



# HopaSuS Guide



Detailing all sorts of data regarding the project,  
funded by Erasmus+  
A STEP-BY-STEP GUIDE



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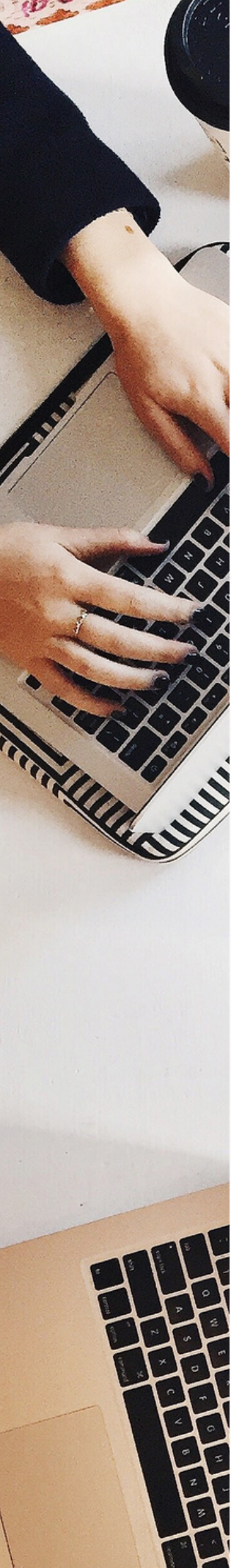
# HOPASUS. A PROJECT ON HOW TO USE SPORT VIDEO GAMES IN EDUCATION

PROJECT NUMBER: 101049653 — HOP — ERASMUS-SPORT-2021-SCP

## CONSORTIUM



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CHAPTER 1

# Foreword



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# Foreword

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The digital age brings about many challenges in the field of sport through the IT Technology applications, represented both by hardware systems (simulators, equipment) and software for the design, practice and evaluation of physical activities. The technology that assists exercise requires a deep understanding of human movement and its autotelic role at different ages, thus generating new forms of exercise.

In response to the propensity towards sedentary lifestyles of different population groups, and to help mitigate the negative effects of sedentary lifestyles, the IT field has been looking for solutions to increase physical activity, capitalising on the increased interest in the use of technology and software products. One of the solutions is the use of electronic games with a motor component (exergames) to facilitate physical exercise, amidst a clear social trend towards sedentary lifestyles, which is noticeable in different age groups.

There are many discussions about access to technology in the field of motor activities, with arguments for and against its use. Whilst the formative value of exercise in a natural environment remains a priority, it cannot be denied that children and young people clearly prefer to spend considerable time playing electronic games. Aware of this reality, the specialists of the HopaSus project team developed the guide to illustrate a model of good practice that experts in the field of physical education and physiotherapy offer to the professional community as an argument for the introduction in the design documents of a curricular component including electronic motor games.

In support of this perspective, the guide provides teachers and coaches, as well as parents and children, with evidence that, used appropriately, electronic games enhance real-world educational influences with intense, positive effects generated by technologically assisted exercise. The guide presents a series of games with positive effects on motor skills and physical development, which integrate the component of self-assessment and independent exercise, thus becoming a valuable information resource in this endeavour.

By highlighting the instructive-educational value of electronic games, their role at different ages, and the need for continuous training of specialists (teachers, coaches, instructors) in this field and the integration of information in their training curriculum, the paper makes an original, significant contribution to promoting the beneficial effects of the rational use of electronic/video games on children's growth and development, as well as on maintaining the health of all practitioners interested in this category of activities.

The novelty and timeliness of the guide are the arguments behind our recommendation to readers to continue to follow the development of the phenomenon of technologically assisted exercise and to get involved in its promotion.

**PhD Professor Monica Stănescu**

*30 August 2023*



CHAPTER 2

# About the project



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# About the project

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HOPASUS project was born out of the need of teachers and youth workers from 4 European countries to develop their digital skills and become more resilient in times of pandemics by using sport video games in their virtual or face-to-face classrooms.

Our consortium is made up of organizations from the following sectors:

- National University of Physical Education and Sports in Romania, a learning organization that gathers trainers, youth and adult learners
- Walk Together in Bulgaria, an association for social workers, youth policymakers, experts, and volunteers
- a non-governmental organization that works on the development of a civil society and establishing a rule of law in Lithuania - Tavo Europa
- a non-profit association, Sport Diagnostic Centre Sabac - that has a strong scientific research profile from Serbia.

Our proposal is relevant for a lot of actors: the sport teachers, the young people with ages between 7 - 35 years old, sport coaches, school directors, developers of video games, schools/universities and providers of digital instruments (mobile device reminder apps, computer reminder apps, video sports games), the line ministries - the Ministries of Youth and Sports; Ministries of Education; Ministries of Digitization.

The aim of our project is to encourage sport teachers to recognize the potential of video games and sport applications and experiment with new strategies for incorporating them into their gyms and classrooms. Video games/reminder applications may attract youths who are not typically interested in gym class and offer an alternative transition into sports and physical activity.



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The specific objective of the HOPASUS project are:

- To exchange good practices on innovative methods of teaching sports and improve existing curriculum with notions of new technologies in sport video gaming;
- To develop the skills and competences of sport teachers in recognizing the potential of video games, to create innovative and sustainable partnerships between schools/universities and providers of digital instruments;
- To promote the inclusion of “video games addicted youth” by changing the paradigm of persistent stereotyping of video games as predominantly mindless, violent forms of entertainment, into seeing the potential of video gaming technologies as instructional tools.

During the COVID-19 challenge, the sport sector has been strongly affected: Organizing events was prohibited, youth couldn't train effectively; all forms of organized sport were prohibited; there is a constant need to increase investment in everything related to protection measures (masks, gloves, systematic disinfection of facilities); the online training classes continued for all students – the theory was easy to be transmitted by the teachers, but the practical part of the sport classes couldn't be implemented because of the lack of digital infrastructure. Also, a lot of teachers found it very hard to teach sport through online platforms, zoom sessions etc. As a result, during this period, many students, but also the general population tend to be less physically active, have longer screen time, irregular sleep patterns as well as worse diets, resulting in weight gain and loss of physical fitness.

With the interruption of the present teaching activities in March 2020, the Romanian education system was faced with unprecedented situations: lack of technological means; uncertainty about the duration of the suspension of present activities and the continuation of the school year; the conduct of professional activities the telework system.

Thus, teachers were determined to identify the most appropriate information and technological resources to enable them to carry out their teaching activities in the context of an exclusively online teaching-learning process.

In this context, when most countries were in lockdown and schools were closed, many turned to video games as a way of learning, playing, exercising, or simply escaping this current situation. In these difficult times, it is a must to provide families with educational resources, helping people connect, and globally supporting governments with Covid-19 guidance.



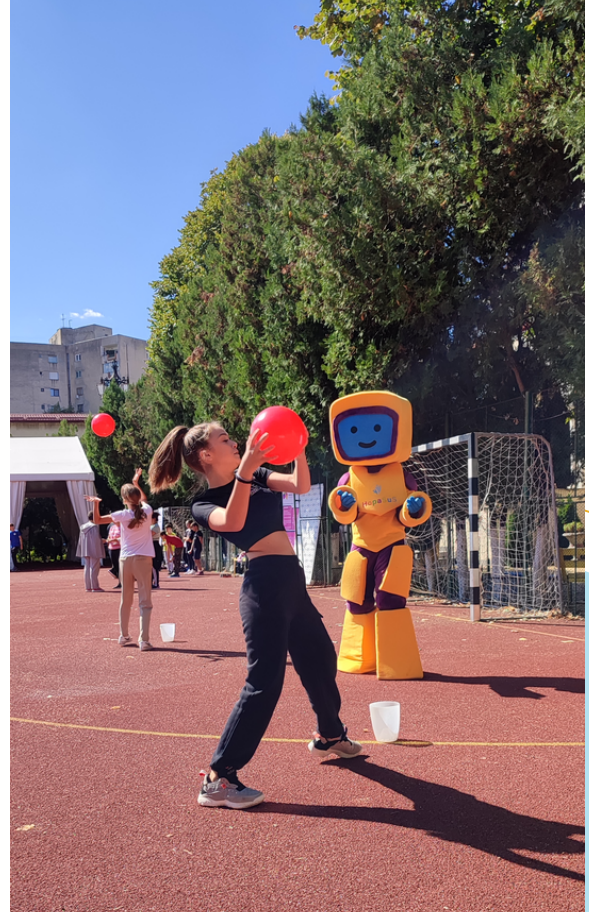


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Within this guide, we use the term of sport video gaming as a game that simulates the practice of sports. Most sports have been recreated with a game, including team sports, track and field, extreme sports, and combat sports. Some games emphasize actually playing the sport (such as FIFA, Pro Evolution Soccer and Madden NFL), whilst others emphasize strategy and sport management (such as Football Manager and Out of the Park Baseball). Some, such as Need for Speed, Arch Rivals and Punch-Out, satirize the sport for comic effect. This genre has been popular throughout the history of video games and is competitive, just like real-world sports. A number of game series feature the names and characteristics of real teams and players, and are updated annually to reflect real-world changes. The sports genre is one of the oldest genres in gaming history. The project addresses sport video games and not Esports.



In this digital context that we find ourselves today, the HopaSuS project focuses on the use of commercial video games that offer sophisticated and engaging simulations of popular team sports, and paired or individual activities. During the project we will promote how such games offer simulated experiences that may enhance students' motivation, confidence, understanding, and performance in athletic activities.

The teaching experience gained in the subject of Physical Education and Sport, in the context of the use of various technological systems that have allowed the continuation of teacher-student interaction (videoconferencing, streaming, Internet, chat, etc.), forms the basis of the Good Practice Guide for teaching Physical Education and Sport, in the online system, from the first situation online school year 2020 – 2021, by using different applications and games. This experience is backed up by organizational and practical and methodological recommendations illustrating how modern methodological guidelines can be applied in the process of practising physical exercise.



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In the context of conducting teaching activities exclusively online, the subject of Physical Education and Sport is facing significant restructuring from several points of view: the content of the curriculum, the teaching design, the organization and actual conduct of the educational process in shape with digitalization of education.

The good practice guidelines therefore have two major objectives:

- ensure continuity of the instructional process in Physical Education and Sport, based on the curriculum and children achievement from the previous school year;
- creating a curricular context adapted to the new conditions of education organization, so that the discipline of Physical Education and Sport meets the requirements of the online teaching-learning process in new digitalization era.

Like all subjects in the common core, Physical Education and Sport promotes the focus on the pupil and his/her specificities. As a result, pupil competence, approached from the perspective of its three components: knowledge, skills (aptitudes, abilities, skills) and attitudes, will be the teacher's focus.

The guide provides guidelines for the design, organization and conduct of the teaching-learning process in an adapted digital manner and for the assessment of children in online learning using sport video games as learning tools. On the basis of guidelines, and on the basis of the autonomy they have, teachers will make their own decisions on the preparation of planning documents, the organizational and conduct of Physical Education lessons and the awarding of marks.



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The HopaSuS project is relevant for the objectives and priorities of the action as it will increase the quality in the work, activities and practices of all partners involved by:

- Promoting the potential of video gaming technologies as instructional tools that university professors, sport teachers, coaches, sport instructors, youth workers can use. They may find that video games are a stimulating and valuable addition to their instructional endeavours, and they can incorporate them in their gyms and classrooms.
- Contributing to the digital transformation of sport entities by developing the skills and competences of sport teachers in recognizing the potential of computer reminder apps, video games, video-taped athletic contests, and assist them in using innovative applications in their online or offline classes
- Enhancing young people's motivation and ability to participate in a wide range of sports and other movement-based activities. All students can benefit from the unique qualities that these games embody: adaptability, individualization, collaboration, experimentation, and role-playing as professionals.
- Digital video gaming can have an important impact on the mental-skills training, activities like web quests can gather information about fitness concepts etc.
- Encouraging the participant organizations and target groups to have eco-friendly practices in the implementation of their activities in universities, schools, NGOs where they work. Recognizing the sport activities done through video gaming applications can reduce the CO2 emissions as these activities can be done also at home/in parks, using these video games for educational purposes can influence providers of digital instruments to develop online reports for each participant with their daily/weekly/monthly/yearly activity, with no need to use a physical catalogue with the notes for each child/youth.



CHAPTER 3

# Facts about video gaming



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# Facts about video gaming

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Promoting a video game in sport means generating also a pedagogical, social, psychological reflection around video games: thinking about it as a sports tool able to offer many benefits not only to having fun, but also to thought, learning and development of the person in every and physical way. It also means considering the video game worthy of being the object of study and of an accurate and careful analysis of its characteristics, its mechanics, movement, behaviour, health, and its languages. Creating pedagogical alliances between children in the schools and parents is key to building a video game culture able to break the strong resistance – composed of stereotypes, misconceptions, mistrust and fears – that adults have when they think about this kind of sport.

In the guide “EDUCATING FOR A VIDEO GAME CULTURE – A MAP FOR TEACHERS AND PARENTS” (Council of Europe) we can find facts that It has been estimated that in 2020 revenue from the video game industry worldwide was around €145 billion. Only seven years before, in 2013, these revenues were estimated at €67 billion. These are impressive numbers. By way of comparison, in the same year the global box office revenue of the movie industry was €39 billion (5. [www.statista.com/statistics/271856/global-box-office-revenue/](http://www.statista.com/statistics/271856/global-box-office-revenue/)).

