rest after such a program

TRANSITION TO HOME UNDER PARENTAL SUPERVISION	
FITT	RECOMMENDATIONS FOR BALANCE TRAINING
FREQUENCY	During each training session that takes place
INTENSITY	Light to Medium intensity (RPE of 9-13)
TIME	10-15 reps, for 2-4 sets

TYPE OF EXERCISE	**Enjoyable and developmentally appropriate neuromuscular balance and core strengthening activities, including those using BOSU Ball, Physio Ball on one leg**
ESTIMATES	**Physical activity should be enjoyable for the child. for example: Playing games exercising the core and improving balance**
TRANSITION TO HOME WITHOUT PARENTAL SUPERVISION (MAINTENANCE PHASE)	

FITT	RECOMMENDATIONS FOR AEROBIC TRAINING
FREQUENCY	**Daily**
INTENSITY	**Medium to High intensity (RPE of 12-17) - With at least 3 times a week being High**
TIME	**>More than 60 minutes per session**
TYPE OF EXERCISE	**Enjoyable and developmentally appropriate aerobic physical activities such as running, cycling, brisk walking, swimming and dancing.**
FITT	**RECOMMENDATIONS FOR RESISTANCE TRAINING**
FREQUENCY	**>From 3 times a week**
TIME	**As part of the 60 minutes of exercise that will be done daily**
TYPE OF EXERCISE	**Physical muscle-strengthening activities can be unstructured (e.g. playing on playground equipment, tree climbing, tug-of-war) or structured (e.g. light weights, bodyweight exercises, TRX, elastic straps)**
FITT	**RECOMMENDATIONS FOR BONE STRENGTHENING TRAINING**
FREQUENCY	**>More than 3 times a week**
TIME	**As part of the 60 minutes of exercise that will be done daily**
EXERCISE TYPE	**Bone-strengthening activities include running, rope walking, basketball, tennis, resistance training, and lame-ass training.**

Ideas for activities during the In-hospital phase

1. Planning parties for children to experience normancy, this will help boost psychology, overall mood and potentially decrease depression (e.g., Birthdays, holidays, slumber parties, First Day of Spring or Summer etc.).

2. Include dancing classes or simply freestyle

3. Teach Pantomiming, as it involves body movements.

4. Complete daily tasks and chores around the designated pediatric ward rooms: Pick up toys and store them in labelled areas, wipe down boards and tables and do some gardening on hospital grounds

5. Take a walk around the paediatric unit or designated areas (if applicable)

6. Help with decorating the ward in paediatric unit.

7. Play with a therapy dog for children.

8. Play Mini Golf. lay hide and seek and other games.
9. Kick a balloon with the doctors, nurses and staff of the clinic.
10. Look for hidden objects in the yard area.
11. Play games with other paediatric patients.
12. Visit friends in the paediatric unit.
13. Learn a new fitness routine or new steps to a dance.

Activities during the transition of returning home - under parental supervision

1. Complete m chores around the house; carry small weight bags and put groceries away, match socks, help set and clean the table, pick up dirty clothes and place in basket, fold clean clothes and put them away, help with gardening, wipe down counters and sinks, vacuum/sweep floors, put dishes in the washing machine, dust the furniture, learni to do laundry, wash dishes, help prepare meals , clean windows and so on).
2. Introduction to the Sports with exercises involving balance and core strength such as Tae Kwon Do and Sport of Calisthenics. Activities in these sports include standing on one leg, walking a balance beam, etc.
3. Introduction to the Sport focused on muscle strength by climbing ropes, playing tug of war, jumping on a trampoline all activities of which are included in MMA. Tennis is an additional option focusing on muscle strength

Activities by Age Category					
2-3 Years old	**4-5 Years old**	**6-8 Years old**	**9-11 Years old**	**12-15 Years old**	**16-18 Years Old**
Walking and running	Running	Running	Running	Team Sports	Team Sports (e.g. canoeing-kayaking)
Playing around with a Balloon	Jumping	Gardening	Gardening	Skateboarding	Swimming
Acting out animals (e.g walking like a penguine, jumpong like a frog)	Musical statues and balance training	Swimming	Play Tag/ Hide & Seek	Swimming	Competitive and non-competitive sports (Basketball, Football - Tennis, Volleyball)
Dancing along to children rhymes	Dexterity exercises,using chairs, boxes and toys	Hopscotch	Aerobic Dancing	Aerobic Dancing	Aerobic Dancing
Jumping/Trampolining	Balloon Volleyball Game	Catch/Throw a ball	Scavenger hunt	Yoga mat stretches and exercises	Yoga
Hopping	Quick clap (how many claps in 30 seconds, over the head or behind the back	Play pass with a ball	Hula-hoop/ Jump rope	Camping in the back yard/ Scavenger hunt	Hiking
Throwing a ball	Jump Rope	Riding bicycle	Riding bicycle	Riding a bike	Riding a bike
Balance training (Balance on one leg)	Cubing (puzzles)	Hula-hoop/ Jump rope	Body weight resistance exercises (push ups, sit ups, plank, etc.)	Basic principles of resistance training with weights	Weight/resistance training under the supervision of a fitness professional

Activities during the transition of returning - home without parental supervision (Maintenance Phase)

1. Arrange playdates between the children (Basketball, Volleyball, Football, etc.). The program includes approximately 45 minutes of soccer and 15 minutes of muscle strengthening and balance exercises. This must be moderate depending on patient's physical state.

2. Children and parents are encouraged to participate in at least 60 minutes of physical activities at home together (examples include: dancing, cleaning, walking, yoga).

Indicative Exercise Plan for the Resistance Programme during the Home Transition Phase for children 16-18 years old, without parental supervision

WARMING UP (8 static stretching exercises + 2 balance exercises)

MAIN PART (12 exercises in total - 4 with Body Weight + 2 Core Exercises + 6 with Elastic Straps)

TREATMENT (4 Static Tension Exercises)

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