E-sports, or the phenomenon of multiplayer video games being played at professional level in national or international tournaments, has become more and more important in the video game scene. In the guide “EDUCATING FOR A VIDEO GAME CULTURE – A MAP FOR TEACHERS AND PARENTS” it is said that were 143 million frequent viewers and 192 million occasional viewers in 2017, rising to 165 million frequent viewers and 215 million occasional viewers in 2018.

- **The most percent of students play video games one hour per day, and every fifth child plays video games more than four hours per day.**
- **Boys play video games more than girls.**
- **Children play video games more during the weekend than work days.**



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- Data from the cross-sectional Italian Health School-aged Children (2006-2010-2014) study were used. The sample comprised 12,748 children and adolescents. **The time spent playing video games increased significantly between 2006 and 2014.** In particular, children and adolescents who played video games three hours a day or more consistently increased over time (boys: from 16.6% in 2006 to 25.8% in 2014; girls: from 3.6% in 2006 to 20.8% in 2014). **In addition, children and adolescents who were not accepted by peers spent less time playing video game; The use of video games was positively associated with body mass index and adolescents who did not exercise regularly were more likely to report high use of video games than peers who exercised regularly; Adolescents who were directly involved in bullying episodes were more likely to spend time playing video games than peers who were not; Psychological and somatic complaints were significantly associated with the amount of daily time spent using video games;**
- **79.4% of children actively playing\* for at least one hour per day (\*physical play).**
- 71.3% of respondents reported that the time they spend playing video games had changed during the COVID-19 pandemic, while 63.1% stated that the types of games they play had changed. Figures 4 and 5 show respondents' gameplay habits before and after the COVID-19 outbreak, **demonstrating a clear shift towards increased frequency of play.**

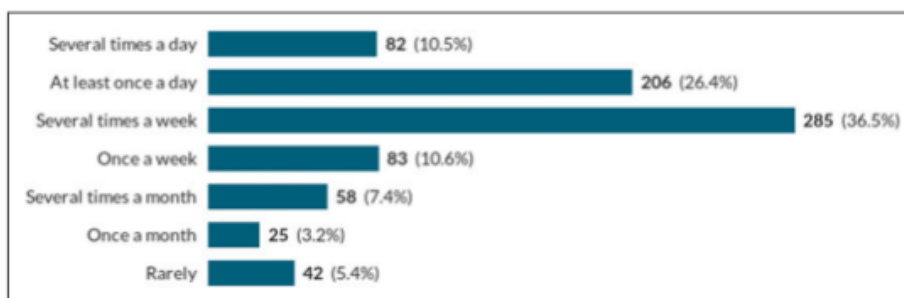


Figure 4. Pre-outbreak gameplay habits.

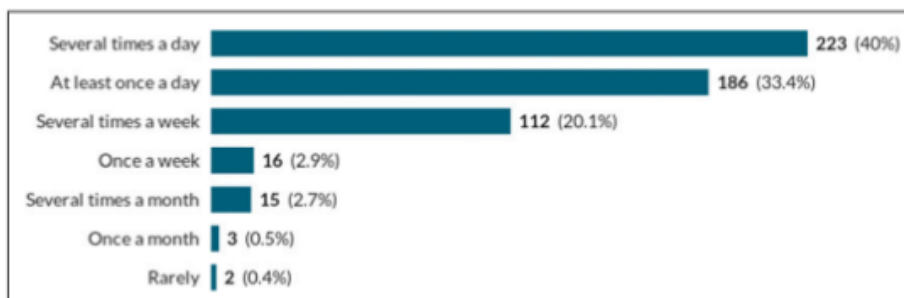


Figure 5. Post-outbreak gameplay habits.

Figure 1. Pre- and post-outbreak gameplay habits (taken from Council of Europe, 2020)



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- **The results suggest a potential relation between high screen time exposure and increased consumption frequencies of foods high in fat, free sugar or salt.**
- **Frequent video-game players had greater waist circumference and fat mass. Video-game playing was significantly associated with high added sugar and low fibre consumption. A higher level of dietary restraint was observed in non-frequent video-game users.**
- **Positive outcomes related to obesity were observed in about 40 percent of the studies, all of which targeted overweight or obese participants.**
- The diagnostic assessment of internet or computer game dependency remains problematic. A national Harris Poll survey of 1,178 U.S. youths ages 8–18 years found that 8.5% of computer gamers were pathological players according to standards established for pathological gambling (Harris Interactive, 2007). Among 2327 **Norwegian** youth, 2.7% (4.2% of the boys, 1.1% of the girls) fulfilled the criteria for pathological playing, 9.8% (14.5% of the boys, 5% of the girls) were considered to be engaging in “at risk playing”. In the **United Kingdom**, a survey of 387 adolescents (12–16 years of age) found that 20% met computer dependence using a scale adapted from the DSM-III-R criteria for pathological gambling. Among 323 **German** children ranging in age from 11 to 14 years, 9.3% (N = 30) met criteria for dependency and pathological gaming. A second study of, 7069 computer-game players reported that 11.9% met three of the diagnostic criteria for addiction. **A German National survey** of 7000 gamers found that 12% met three of the criteria for internet addiction (9). Results of a German nationwide survey of 44,610 male and female ninth-graders in 2007 and 2008 have shown that 3% of the male and 3% of the female students were diagnosed as dependent of video game dependency (VGD) was accompanied by increased levels of psychological and social stress in the form of lower school achievement, increased truancy, reduced sleep time, limited leisure activities, and increased thoughts of committing suicide. In addition, it becomes evident that personal risk factors were crucial for VGD.



CHAPTER 4

# Research report



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# Research report

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## METHODS

The study that was conducted from December 2022 to February 2023 involved parents/guardians, children, and coaches / teachers of physical education (TPE) from Romania (ROM), Bulgaria (BUL), Lithuania (LITH) and Serbia (SRB). The research was designed to assess the influence of HopaSuS recommendations and children's playing sport video games on physical activity, healthy behaviour and body posture of children.

Considering that the target group of HopaSus research was children aged 11 to 15 years, parental approval was necessary for their involvement in the research. In this regard, participation of parents/guardians in the survey simultaneously meant their approval for the involvement of their child in the study.

Research consisted of an online survey about physical activity, healthy behaviour and playing video games related habits of children. The survey is filled once, at the beginning of the research. HopaSuS recommendations are proposed to parents, teachers, coaches to be applied 45 days between initial and final testing. Testing considered the assessment of physical skills and postural status of the children. Assessment of physical skills was carried out through two identical sessions with an interval of 45 days between sessions. A single session involved the application of HopaSuS protocol - a set of five tests/challenges for the assessment of children's motorical aptitude (described in detail in the HopaSuS protocol). Assessment of the postural status is done using free smartphone application APECS mobile application (New Body Technology SAS, Grenoble, France) taking two photos of body posture.



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## ***RESUME OF THE RESULTS OF SURVEY ON CHILDREN'S HABITS REGARDING PHYSICAL ACTIVITY AND PLAYING VIDEO GAMES***

Results of the HopaSuS survey show that the Romanian and Lithuanian subsamples were made up mostly of children from the city, in contrast to the Serbian one, which mostly consisted of children from the countryside. Given that the headquarters of the Lithuanian and Romanian partners are in the capitals of their countries, and that the Serbian organization is from a smaller town in West Serbia, this information is not surprising. The SDCS sample also included children from the rural area (Platicevo village), and given that Sabac is a relatively small town, children from the countryside often attend school in the city.

Further, the results show that mostly mothers took part in the research and there was no difference between the countries participating in the project. Such findings could be explained by the fact that these are school-age children and that it is most likely that mothers take on the role of taking care of their curricular and extracurricular activities or were more open than fathers to participate in the survey. When it comes to the gender of the children, looking at the total sample, it is noticeable that there is a significant difference between Bulgarian (and the other three subsamples), which consisted of only male children. However, since Bulgarian parents did not participate in the survey, only the results for the Lithuanian, Romanian and Serbian subsamples will be discussed. In this regard, in terms of percentage, slightly more girls than boys participated in the research, but given that no statistically significant differences by gender were recorded, it can be considered that the total sample included an equal number of both male and female children. The same applies to subsamples by country.

Based on parents' responses, children in all three countries mostly go to and from school by walking, and then by using car, bus etc, as a way of transport. There is a noticeable difference between children from Serbia, who use walking significantly more than the other two ways of transportation (cars, buses... or bicycles, rollerblades...), in contrast to children from Lithuania and Romania, who use, with a large percentage, transportation by car and bus.



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Also, a subsample of children from Romania do not use bicycles, rollerblades and skates to go to and from school at all. As mentioned before, these are children who mostly live in the capital, where there is heavy traffic, and it is assumed that parents prefer to drive their children to school for safety reasons. In contrast to the Romanian subsample, in the Lithuanian one it was recorded that children use bicycles, rollerblades and skates as a means of transport. However, the Lithuanian subsample included a higher percentage of children from the countryside than the Romanian one, so it can be concluded that bicycles, rollerblades, etc. are mostly used by children from the countryside and that, accordingly, there are no differences in the mode of transport between these two subsamples. The reason why in the Serbian subsample by far the largest number of children goes by walking can be explained similarly. Given that they live in a small town, schools are not far from the place of residence, traffic is also not as busy as in big cities, so it is not difficult for children to walk to school and back.

Differences between the subsamples were recorded in terms of whether the children train any sports in favour of Serbian children. However, it can be easily explained by the fact that the Serbian subsample included children from sports clubs in addition to schools. Further, children from Romania are engaged in physical activity beside regular physical education classes and sports training significantly less than children from Lithuania and Serbia. Unlike children from the other two countries, children from Romania, even if they practice additional physical activities, usually do it only once a week (LITH and SER mostly 2–3 times a week, and then more than 3 times a week). If these results are compared with the answers of parents regarding children playing video games, it is noticeable that parents from Romania are also less likely to allow their children to spend more time playing video games, and it could be concluded that parents from Romania value the time spent studying more. However, this is just an assumption. The survey did not monitor the children's success at school so that such a conclusion could be drawn with certainty. Thus, we do not have an adequate explanation for such data, and it could be the subject of further studies.

Regarding playing video games, survey results show that in Lithuanian and Romanian subsamples, there are significantly more children who play video games compared to those who do not play. In Serbian subsample, results show the opposite – there are more non-players than players. Such results can be connected with the fact that Serbian children are more involved in sports and also used to practising some kind of physical activity beside regular physical education classes. Also, children from Serbia who play video games do not prefer it in relation to playing sports. Seems that children from Serbian subsample prefer to be physically active than virtually.



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Furthermore, children from all three countries usually spend 1–2 hours per day playing VG, while in Lithuanian's subsample there are significantly more children that play VG for more than 4 hours, than in the other two countries. Children from Lithuania also like talking about video games and imitating VG's characters the most out of all three subsamples. It is less pronounced with children from Romania, while children from Serbia generally do not like to imitate characters more than to imitate.

If we pay attention to the parents' answers regarding what they think about whether playing sports video games can have a positive effect in terms of increasing children's physical activity, we can see a significantly more positive attitude of parents from Lithuania on this issue than parents from Romania and Serbia. Based on this, it could be concluded that the attitude of parents about the benefits/harms of playing video games influences how much time their children will spend playing VG. It is evident that Lithuanian parents have a more positive attitude towards this issue, and consequently allow their children to play video games more than parents from other two countries. On the other hand, parents from Romania are especially careful when their children play VG's during the day, and accordingly their children spend a maximum of 1–2 hours playing VG's. In addition, Serbian parents have no positive attitude about the effect of playing video games on a child's physical activity, so it is possible that they direct their children more towards sports and engagement in some forms of physical activity.

When it comes to the way children sit while playing video games, Romania and Lithuania parents mostly declare that their children sit correctly, while the majority of parents from Serbia believe the opposite. We emphasize that this result does not mean that children from Serbia have a worse body posture than children from Romania and Lithuania, but only represents the attitude of the parents about this issue. These findings will be further interpreted in the part of the report that refers to the assessment of the postural status of the children who participated in the research.

Based on the overall results of the survey and their interpretation, the following dominant finding could be highlighted: ***the extent to which children will practice sports and use the potential of playing sports video games depends largely on the attitude of parents about these issues.***



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## ***RESUME OF THE RESULTS OF THE PHYSICAL SKILLS ASSESSMENT***

Summarizing results of the physical skills assessment it can be generally concluded that HopaSus recommendations had a positive impact on physical skills of children from all four countries that participated in the research. It is notable that after the period of implementation of recommendations children show better performance in all five physical challenges (POST vs. PRE), even though statistically significant differences between initial and final testing for throwing the ball behind the back test were not recorded.

At the initial testing children from Romania, Lithuania and Bulgaria showed better results than Bulgarian ones mainly in all tests except in the test *dribbling the ball*, (where no one subsample differed from each other) as well as regarding the average score of all five tests. Serbians also had better results than Lithuanians regarding *throwing the ball* behind the back. These results suggest that children from different samples were not on the same physical skills level when research was started. It is obvious that children from Bulgaria had a lower level of physical skills than children from other three countries.

After implantation of HopaSus recommendations (final testing), greater differences between the subsamples were recorded. Still, children from Romania, Lithuania and Bulgaria showed better results in all tests except dribbling the ball. Further, Serbian children had better performance than Romanian and Lithuanian at skipping the rope and throwing the ball behind the back, and also than Lithuanian children at dribbling the ball. Regarding average score at the final testing Serbian children showed better performance than Romanian, Bulgarian and Lithuanian children, and Romanian and Lithuanian were better in tests' performing than Bulgarian. Such results, as will be explained further, do not necessarily mean that the HopaSus recommendations had the least impact on children from Bulgaria, it is just in accordance with the fact that before the recommendations were implemented, children from Bulgaria were at a lower level of physical skills than children from the other three countries.

If the results of the comparison between the initial and final testing of the same subsample are reviewed it can be seen that children from Serbia improved significantly in the performance of skipping the rope, plastic bags juggling, dribbling the ball and at the average score. Romanian children improve their performance at plastic bags juggling and taking the T-shirt off, Lithuanian at plastic bags juggling, and Bulgarian at plastic bags juggling, taking the T-shirt off, as well as at the average score of all five HopaSus tests. These results suggest that HopaSus recommendations had a positive impact on children's physical skills which varied from subsample to subsample.



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Generally observing, the greatest progress after the implementation of the HopaSus recommendations was noted in children from Serbia and Bulgaria. Since the HopaSus recommendations for parents and coaches were based on recommendations, not on an obligation, and since we did not have the possibility to control the extent to which they were implemented, we are not able to draw clear conclusions regarding the origin of differences in performance between children of different subsamples. As far as the Bulgarian sample is concerned, the explanation is not difficult to give considering that the sample consisted of children with a lower level of physical skills, so a targeted physical exercise program could have had a positive impact on their performance to a greater extent than is the case with the Romanian and Lithuanian subsamples.

When it comes to the Serbian's subsample, if we look back at the results of the survey that was part of this research, we will first notice that the sample consisted of children who were largely involved in sports (or have positive attitude about physical activity in general), and we can assume that they have developed a desire to prove themselves, to compete etc., by overcoming their own limits and that in this regard they were more motivated to apply the recommendations consistently and with dedication. Second, the results of the survey may indicate that parents from Serbia, as they already have a high positive attitude towards sports/physical activity and their impact on children's health, possibly approached the implementation of the recommendations more seriously than other parents.

Finally, as a result of research, the norms for determining the level of physical skills were formed. Based on HopaSus test battery, children's physical skills could be classified as below average, average or above average. About that, classification of children involved in the research are in line with previous explained results. It is evident that subsample from Bulgaria showed weaker motor skills at the initial as well as the final testing than other three subsamples. However, Bulgarian subsample also positively reacted on HopaSus recommendations, showing better results at the final testing.

Based on the overall results of the physical skill's assessment with a large degree of confidence, we can generally conclude that:

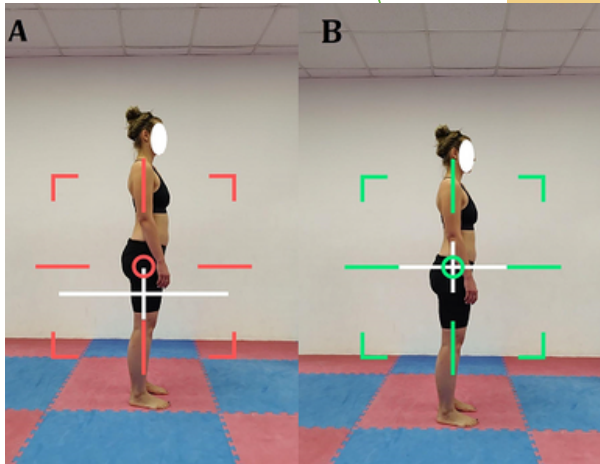
- *HopaSus recommendations could have a positive impact on physical skills of children ages from 11 to 15, regardless of geographical origin.*
- *Children who are distinguished by the qualities necessary to achieve sports achievements (resilience, motivation, commitment, etc.) will show better results in the assessment of physical skills using the HopaSus test battery, as well as the improvement of physical skills after recommendations implementations.*
- *Parents' approach to sports/physical activity have a large impact on their children's achievement results.*
- *Norms formed as a result of this research can be a useful tool for the motor skill's assessment using HopaSus test battery in children aged 11-15.*



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## ***RESUME OF THE RESULTS REGARDING POSTURAL ASSESSMENT***

Results of the assessment of postural status of children from four European countries indicate that most children have good posture. Minor deviations are present in lower percentages, and there are also some children with major deviations of good (normal) posture.

Even statistical analysis did not reveal differences between ROM, LITH and SRB subsamples, considering the ratio of good posture versus the presence of minor postural disorder, it is observed that it is high in favour of normal posture of children from Romania and Serbia, and slightly lower in children from Lithuania than ROM and SRB children. Children from Bulgaria generally had worse posture than children from other three countries, especially in the sagittal plane (side view) where only 4% of children had normal posture and 92% had minor postural disorder. However, it is encouraging that this disorder stage is known to be correctable with physical exercises, so we assume that with a programmed physical activity aimed at correcting body posture it could be improved. Contrary, it is worrying that 13% of BUL subsample (as well as 4% of ROM and 3% of SRB) had postural disorders that are not easily correctable by physical activity.

As in recent decades there has been a trend of increasing postural disorders in children, it can be concluded that the results of this research are in the line with the results of previous studies that dealt with the assessment of body posture in children and youth. Also, the results of current research indicate that Bulgarian children generally have worse posture than children from Romania, Lithuania and Serbia. Still, interpreting the results it should be borne in mind that it refers primarily to the children who participated in the study and that we should be careful about generalizing the findings to the entire population of children aged 11–15 years.

As could be noticed, the distribution of the results has a similar trend in all four subsamples (the most are children with good body posture, followed by a smaller number of children with the first stage of the disorder and the least are those with greater deviations from normal body posture). The distribution is only disturbed in children from Bulgaria, and that is in the sagittal plane where the largest number of children have some kind of deviation.





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However, we cannot generalize this data to the entire population of children from Bulgaria aged 11-15 as the subsample consisted of only 24 children, mostly aged 13–15 years. As adolescents, they are in a transition stage of life with a dramatical physical, psychological and emotional changes which reflect on their behaviour, change of mood, motivation, interests, etc. Also, this is the period of life when youngsters tend to act in some way just to draw attention, or to fit into society. Additionally, in this period of life, a role model is of great importance for children, someone with whom they feel the need to identify. Sometimes it could be positive, but often negative role models. And what does it have to do with body posture?

Posture is much more than just engaging our muscles and bones at static and dynamic conditions. It involves our perception, emotions and the environment we are in (Dunk, Callaghan, & McGill, 2005). Therefore, there are many factors that can affect body posture, from the time of day when the assessment is made, to fatigue, bad mood, impaired physical and mental health (e.g. depression, anxiety, stress) etc. With all this in mind, if we relate these findings to the results of the posture assessment of the Bulgarian subsample, we can better explain the findings of this research. For example, it was enough for one child to want to draw attention by disobeying the instructions on taking an adequate position for assessment with bad posture, for the other children to follow him/her. Another child may have been emotionally affected because of the break up of a love relationship so that felt as “everything fell apart” to him/her. Another one maybe spent the whole night on social networks, so came to the testing sleepless and tired. And so on and so forth.

Since during the postural assessment we were not able to control all the factors affecting body posture, when interpreting results we have to take it into account and suggest that in future research, better control of the research inclusion criteria as well as a larger sample, should be provided.

Now, it is interesting to look back at the results of the survey and parent’s attitude on sitting their children while playing video games. Just to remind, Romanian and Lithuanian parents mostly declare that their children sit correctly, while the majority of parents from Serbia believe the opposite. Results of postural assessment did not show differences in postural status of Serbian children vs. Romanian and Lithuanian, just opposite - most of the Serbian children had good posture.



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Furthermore, Serbian children had also slightly higher ratio “normal vs. minor disorders” than Lithuanian children, so results of the survey regarding this issue could refer to it that Serbian/Lithuanian parents their attitude that playing video games, at the very least, cannot have (or “have”, as in the case of LITH parents) a positive effect on the physical status of children, project as a behaviour of their children while playing video games. Also, these findings may be the result of parents' prejudices, lack of knowledge or setting high/low criteria etc.

Based on the overall results of the postural assessment, we can generally conclude that:

- *Children that were involved in the research have good posture, or have minor disorders that can be corrected by physical exercises.*
- *During the postural assessment, it has to take into account children's psychophysical health, as well as the environmental conditions.*

## ***CONCLUSION OF THE RESEARCH REPORT***

Research that had the main goal to assess the influence of HopaSuS recommendations and children's playing sport video games on physical activity, healthy behaviour and body posture of children actively involves a wide range of participants: children, parents, coaches and teachers of physical education from four European countries. All of them contributed to the conclusion that can be drawn at the end of the research:

HopaSuS protocol can be a useful tool both for collecting data (of children's habits regarding physical activity and playing video games, of physical skills level and of postural status of children) and for a development of physical skills, as well as for strengthening the parent-child-sport coach relationship.



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**HopaSuS**



***FULL LITHUANIAN REPORT***



***FULL BULGARIAN REPORT***



***FULL ROMANIAN REPORT***



***FULL SERBIAN REPORT***



CHAPTER N.5

# HopaSuS Recommendations



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# Recomendations

## FOR PARENTS, TEACHERS, COACHES, YOUTH WORKERS AND OTHER HOPASUS PRACTITIONERS

\*FOLLOWING TEXT IS WRITTEN FOR PARENTS, BUT IT CAN BE TRANSFERRED TO ALL HOPASUS USERS

If we mark communication as the basis of interpersonal relations, then it is clear that it can be an essential tool for achieving our goals with children. For parents, the most important thing is to adopt an assertive style of communication about all important issues with their children, even when they are in regard to the contents of the games they choose and the sports activities they engage in. Joint family activities are extremely important for good communication with children, that's why conversations are ongoing shared games, whether it is a video game or a sports game, is a good opportunity to implement parental suggestions.



- 1. Open assertive communication with children regarding video games and sports***
- 2. Involvement of parents in children's digital life***
- 3. Involvement of children in real sports activities, following the example of parents***
- 4. The ability to actively listen to the child's wishes and the wishes of the parents***
- 5. Avoiding "over" explanations regarding video games and the importance of sports activities***



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## 1. Open assertive communication with children regarding video games and sports

Assertive communication would mean open communication with children in which we stand up for our own goals, for example to recommend them sports content both virtual and in real life, but at the same time taking into account their own wishes. The child should be given to say what he likes and should encourage the development of his self-confidence. Communication with children should be the “golden middle” between aggressive and passive communication, one must not insist on exclusive satisfaction of the parents' needs, and also the parent must not withdraw with the aim of not reproaches to the child.





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## 2. Involvement of parents in children's digital life

Although excessive consumption of digital content causes a number of negative psychological and physical consequences for children, we cannot expect that by taking away phones and digital devices, we will solve the problem. It is necessary to develop communication with the child regarding his favorite digital devices game, educate yourself, familiarize yourself with the same and only then suggest that sports content is better and higher quality than various other aggressive and violent ones.





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### **3. Involvement of children in real sports activities, following the example of parents**

Learning by imitation is an indispensable form of socioemotional and cognitive development of children, basic patterns of communication are learned in the earliest periods of life. Children have a need to imitate roles and if family members play sports and are physically active, it is higher the probability that exactly such behavior will affect the child. Even parents' talk about sports can motivate children to get involved in sports.







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## **4. The ability to actively listen to the child's wishes and the wishes of the parents**

One of the main prerequisites for good communication with children is the parents' ability, will and willingness to listen to the interlocutor (child). Successful verbal and non-verbal communication implies a high level of trust, appreciation and empathy. If a parent develops your abilities, it is more likely that the child will be ready to listen and adopt the suggestions of the parent's various life situations, and especially related to nice activities such as sports and sports video games.





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## 5. Avoiding "over" explanations regarding video games and the importance of sports activities

Communication as the basis of relationships in the family, in which thoughts and emotions are exchanged and built relationships, requires parents to be in a good mood and very patient. On the other side of the new one, digital generations have less and less the gift of patience and concentration, which is why we need to work with children to speak briefly and clearly, concisely draw their attention to a problem or behavior, without posturing lessons. Sometimes short and positive suggestions "you will be more popular" or "you will be more beautiful" if you work sports give better results than a detailed explanation of how long-term consumption of aggressive, or violent video games negatively affect their psycho-physical health.





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# HOPASUS RECOMMENDATIONS INFOGRAPHIC



## HOPASUS RECOMMENDATIONS

For parents, teachers, coaches, youth practitioners and other HopaSuS users

- 

Familiarize yourself with children's favorite digital content
- 

Understand children's needs but follow your goals
- 

Be physically active and speak about sport when you are with children
- 

Actively listen to your children, show them trust, appreciation and empathy
- 

Avoid "over" explanations regarding video games and the importance of sports activities

...and then you can suggest to children to be physically active and to play sport video games!



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CHAPTER N.6

# HopaSuS protocol



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# HopaSuS protocol

Dear colleagues and friends,

This document has a goal to give you clear information about the innovative tool that assesses the level of physical skills and body posture of the children and it can be implemented as an online digital tool. Here we call these physical tests, physical challenges, where we use home based complex exercises in order to assess level of physical skills. Why challenges? Because is it more fun for children to perform challenges against tests?

In addition, we present you with a questionnaire that can help you to better understand children's level of physical activity, rest and mobility behavior, and information about playing video games.

It is important to inform all participants that collected personal data will be used for research and educational purposes. Also, all participants (parents and guardians) will be informed about this before they start using an online survey. Accepting parent/guardian accordance, participants are safe about their personal data and can continue participation in HopaSuS protocol.

Target group of HopaSuS protocol are children from age 11 till age of 15 years and their parents/guardians. Children can be organized in project participation through schools, sport clubs, youth associations, other organizations or individually.

Important: Note, all participants must do the first survey, because they will accept or refuse parent/guardian accordance for research!



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## HEALTHY BEHAVIOR SURVEY

The survey is intended for children's parents/guardians, where we will collect data about children's health habits in an indirect way.

Before the survey, parents/guardians will be informed about protection of their personal data and accepting accordance they can continue participation in research.

The survey will collect data about children's: level of physical activity, mobility from home to school, rest behaviour and information about playing video games.

Survey must be done first because it contains accordance for protocol participation.

You can find an online survey on the English language [over this link](#), or you can ask for permission for using this document by sending an email at [sdcsabac@gmail.com](mailto:sdcsabac@gmail.com).

Also, you can perform a survey in paper printed form, as it is shown in the annex of the guide.



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## PHYSICAL CHALLENGES

In order to assess the level of physical skills, we use five complex exercises that can be done at home.

All challenges are video recorded by parent/guardian or coordinator in the way that participant is visible all the time during the challenge.

We recommend that all children are supervised by an adult when attempting these challenges. All participants take part at their own risk. The project coordinator does not accept responsibility for injury as a result of taking part in this protocol.





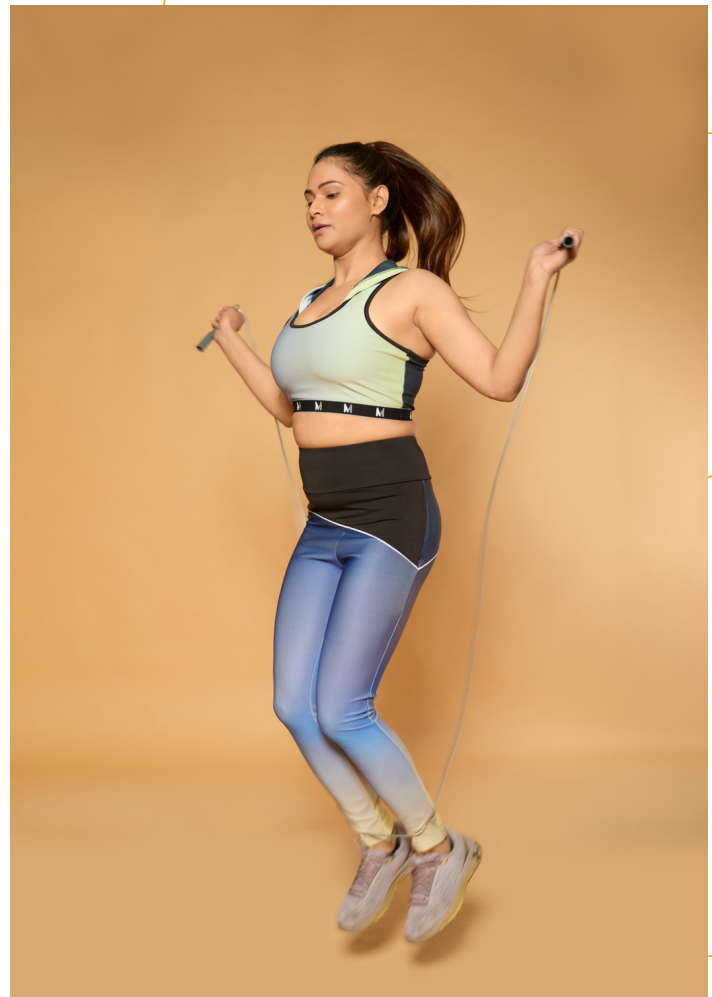
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## CHALLENGE 1

- For this challenge, you need a skipping rope (professional skipping rope or any other rope you have at home) and adequate space at home where you can do the challenge;
- Assume the starting position, holding the ends of the rope, arms straightened and alongside the body, and the middle of the rope on the floor behind your feet;
- When ready to start, move your arms upwards, turn the rope over your head and start skipping over the rope;
- You may use double jumps (turn the rope slower and have one small hop between jumps over the rope) or single jumps (turn the rope faster and jump over the rope without hopping between the jumps), but remember to jump with both feet at the same time (simultaneously);
- The challenge is to perform consecutive jumps in a period of one minute;
- Challenge yourself and be active!



[VIDEO](#)







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## CHALLENGE 2

- For this challenge, you need two plastic bags and an adequate space at home where you can do the challenge;
- Take the two plastic bags in one hand, holding them for the bottom part and not their handles;
- Start tossing the plastic bags, one by one, in front of your body and head;
- Continue in that manner, tossing the plastic bags using only one hand, and don't let any of the bags fall on the floor;
- The challenge is that you juggle the bags for 20 consecutive times, tossing alternatively one by one bag, using only one hand in a period of one (1) minute;
- Challenge yourself and be active!

\* You may use your right or left hand !

### VIDEO





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## CHALLENGE 3

- For this challenge you will need two (2) T-shirts, a bed or chair and adequate space at home;
- Put on both T-shirts;
- Take a position with your face facing the floor, raise your legs on the bed or chair, place your palms on the floor shoulder-width apart, and keep your arms and body straight;
- From that position, try to take off one T-shirt and then put it on again;
- The challenge is to do this within a one-minute period;
- Challenge yourself and be active!

Remember:

- Use both hands alternately to take off the T-shirt;
- One T-shirt must be worn during the whole exercise / challenge;

### VIDEO





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## CHALLENGE 4

- For this challenge, you need: a medium-sized ball (a basketball is best, but you can use another ball of a similar size) and adequate space at home;
- Kneel on your knees and start tapping the ball using your right, then left hand alternately;
- After doing 10 repetitions in that position, straighten up in a standing position;
- Do not stop tapping the ball and do 20 repetitions in a standing position using alternating right and then left hand;
- After doing 20 repetitions in a standing position, without stopping to tap the ball, return to the original position, kneeling and do 10 more repetitions;
- Challenge yourself and be active!



[VIDEO](#)





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## CHALLENGE 5

- For this challenge, you need a ball and adequate space to complete the challenge;
- Stand up straight and hold the ball in front of you with both hands;
- The challenge is to throw the ball back over your head, and catch it with both hands behind your body while keeping your body straight;
- Challenge yourself and be active!

### VIDEO





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## BODY POSTURE

The postural assessment will be carried out by photogrammetry technique through a digital tablet/mobile application, able to reconstruct the posture from photography (Roggio, et al., 2021). It has to be performed at the very beginning of the experimental program, before the implementation of the recommendations (initial test) and at the end of the program (final test).

### Equipment

- portable device (mobile phone / tablet) and (if it's possible) camera stand (tripod);
- APECS mobile application (New Body Technology SAS, Grenoble, France).

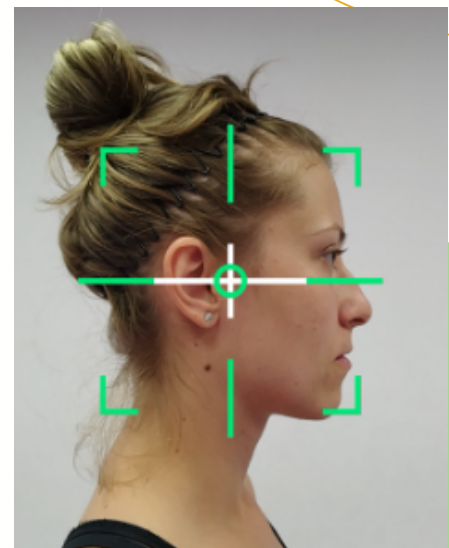
## PROCEDURE

During the measurement, the child is barefoot on a flat and firm surface, dressed in shorts (boys) or shorts and top (girls). Shorts should be dropped to the hips. Hair should be tied up.

The child is in an upright standing position with his arms next to his body, and feet hip-width apart. The head is positioned so that the "Frankfurt plane" occupies a horizontal position (the "Frankfurt plane" is the line joining the lower edge of the left orbit and the upper edge of the left external canal, Figure 1).

Two digital photographs (of front and right side) have to be recorded using an APECS mobile application. Try and get a blank wall behind the child, as this helps us see things better.

The portable device has to be set on a tripod (camera stand), two to three meters away from the line marking the position of the child. The height of the tripod has to be adjusted, so the middle of the objective lens is at the level of the centre of the body (referent point can be the child's navel).



**Figure 1. Frankfurt plane.**

The horizontal line represents the right position of the Frankfurt plane during assessment.



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We recommend that photos be taken by one, always the same examiner (coach / sport teacher...) - the person designated by the coordinator of the partner organization.

If you are not able to organize a photo shoot by a sports worker, alternatively you can instruct the parents to make them at home.

## STEP-BY-STEP INSTRUCTIONS OF HOW TO USE APECS MOBILE APPLICATION FOR MAKING PHOTOS

APECS mobile application can be downloaded for free from Google Play or the following website: <https://apecs.newbodytechnology.com/>.

Note: sports teachers / coaches / parents will use it only for the purpose of taking a photo of the child, which will further serve us to assess body posture.

Before opening the application, the user (photographer) should check where the screenshot button is located on his portable device.

When the application starts, the photographer will see the home screen, where he/she has to choose Quick Analysis (presented on Figure 2).

Pressing the *Quick Analysis* it will appear a screen in the centre of which is a button in the form of a blue camera. Pressing the *front* or *right side* button, that is located at the bottom of the screen (indicated by the red arrow in Figure 3A), the photographer chooses whether to take a photo from the front or from the right side (front is set by default).



**Figure 2. Screenshot of home screen of APECS mobile applications.**

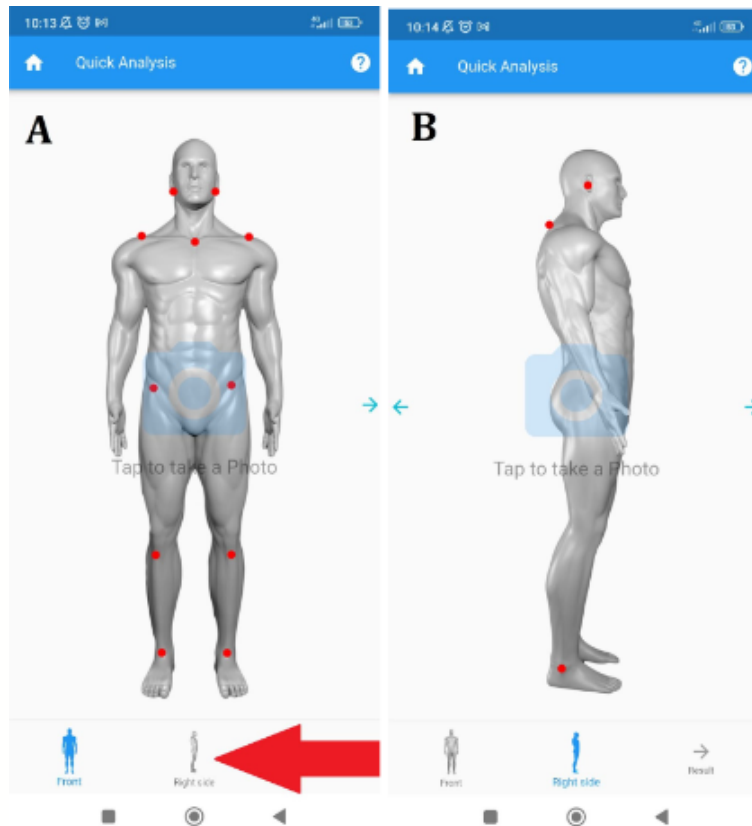
The red circle indicates the button to be pressed.



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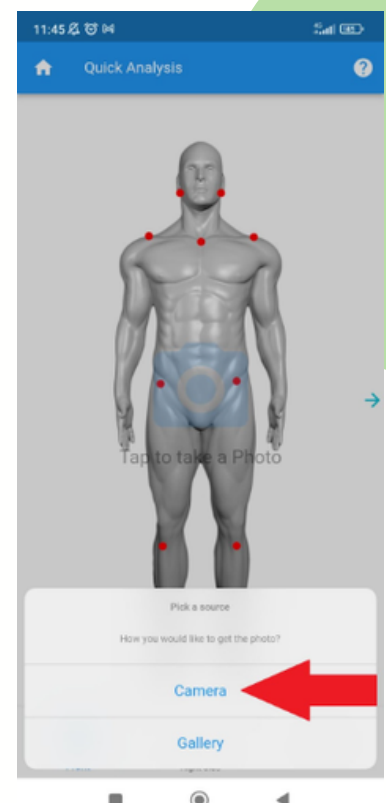


**Figure 3. Screenshot of Quick analysis screens.**

A - front and B - right side position of subject. The red arrow indicates the place where the buttons are to be pressed in order to select the desired position for photography.

When the user taps to take a photo, at the bottom of the screen will appear a question from which source he/she wants to pick a photo (Figure 4). It has to be selected “Camera”.

Choosing the *Camera* button, the phone's camera will activate. In the same time, across the screen it will appear a stative red square with a circle in the centre, and a mobile white cross (Figure 5A). The photographer should take a position about 2–3 meters from the child, so that the camera covers the entire body of the child. The circle of the red square should be positioned in the center of the child's body (approximately just below the navel), and then, moving the phone with light movements, the white cross should overlap with the red square. The moment they are folded correctly, the red square will turn green (Figure 5B). That's the moment when the photographer needs to take a photo.



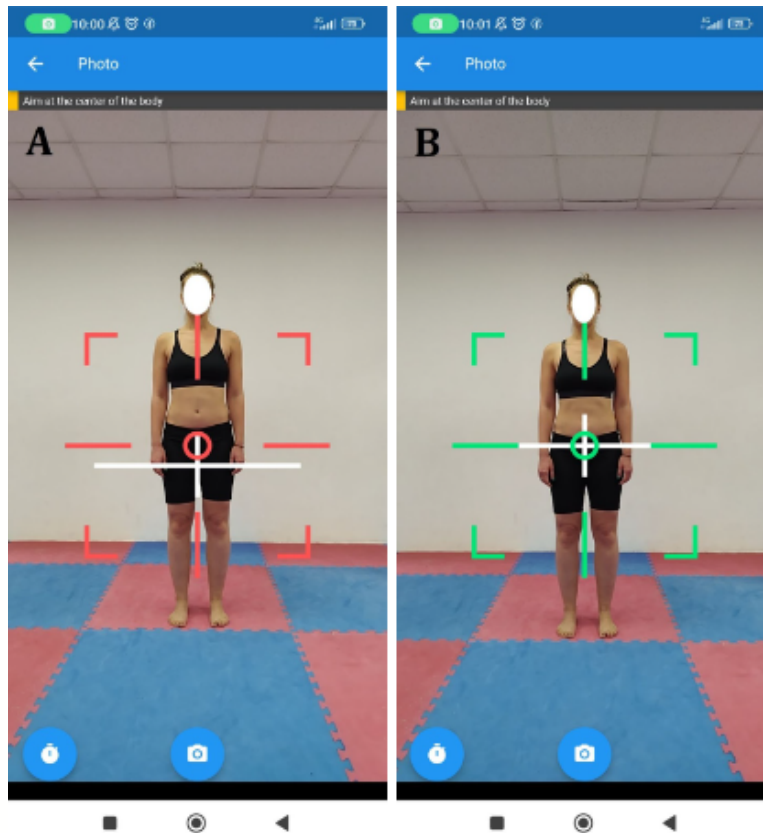
**Figure 4. Selecting a photo source.**



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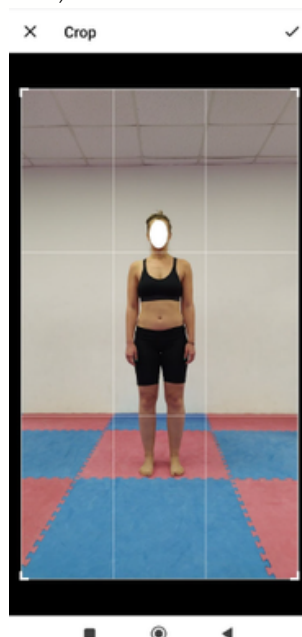
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**Figure 5.**

- A. Positioning camera lens for shot.
- B. Moment for taking a shot, when the lens is positioned at the center of the body.

Immediately after taking a photo, the application will offer to crop the photo, but it doesn't need to be cropped, just screenshotted (Figure 6).



**Figure 6.**

Screenshot of the photo taken in the front view. The application offers a crop, but actually the photographer needs to make a screenshot of the photo at that moment.



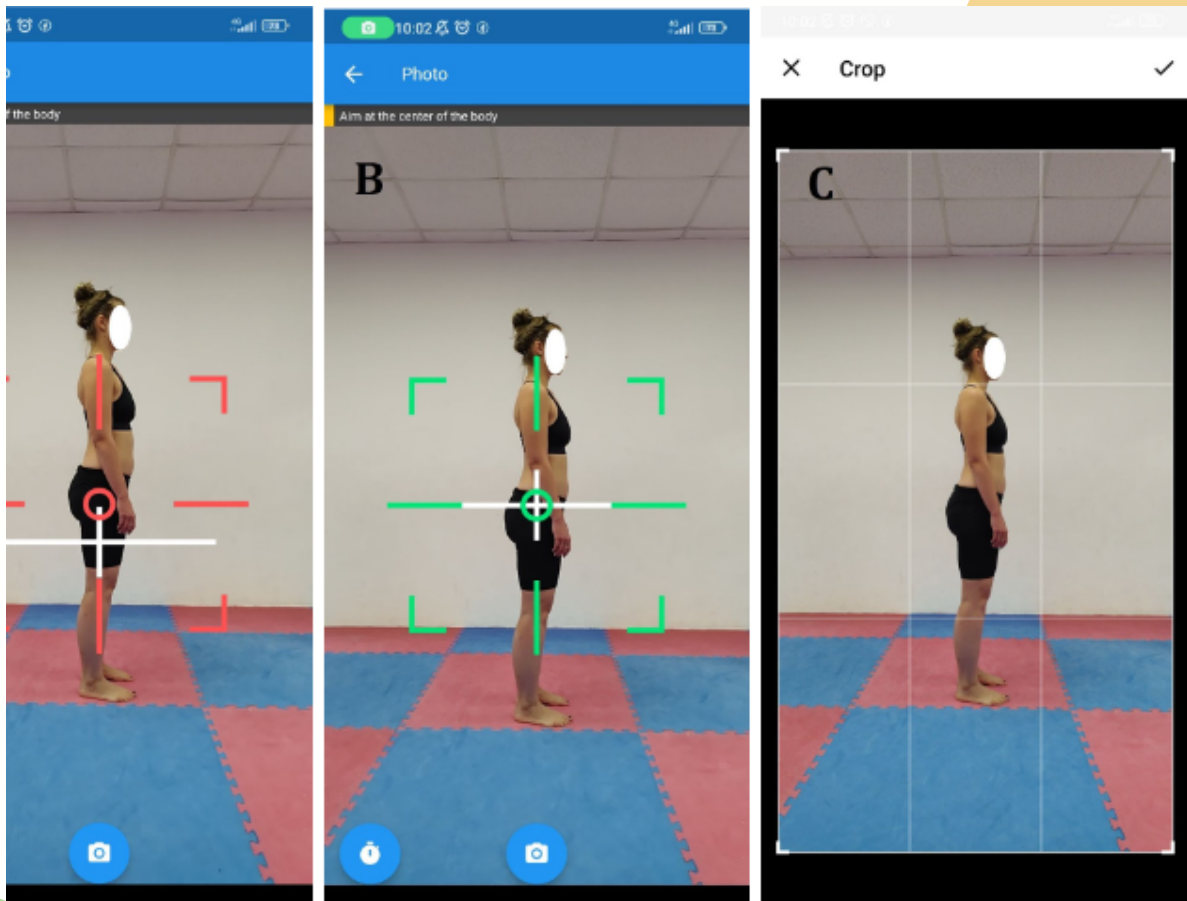


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The same procedure has to be done with the child turned on the left (to make a photo of the child's right side) (Figure 7).



**Figure 7. Taking a photo from the right side.**

- A - Positioning camera lens for shot.
- B - Moment for taking a shot.
- C - Taking screenshot of the photo.

## DATA COLLECTING

During the collecting process, there will be a big amount of data that has to be saved and stored in the proper way.

We recommend collecting and storing data through Google tools (G drive)

Please open a folder under the name "subfolders" under names *Survey*, *Challenge* and *Posture* and give names for video and photo files in way that you recognize them.



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## • CRITERION FOR ASSESSMENT OF PHYSICAL SKILLS

### - CHALLENGE 1

*SR - skipping the rope*

| MARK | PERFORMANCE DESCRIPTION  |
|------|--|
| 2    | <i>Jumps the rope for one minute without a break or more than 20 times</i> |
| 1    | <i>Jumps the rope with breaks and has jumped more than 20 times</i>        |
| 0    | <i>Jumped the rope less than 20 times</i>                                  |

### - CHALLENGE 2

*PB - plastic bags juggling*

| MARK | PERFORMANCE DESCRIPTION                            |
|------|--|
| 2    | <i>Juggles more than 20 times or a full minute</i> |
| 1    | <i>Juggles more than 10 times and takes breaks</i> |
| 0    | <i>Juggles less than 10 times</i>                  |

### - CHALLENGE 3

*TS - taking the T-shirt off*

| MARK | PERFORMANCE DESCRIPTION  |
|------|--|
| 2    | <i>Took off and put on the shirt within one minute</i>   |
| 1    | <i>Does not complete the task within the time limit, but took off his shirt and started to put it on</i> |
| 0    | <i>Just takes off shirt</i>  |



## - CHALLENGE 4

*BD - dribbling the ball*

| MARK | PERFORMANCE DESCRIPTION   |
|------|---|
| 2    | <i>Performs all 40 repetitions in all three positions without stopping and losing control over the ball</i> |
| 1    | <i>Performs all 40 repetitions in all three positions but loses control of the ball once or twice</i>       |
| 0    | <i>Does not perform all 40 repetitions or loses control of the ball three or more times</i>                 |

## - CHALLENGE 5

*TB - throwing the ball behind the back*

| MARK | PERFORMANCE DESCRIPTION   |
|------|---|
| 2    | <i>Successfully performs the test on the first attempt</i>                              |
| 1    | <i>Successfully performs the test on the second attempt</i>                             |
| 0    | <i>Successfully performs the test on the third attempt or fails to perform the test</i> |



• **CRITERION FOR ASSESSMENT OF POSTURAL STATUS**

**- EVALUATION OF THE PHOTOGRAPH OF THE FRONTAL PLANE**

| <b>MARK</b> | <b>PERFORMANCE DESCRIPTION</b>   |
|-------------|--|
| 2           | <i>Major deviation from proper body posture (two or more body segments deviate)</i>                        |
| 1           | <i>Minor deviation from the correct body posture is observed (one or two segments of the body deviate)</i> |
| 0           | <i>Normal body posture</i>   |

**- EVALUATION OF THE PHOTOGRAPH OF THE SAGITTAL PLANE**

| <b>MARK</b> | <b>PERFORMANCE DESCRIPTION</b>   |
|-------------|--|
| 2           | <i>Major deviation from proper body posture (two or more body segments deviate)</i>                        |
| 1           | <i>Minor deviation from the correct body posture is observed (one or two segments of the body deviate)</i> |
| 0           | <i>Normal body posture</i>   |



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## • ***INTERPRETATION OF THE RESULTS***

Based on the sum of the results of all five tests (total score), the level of physical skills of a child can be classified as average, below or above average.

Norms for the determination of the child's physical skills level.

| <b><i>PERFORMANCE DESCRIPTION</i></b>                  |                             |                       |                             |
|--|-----------------------------|-----------------------|-----------------------------|
| <b><i>HOPASUS<br/>test battery<br/>total score</i></b> | <b><i>Below Average</i></b> | <b><i>Average</i></b> | <b><i>Above Average</i></b> |
|  | <i>&lt;5</i>                | <i>5-8</i>            | <i>9-10</i>                 |



CHAPTER N.7

# Partners on project



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# Partners on project

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**The NATIONAL UNIVERSITY OF PHYSICAL EDUCATION AND SPORTS - UNEFS (Romania) in Bucharest** was established by the Law on Physical Education promulgated on 15 June 1923 and published in the Official Gazette no. 59 of 17 June 1923, under the name of NATIONAL INSTITUTE OF PHYSICAL EDUCATION (INEF). This name has changed during its existence up to the current one, attributed by the approved amendments to the Government Decision no. 749/2009 and published in the Official Gazette of Romania, 1st Part, of 12 October 2009.

The first class of physical education teachers graduated in 1926 and, among them, many were to become remarkable personalities in the field.

Since its establishment, the classes of graduates have succeeded uninterruptedly and, throughout the years, great athletes, honoured coaches, successful managers and businessmen in various areas, people with responsible positions, institution leaders in our field and not only, true ambassadors of Romania, studied, trained or completed their training in this institution.

In the European Union classification system, UNEFS is defined as an “A” level education and research institution that brings together all basic areas of scientific knowledge related to man, education, health, culture and society. Study programs are in line with the Bologna Process, and the University has been awarded the Erasmus University Charter, having partnerships with universities from the European area.



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**Association Walktogether (Bulgaria)** is focused on community based projects and together with its youth leaders, trainers and youth workers we promote non-formal education as a supplementary education of the formal education. We work with different EU programs such as Europe for Citizens, Erasmus + and others local funds from the Ministry of Education in Bulgaria on topics that focus on social – economic development, wellbeing, sport, and on other subjects that are coming out of the youth and adult learners' needs, including people with fewer opportunities (cultural and social obstacles).

At local level, the organization cooperates with several schools and University, the Erasmus Student Network Bulgaria and National Youth Centres.

**Association Sports diagnostic center Sabac (Serbia)** is a voluntary, non-governmental and non-profit association, established for an indefinite period to achieve goals in sports, physical education and recreation. SDCS is located in Sabac city in Serbia. SDCS is a scientific and research organization with the priorities in the field of sport, physical education and recreation, as well as non-formal education, e-learning, pedagogical approach to new and innovative didactic methods, with the focus on the scientific and academic approach for problem-solving (added value to projects). Our main activities are in connection with the research process and data collection, analysis, testing, monitoring, data evaluation and standardization.

We work to develop and improve sports and physical education with these activities:





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1. Periodic monitoring of physical abilities of children, youth, athletes and adults
2. Control of training of children, youth and athletes, advisory role
3. Scientific research work
4. Publication of a scientific research paper
5. Education of children, youth and athletes
6. Advisory role to sports coaches and physical education teachers
7. Connecting and exchanging information with domestic and foreign associations and institutions in the field of sports, physical education and recreation
8. IT documentation activity, storage and maintenance of databases

**Tavo Europa (Lithuania)** is more than just another NGO working on the development of society by making those choices. It is a platform that gathers youth and different kind of experts who work together. We are home for the knowledge-hungry professionals that deeply care about their job, about career development and about youth. This is a safe place where non-formal education methods meet different environments and miracles really begin to happen. Teachers, trainers, instructors, researchers, activists and youth leaders gather together to make the choice – bring a positive change, while giving the floor to youth and helping them advance their major skills. Life is all about making choices, but to help youngsters make the right ones, we provide tools and methods striving to create a stronger link between youth mobility experience and further professional prospects.

Through various projects and different local activities, we are looking for new ways of how educational activities can meet the demand of new generations. In a liquid, constantly changing and evolving environment such as the nowadays age of knowledge that we are living in, it is essential to readjust the teaching-industry relationship, while experimenting with new ways of learning, thus making new great and better choices than ever before.



CHAPTER N.8

# About the authors



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# About the authors

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**Dragana Drljačić, Ph.D** is a professor of vocational studies at the College of Sports and Health - Belgrade, Serbia, and research coordinator of PYSD project. She was born in Sabac, Serbia, where she finished primary, and secondary medical school. At the Faculty of Sports and Physical Education, University of Belgrade she completed her undergraduate and doctoral studies (study program Experimental Research Methods in Human Locomotion) and acquired the title of Doctor of Science in the field of Physical Education and Sports (narrower professional field of motor control).

During her professional career, she worked as an assistant in the field of Physical Education at the pre-school teaching training college, physical education teacher, gymnastics coach, aerobics and Pilates instructor, personal trainer, animator and nurse.

She is an active member of the Association Sports Diagnostic Center Sabac - Sabac, Serbia, where she is engaged in the role of a scientific researcher. As a researcher, she has participated in several national and international projects and is the author of a number of scientific papers presented at international conferences and/or published in international and domestic journals. As an invited lecturer, she participates in seminars for coaches in sport. She is a reviewer of the Serbian national scientific journal Sport, Science, Practice.

**Milan Djupovac** is a teacher of physical education, born in Sabac, Serbia, with more than ten years of experience in sport as a sport worker. Beside diploma in sport studies, he is physiotherapist. Currently working as private entrepreneur in construction.



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When he was young, he had an active sports career as a kayak racer (sprint, flat water kayak racing) and triathlete.

He is president of Sport Diagnostic Center Sabac and is in charge of communication, promotion and research coordination activities.

Last years, he was involved in Erasmus+ projects, as well as in research and scientific work in several projects: Grow healthy - Sport in schools, Kinesiology Lab, Falcon Eye, etc...

**Aleksandar Ivanovski**, Ph.D. is a professor of vocational studies at the College of Sports and Health - Belgrade, Serbia and involved in coordination and organization of children's festivals, recreation and communication camps for children and adults, various competitions, management of sports clubs, management of associations for recreation animation and team building, organization of classes at the College of sport and health, on subjects sport and tourism and tourism and pedagogical practice, corporative games, traditional games etc.

Over 80 scientific works, 2 books written. Participation on several domestic and international projects.

**Adina Geambașu**, Ph.D University Lecturer is a professor of Physical Therapy Faculty at the National University of Physical Education and Sport - Bucharest, Romania, and the coordinator of HopaSus Project. She is also the Manager of the Health and Goodwill Workshop - health and sport clinic. She completed her undergraduate and doctoral studies in Art domain and acquired the title of Doctor of Science in the field of Physical Education and Sports (narrower professional field of motor control and development for disabled poor sight children).

During his professional development, he attended national and international training courses in the field of sports, occupational therapy, physical therapy, sociology, medicine, and art.



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During her professional career, she worked as an assistant in the field of Physical Education and Physical Therapy in the educational area from pre-school teaching to university grades; also, as physical education teacher and physical therapist in medical private clinics and hospitals, in fitness centers, using her theoretical and practical skills in the help of development and healthy life of children and adults. More than 50 articles and works developed, and 14 professional books as sole author or in collaboration, from the field of physical education and sports, physical therapy, psychology, sociology and medicine, published in national/international specialized journals (including ISI quotes or indexed in international databases), publishing houses or presented at scientific sessions abroad/domestic, with international participation. Research activities within the Fun Fitness-Special Olympics programs. Member of the research teams of the various CNCSIS Grants “Curricular design models for adapted and inclusive physical education”, “The influence of practicing physical exercises on the moral development of institutionalized children”, “Curricular design models for adapted and inclusive physical education”. Reviewer of the Discobolul Sport Medicine and Science Romanian Journal.

**Ida Valkova**, a part of Association WalkTogether Bulgaria, was one of the people responsible for the design outlook, photo materials and overall visual aspect of the guide.

**Greta Paskočiumaitė** PhD in humanities, active participant of international conferences and author of scientific research. In addition to academic activities, she has been organizing youth summer camps and implementing various commemoration and perpetuation initiatives in Lithuania for ten years. Greta is also a project manager of the non-governmental organization "Tavo Europa", mainly working with international strategic partnership projects. Working with different youth groups is Greta's daily routine, so she is constantly improving her skills and strengthening her competences, as well as looking for different ways of approaching the needs of young people.

**Giedrė Sakalauskaitė** part of Association Tavo Europa, a communication manager, responsible of research and video editing in HopaSus videos.



CHAPTER N.9

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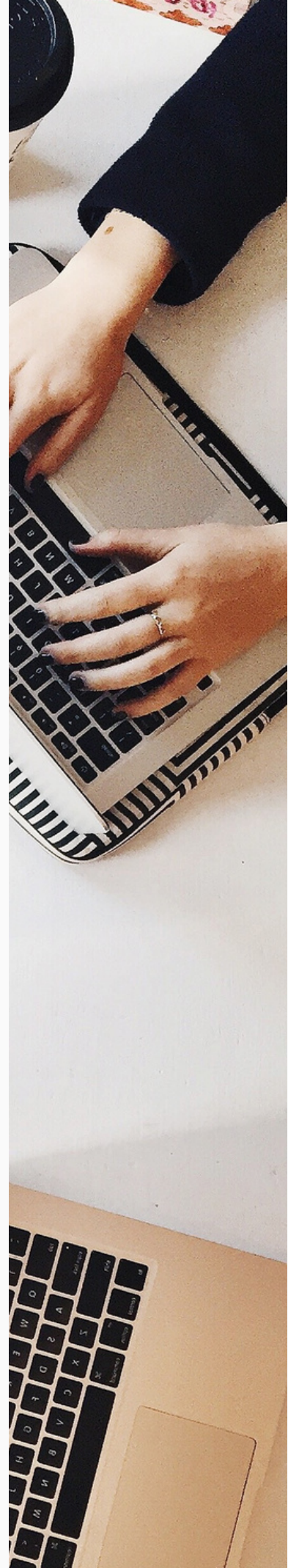
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ANNEX N.1

# HopaSuS questionnaire



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# HopaSuS questionnaire

## **SURVEY ON CHILDREN'S HABITS REGARDING PHYSICAL ACTIVITY AND VIDEO GAMES PLAY**

Dear Parents/Guardians,

This survey is conducted within the project "HOPASUS - A project on how to use sport video games in education" (original name "HOPASUS - A project on how to use sport video games in education"), which is financed by the European Commission through the Erasmus+ program (ERASMUS-SPORT-2021-SCP, no. 101049653).

HOPASUS was born from the need of teachers and youth workers from four European countries to develop their digital skills and become more resilient in times of pandemic using sports video games in their virtual classrooms or in direct work with children (in traditional classes).

Within the scope of the project, research is planned, which is realized in two identical sessions - initial and final testing, which are carried out before and after the implementation of the recommendations given by the research team.

### **THE SESSION CONSISTS OF:**

#### *1. SURVEYS ON CHILDREN'S HABITS REGARDING PHYSICAL ACTIVITY AND PLAYING VIDEO GAMES*

The questionnaire is filled in by the parents. It takes about 5 minutes to answer all the questions.



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**HopaSuS**

## 2. PHYSICAL CHALLENGES

Five complex exercises (short physical challenges) are used to assess the level of physical skills, which are videotaped by parents (in some cases, a teacher, coach, youth worker or HOPASUS coordinator).

## 3. ASSESSMENTS OF BODY POSTURE

Body posture assessment is performed using the photogrammetry technique via a digital tablet/mobile application, which can reconstruct body posture from a photograph. For this purpose, we will photograph a barefoot child dressed in sports equipment.

All personal data are anonymous, and the results will be treated as confidential content that will be processed and presented at the level of group achievement. Only members of the professional association "Sports Diagnostic Center Šabac", Serbia ([www.sdcs.org.rs](http://www.sdcs.org.rs)) have access to completed questionnaires and other collected data.

### • RISKS AND DOWNSIDES OF TESTS

The downsides of the applied tests have not been recorded so far.

### • PARTICIPANT RIGHTS

Parents and children have the right to refuse or withdraw from research at any time. The tests do not contain information about the identity of the child and the results do not refer to the individual assessment of the child.

### • CONSENT

I am familiar with the research in the HOPASUS project, I understand its meaning and importance, and I am also aware that my child's rights will not be abused.

By moving to the next page of the survey, I agree to my and my child's participation in research that is part of the HOPASUS project.



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*Where are you from?*

- Romania
- Bulgaria
- Serbia
- Lithuania

*Place of residence?*

- Urban
- Rural

*Your gender?*

- Male
- Female

**THE FOLLOWING QUESTIONS OF THE SURVEY REFER TO YOUR CHILD**

*Your child's gender?*

- Male
- Female

*How old is your child?*

- 11 years
- 12 years
- 13 years
- 14 years
- 15 years

**- PHYSICAL ACTIVITY**

*How does your child usually go to and from school?*

- By walking
- By bicycle
- Using a means of transport (car, bus, etc.)





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*How many kilometres does your child usually travel to school and back (in total)?*

- Up to one kilometre
- 1–2 kilometres
- 3 kilometres and more

*Does your child practice any sports?*

- Yes
- No

*How often does it practice during the week?*

- Once a week
- 2–3 times a week
- More than 3 times a week

*Does your child usually participate in physical activities outside of regular physical education classes at school (e.g. playing in the park, playing soccer with friends, etc.)?*

- Yes
- No

*How often during the week does your child participate in physical activities outside of regular physical education classes at school?*

- Once a week
- 2–3 times a week
- More than 3 times a week

## **- VIDEO GAMES**

*Does your child play video games?*

- Yes
- No



*According to your knowledge, how often is this present during the day?*

- 1–2 hours
- 3–4 hours
- More than 4 hours

*How many days a week is it present?*

- 1–2 days a week
- 3–4 days a week
- More than 4 days a week

*How often does it practice during the week?*

- Once a week
- 2–3 times a week
- More than 3 times a week

*Does your child play video games more on weekends or on weekdays?*

- On the weekends
- On weekdays
- I'm not sure

*Does your child's posture while playing video games more closely match the position in **Image A** or the position in **Image B**?*



- Image A
- Image B
- I'm not sure



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## ***HOW MUCH DO YOU AGREE WITH THE FOLLOWING STATEMENTS?***

*I only allow my child to play video games at certain times of the day.*

- Yes
- No
- I'm not sure

*I am able to control the time my child spends playing video games.*

- Yes
- No
- I'm not sure

*My child likes to talk to me about video games (about the content, his/her experience while playing video games, etc.).*

- Yes
- Not
- I'm not sure

*My child likes to imitate characters or events from the video games he plays.*

- Yes
- Not
- I'm not sure

*My child prefers playing sports video games to playing sports.*

- Yes
- No
- I'm not sure



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*I BELIEVE THAT VIDEO GAMES WITH SPORTS CONTENT, IN WHICH MY CHILD'S TASK WOULD BE A CERTAIN PHYSICAL EXERCISE IN ORDER TO ACHIEVE THE BEST POSSIBLE RESULT IN THE GAME (HIGHER NUMBER OF POINTS, MOVING TO ANOTHER LEVEL, ETC.) WOULD HAVE A POSITIVE EFFECT ON THE IMPROVEMENT OF MY CHILD'S PHYSICAL ACTIVITY.*

- Yes
- No
- I'm not sure

**Thank you for participating in the survey.**



ANNEX N.2

# Log book



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**HopaSuS**

# Log book

| HOPASUS<br>RECOMMENDATIONS  | DEGREE OF APPLIED RECOMMENDATION |                |                 |                              | NOTES |
|---|----------------------------------|----------------|-----------------|------------------------------|-------|
|   | NOT<br>APPLIED                   | ONCE A<br>WEEK | TWICE A<br>WEEK | MORE THAN<br>TWICE A<br>WEEK |       |
| Familiarize yourself with children's favourite digital content                          |                                  |                |                 |                              |       |
| Understand children's needs but follow your goals                                       |                                  |                |                 |                              |       |
| Be physically active and speak about sport when you are with children                   |                                  |                |                 |                              |       |
| Actively listen to your children, show them trust, appreciation and empathy             |                                  |                |                 |                              |       |
| Avoid "over" explanations regarding video games and the importance of sports activities |                                  |                |                 |                              |       |



ANNEX N.3

# Why doing sports is good



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# Why doing sports is good

The field of motor activities is extremely important for the development of young people from early childhood. Proper eating patterns and regular physical activity are just two key factors that should be primary in the field of public health and prevention of poor health and hygiene habits of youngsters. Having an adequate level of motor capacity is associated with many health benefits such as higher levels of physical activity, better cardiorespiratory capacity, better and healthier self-perception and lower risk of obesity (Laukkanen et al., 2014), so by participating in physical activities, young people can prevent many health problems (Janssen & LeBlanc, 2010; Williams et al., 2008). Youngsters with active lifestyles who practice extracurricular physical activities throughout the year maintain and raise their own level of fitness compared to those who nurture sedentary patterns of behaviour (Ara et al., 2006).

Unfortunately, the age we live in is characterized by an alarmingly low level of caloric consumption of all age groups, rapid scientific and technological development, lack of sense of play, rapid urbanization, desocialization caused by overcrowding and fast life, depression in the growth phase and lack of space for play. This is especially present in cities that force youngsters to isolate and reduce the possibility of gaining adequate motor experience and socialization through playing in a group (Carlson et al., 2012). Even very young children find fun in static activities such as mass and excessive use of mobile phones, watching television programs and playing computer games. Confirmation of these claims are the results of foreign studies that indicate a declining trend in children's physical activity (Colley et al., 2011; Troiano et al., 2008).

While sedentary patterns of youth behaviour have been associated with various health implications (Fairclough et al., 2009; Vandewater, Shim & Caplovitz, 2004; de Winter et al., 2018), youngsters with a better aerobic form have a lower risk of obesity and metabolic syndrome (Paley & Johnson, 2018). Children and adolescents who have a higher level of physical activity are less likely to have symptoms of depression, anxiety, or fewer symptoms (Hrafnkelsdottir et al., 2018).





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Which also shows how important physical exercise is in growing up young, later human (Korczak, Madigan, & Colasanto, 2017). An extremely sensitive period important for the formation and development of personality is the period of childhood, therefore children's play should be a central and leading activity in order to influence the integral development of personality with its positive action. In addition, the period of adolescence is critical for acquiring patterns of behaviour that are directly correlated with the reduction of risk factors for the occurrence of chronic non-infectious diseases (Rodrigues et al., 2013), therefore movement(s) and motion are considered to be the basis of all important areas of child development, social, developmental, emotional, cognitive and physical. Through physical activities, young people meet the basic bio-psycho-social needs for physical activities and play, develop and form a proper attitude and attitude towards exercise and create healthy habits. Therefore, the process of socialization in the family has a huge impact on the physical exercise of young people.





ANNEX N.4

# HopaSuS mascot



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# HopaSuS mascot

Hello! Let us introduce you, our HopaSuS mascot. HopaSuS is a robot-computer that likes physical activity. It is creation that motivates children to play sports and be physically active.

For more HopaSuS fun, find HopaSuS Viber and WhatsApp stickers!

Children had a lot of fun with HopaSuS fun during its presentation in Romania and Serbia:





ANNEX N.5

# HopaSuS tutorial videos



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# HopaSus videos

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The HopaSus project aims to inspire young people to participate in sports activities. Summarizing all the information in this booklet can be challenging, so we've prepared several videos to assist you.

Below, you'll find videos that provide insight into the project, its purpose, and goals. You'll also discover examples of games designed to promote an active lifestyle, along with explanations of why and how to implement them effectively.

In the preceding pages, we delved into various aspects of the project itself. In the following section, our focus shifts to games, offering insights into their context, specifics, and related topics.

Parental involvement and engagement are key, playing together and discussing the skills learned from the games. Multiplayer or cooperative games can provide opportunities for social interaction and teamwork. Examples of video games that encourage physical activity include "Just Dance," "Ring Fit Adventure," "Wii Sports," "Kinect Sports," "Just Dance Kids," "Zumba Fitness," and "Pokémon GO." Research is important to find games that align with a child's interests and passions. Scrutinize reviews and ratings to ensure the games effectively foster physical exercise. Seek motion-controlled games that require physical engagement. Prioritize multiplayer or cooperative games that facilitate a collective pursuit of physical activity. It is essential to maintain a balanced lifestyle and engage in meaningful dialog with the child to personalize their gaming experience. Remember to foster an environment of motivation and support for their commitment to sports alongside gaming pursuits.



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## **MARIO SERIES**

Great choices for beginners and younger players (ages 5-11) include titles from the Mario Series, such as Mario Tennis, Soccer, and Hot Shots Golf. These games feature vibrant animation and emphasize basic actions. For a list of games suitable for somewhat older players, check the tables on the side.

Find out more: <https://supermario-game.com>

## **JUST DANCE**

The "Just Dance" series: This beloved franchise delivers dance-centered gameplay, inviting players to replicate on-screen choreography to earn points. It promotes physical activity and caters to a broad spectrum of age groups. As a result, children can easily find music they enjoy and express themselves through movement or simply dance along with the character demonstrating the moves.

Find out more: <https://justdancenow.com>

## **KINECT SPORTS**

"Kinect Sports" series: Exclusively available on Xbox and harnessing the power of the Kinect sensor, the "Kinect Sports" games provide a variety of activities including soccer, track and field, boxing, and more. Players become the controller, fully engaging in physically active gameplay.

Kinect Sports: This game collection features sports-themed mini-games such as soccer, track and field, bowling, and more, using their bodies to control the game.

Find out more: <https://www.metacritic.com/game/kinect-sports/>

## **POKEMON GO**

"Pokémon GO": This mobile augmented reality game encourages players to explore their surroundings while capturing Pokémon creatures. It integrates physical activity, requiring players to walk or run as they navigate the real world in search of Pokémon to discover and catch. Game has a potential to not only let a kid to be active, but get to know the surroundings as well as walking and trying to "catch" the characters in the game.

Find out more: <https://pokemongolive.com/>



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### **I'M PING PONG KING**

"I'm Ping Pong King" is a very fun and exciting table tennis game. The goal of this game is to beat 16 rivals and win the crown. A digital ping pong game can certainly improve a child's desire to be more active by making the activity engaging, fun, and accessible.

Find out more: <https://abduzeedo.com/node/85238>

### **GRAND MOUNTAIN ADVENTURE**

"Grand Mountain Adventure": Wonderlands lets you explore freely and at your pace entire ski resorts and the surrounding mountains. Unlock ski lifts and reach new areas by competing in challenges, or enjoy the scenery while you find your own path down the mountains.

Find out more: <https://www.toppluva.com/GrandMountainAdventure/>

### **FIE SWORD PLAY**

"FIE SwordPlay" - it's first mobile game with real athletic rules for fencing with foils, swords, and sabers, learn real techniques — from simple thrusts to powerful lunges and devious feints. By combining technology, gamification, real-time feedback, and immersive experiences, these games ignite children's desire to participate in physical activities, promoting a healthier and more active lifestyle.

Find out more: <https://fie.org/articles/404>

### **ZUMBA FITNESS**

"Zumba Fitness" series: Based on the popular fitness program, the "Zumba Fitness" games offer virtual dance workouts set to energetic Latin and international music. Players follow along with the on-screen routines, promoting aerobic exercise and rhythm.

Find out more: <https://www.metacritic.com/game/zumba-fitness/>



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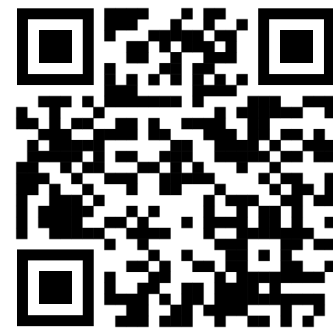


# HopaSuS

## HopaSuS tutorial videos



### 1. WHAT YOU DIDN'T KNOW ABOUT HOPASUS PROJECT



### 2. EXAMPLES ON ACTIVE GAMES FOR ENCOURAGING PHYSICAL ACTIVITY







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# HopaSuS

### 3. WHY IS IT USEFUL TO USE VIDEO GAMES TO ENCOURAGE ACTIVENESS IN KIDS?



### 4. HOW TO INCLUDE VIDEO GAMES IN PHYSICAL EDUCATION EFFICIENTLY





ANNEX N.6

# Good practice examples



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# Good practice examples

- **PROJECT: GAME IN SCHOOLS**

Source: <https://www.isfe.eu/games-in-society/education/about-games-in-schools/>

Led by [European Schoolnet](#) on behalf of ISFE, Games in Schools is a project designed to train teachers and educators across Europe on how to use video games as pedagogical support in the classroom. The project's outputs included a Massive Open Online Course (MOOC) about Games in Schools, a selection of teacher-created lesson plans, and a handbook for teachers on using video games for educational purposes. The project is based on the results and findings of an earlier project on games in schools, summarized in the [Games in Schools report published in 2009](#).



- **VIDEO GAME: REACH FOR THE SUN**

[https://store.steampowered.com/app/248290/Reach\\_for\\_the\\_Sun/](https://store.steampowered.com/app/248290/Reach_for_the_Sun/)

Behind all those leaves, roots, and petals is an intelligent bio-machine of starch, nutrients, and water. Take over a flower's seedling to help it grow and reproduce before winter approaches. Carefully gather and manage three key resources needed to create flowers and fruits. You'll never look at these organisms the same way again!





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- **PROJECT: PLAY THE LEARNING GAME**

Source: <https://learninggame.pixel-online.org/info/>

The aim of the Play The Learning Game project is to enhance teachers and trainers capability to use and combine Video games, Multimedia and e-learning and in order to make learning more attractive and promote and enhance the involvement of pupils and trainees in Lifelong Learning



- **VIDEO GAME: FOOYA**

Source: <https://www.lab-of-tomorrow.com/health%20games>  
<https://www.fooya.com/>

When we compare a group of children who played Fooya to a control group who played a board game, we observe a positive and statistically significant difference in their actual food choices at the end of the game,” said Padman. By examining clickstream data—that is, the behavioural data generated by users clicking within the game—Padman and her team are looking for patterns that indicate how children engage with the game and what patterns of clicking may point to healthier food choices after playing. “We’re seeing some interesting patterns in game mechanics and dynamics, such as variations in the number of levels, features played, and range of actions at each level, and associations between those variations and the kids’ actual food choices,” said Lin.



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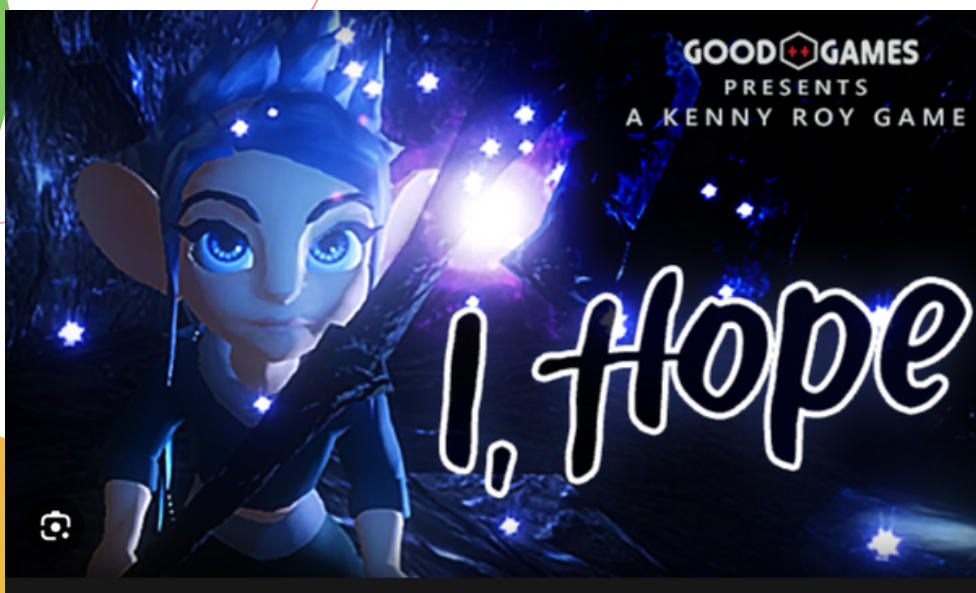
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- VIDEO GAME: *I HOPE*

[https://store.steampowered.com/app/448960/I\\_Hope/](https://store.steampowered.com/app/448960/I_Hope/)

*I, Hope* is a beautiful coming of age adventure story about a young girl named Hope, whose town has been taken over by Cancer. The game is engaging for all, yet for survivors and children who are currently battling cancer, the game is empowering. The developer has truly set out to make a game that kids can play while receiving cancer treatments; something to distract them, but at the same time, put them back in control of their battle. In addition to this being a great game, the developer is donating all their proceeds from the game to Game Changer Charity, a wonderful non-profit organization whose mission is to spread hope and love to children staying in hospitals.



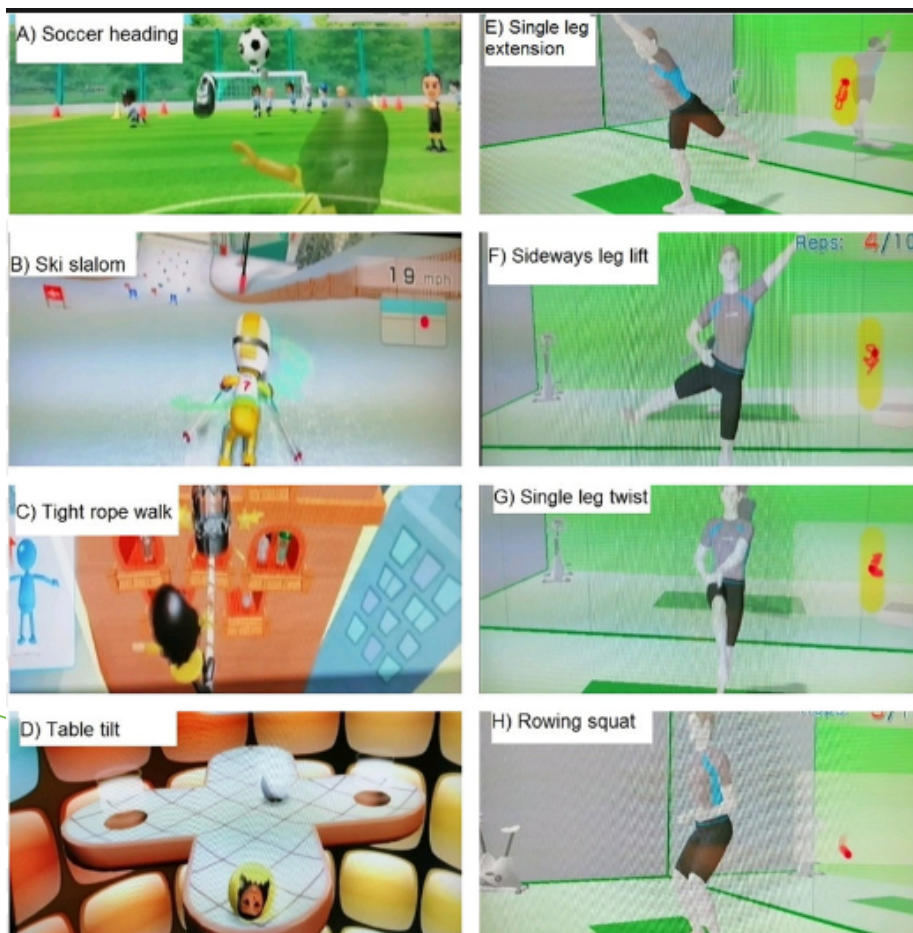


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- VIDEO GAME: **WII FIT GAMES**

[https://journals.lww.com/nsca-jscr/Fulltext/2011/03000/Metabolic\\_Responses\\_to\\_Wii\\_Fit\\_Video\\_Games\\_at.16](https://journals.lww.com/nsca-jscr/Fulltext/2011/03000/Metabolic_Responses_to_Wii_Fit_Video_Games_at.16)

The Wii Fit™ is a form of interactive gaming designed to elicit health and fitness benefits to replace sedentary gaming. This study was designed to determine the effectiveness of Wii Fit™ fitness games. The purpose of the study was to determine the %O<sub>2</sub>max and energy expenditure from different Wii Fit™ games at different levels, including the step and hula games. Findings suggest that the Wii Fit™ can be used as an effective activity for promoting physical health in this population.





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# Practical advices

Video games have gained immense popularity among students, captivating their attention with intense action scenes and fast-paced scenarios. While the negative aspects of certain games, such as violence, should be avoided in an educational setting, this essay explores the potential benefits of selectively applying the constructive aspects of video games. Specifically, the focus is on utilizing motion-rich games to stimulate students' sense of mobility and enhance their appeal to physical activity. By carefully selecting and filtering games, and even creating dynamic educational games, the education system can harness the positive attributes of video games to promote a sense of movement, adventure, and physical engagement while nurturing essential cognitive skills.

## • THE POSITIVE IMPACT OF MOTION-RICH VIDEO GAMES

Many video games feature dynamic and action-packed scenarios, making them ideal tools to promote students' sense of movement and physical engagement. By incorporating motion-rich games into the educational framework, students can develop a greater perception of their own motor skills and the world around them. These games allow players to interact with their surroundings, undertake adventures, and experience diverse situations and action scenes. Such experiences foster a positive perception of physical activity, encouraging students to explore their own physical capabilities.

### • ENHANCING COGNITIVE SKILLS

Motion-rich video games not only stimulate physical activity, but also have the potential to enhance various cognitive skills. Games that promote focus, memory, logic, and problem-solving abilities can be effectively integrated into the curriculum. By strategically selecting games with educational value, teachers can ensure that students are not only physically active, but also develop critical cognitive abilities necessary for their overall growth and success.

### • AVOIDING NEGATIVE ASPECTS

While embracing the positive aspects of video games, it is crucial to avoid incorporating content that may have detrimental effects on students' psychological development. Games featuring excessive violence, sad stories or scenes that promote bad manners should be excluded from the educational context. By establishing strict filtering criteria and guidelines, educators can ensure that only appropriate motion-centric games are selected for implementation, focusing solely on those that align with educational objectives and promote positive values.



ANNEX N.7

# Practical advices



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## PHYSICAL ACTIVITY

Age 11 often means [big physical changes](#). For girls, [puberty](#) may have already started.(3) “In many girls, physical changes of puberty start around 11,” says Rolanda Gott, MD, a developmental-behavioral pediatrician at UCLA Health in Southern California. “These changes are breast development, axillary and pubic hair, body odor, acne, and growth spurts.”

The American Academy of Pediatrics (AAP) and the Centers for Disease Control and Prevention (CDC) recommend that teens get at 60 or more minutes of [physical activity](#) daily and engage in bone and muscle strengthening three times weekly.(8) This physical activity should include a good amount of aerobic activity. Playing sports, riding a bike, or jogging are aerobic activities your tween might enjoy.

Muscle-strengthening activities are also important. Some teens may show an interest in [lifting weights](#) or performing strength training exercises. Tweens should also participate in bone-building activities. Basketball, jumping rope, or running can all help build bone strength.(9)

Don't forget to [incorporate physical activity](#) into your family life, too—and do your best for it to be fun. Go for a family walk in the evenings, play a sport together, or go for bike rides on the weekends. Keep in mind that your child will learn healthy habits by watching you, so aim to be a good role model when it comes to physical activity, says Dr. Pressman.(10)



[Body image issues](#) are common during the tween years, so it's important to emphasize exercising to stay healthy and to build strong bones, rather than to lose weight or look better.(7) In general, refrain from talking about dieting or commenting on your child's body, positively or negatively, says Dr. Pressman. "Instill the message that their bodies are instruments, not objects."



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## *DISCIPLINE AND BOUNDARIES*

There may be times when your tween needs boundaries to be reinforced through [discipline](#) or [removal of privileges](#). "A middle road approach, like with the authoritative parenting style, is generally best," recommends Dr. Sheff. This means not being too permissive or too authoritarian, but rather considering your child's viewpoint and feelings while also maintaining boundaries and structure.



They might insist they know everything or claim that they'll only take care of their responsibilities such as homework and chores on their own terms. Asserting themselves is a tween's way of trying to gain a measure of independence.(12)

When this happens, you can give your child an opportunity to [develop autonomy](#) by helping them to brainstorm solutions, such as offering them choices, says Dr. Pressman. Ask them, "Do you want to clean your room before dinner or after?" Just make sure you can live with either choice.(13)

Tweens should have the skills to do most [routine household tasks](#) at this age. Appropriate chores for 10 to 12-year-olds include emptying the dishwasher, washing windows, mopping floors, vacuuming, and cleaning the bathroom. If you're going to allow your tween to use household chemicals or do any cooking, discuss safety precautions first.(1)

Dr. Pressman suggests using this rule of thumb when deciding how much support your tween needs for daily tasks: "If they are capable of doing it themselves, then let them do it. If they can do it with a little help, then offer that guidance. If they have no idea what to do, then you need to teach them, so they learn how to do it."

A [chore chart or contract](#) can be a helpful way of reminding your tween what you expect of them, as well as reducing the urge for you to [nag or repeatedly remind them](#) to do their chores. (14)

You may also want to offer incentives and rewards when your tween does their chores without being asked or offers to do extra work. Possible rewards could include extra privileges (such as screen time) or an [allowance](#) for a job well done.(15)



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## *DIET AND NUTRITION*

Your [child's nutrition](#) is important to their overall physical and mental health. Encourage your child to eat a variety of fruits, vegetables, lean meats or plant-based protein sources, whole grains, and healthy fats.(3)

Focus on supporting a healthy relationship with food and their ability to listen to their bodies, says Aliza Pressman, PhD, an assistant clinical professor of pediatrics and psychologist at Mount Sinai Kravis Children's Hospital in New York City. Aim for meals with more whole foods over processed foods, particularly those with lots of [added sugar](#) and sodium.(3)

It's common for teens to experience fluctuations in their appetite. Growth spurts can lead to an increase in nutrient needs and hunger, causing children to naturally want to eat more on some days than others.(4)

The updated Dietary Guidelines for Americans, published in 2020 by the U.S. Department of Agriculture (USDA) and Health and Human Services (HHS), provides the following nutrition recommendations for teens(5):

- Balance food intake with physical activity.
- Choose foods low in saturated fat and cholesterol.
- Consume enough [calcium](#) and [iron](#) to meet their growing body's requirements.
- Consume sugar and salt in moderation.
- Eat a variety of foods.
- Eat plenty of whole grains, vegetables, fruits, lean protein, and dairy foods.

Stock the kitchen with nutrient-dense meal and snack options. Encourage your tween to drink water over sodas. Reserve foods that are high in saturated fat, sugar, and salt (such as chips, soft drinks, and ice cream) for special occasions.

Try to eat dinner together as a family as much as possible. Make mealtimes enjoyable for everyone, and leave the smartphones and devices in the other room, suggests Dr. Pressman



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Additionally, don't force your tween to eat any specific foods. At the same time, remember that there is no need to create a separate meal for your child if they don't like what you're serving. Simply offer meals that consist of a variety of options and allow them to choose what they would like. A vital part of encouraging a healthy relationship with food in teens is reducing the risk for disordered eating and eating disorders. Avoid talking about food in terms of "good" versus "bad" or "clean" versus "junk." Instead, opt for language that focuses on taste and nutrient value, as well as how eating certain foods makes them feel and can fuel their energy level.(6)

Also, avoid using food to bribe or reward your tween, suggests Dr. Pressman. Plus, don't make an issue out of their eating habits if they are a picky eater. Focusing too much on food preferences can make highly selective eating worse-and increase the risk of eating disorders and negative body image.(7)



## ***AROUND THE HOUSE***

Tweens enjoy spending increasing amounts of time [socializing with their peers](#) at this age, and their friends' opinions and influence become more important, says Dr. Pressman. While they're still interested in family time, they might be inclined to drop their family plans if a friend calls. This doesn't mean that you aren't special to them.(11)

In fact, it probably means the opposite. Knowing you will always be there for them, your child feels free to spend time with their friends and come back to relax with you later. "Be their safe space," says Dr. Pressman, who advocates for encouraging your child's emerging autonomy, socially and in other spheres of everyday life. Take it as a sign that you're doing a great job as a parent!

Even if your tween seems eager to hang out with friends at every opportunity, you shouldn't give up on [family fun nights](#), says Dr. Sheff. Your child still enjoys—and needs—time set aside to spend with you.



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"Strike a balance between allowing your tween to branch out while remaining rooted in the family. Allow them some privacy, especially with friends, but still make time for family activities," explains Dr. Sheff.

Whether you play board games, participate in physical activities, or explore new places, doing activities together is a [great way to bond](#) with your child, no matter their age. Dr. Sheff also recommends getting involved with your tween's school.

"Teachers often see another side of our teens in the classroom that's not always present at home," says Dr. Sheff. "They can be a source of valuable information regarding your tween's behaviour, and are particularly helpful when concerns about mental or physical health arise."



## ***STAYING HOME ALONE***

Some teens are mature enough to [stay home alone](#) for short periods of time. However, not all children feel comfortable without adult supervision at this age. It's best to talk with your child to see how they feel about the idea and to consider their level of responsibility and independence before deciding to leave them at home alone.(17)

"Every kid is different, and every caregiver is going to know if their child will thrive more with more or less supervision and structure," says Dr. Pressman. So, you as the parent are in the best position to decide what rules and freedoms are best for your tween.





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## ***SLEEP***



The AAP recommends that teens get between [9 and 12 hours of sleep](#) each night. However, with school, homework, friends, extracurricular activities, and technology all competing for their time, many teens fall short of that goal.(25)

Sleep is very important at this age for physical and mental development, emotional wellness, and learning ability. If your child goes to bed too late night after night, sleep deprivation can take its toll in every area of their life.(25)

To make sure your child has enough slumber time, take note of how much sleep your child is actually getting as well as their behaviour during the day, and then adjust their schedule accordingly. If your tween has difficulty waking up in the morning or trouble staying awake during the day, they may not be getting enough sleep.(26)

"It's a good idea to have kids place their phones, tablets, and laptops in a central location before going to bed, so they are not tempted to use them during the night," advises Dr. Pressman. Studies show that as screen time increases, particularly in the evenings, sleep problems increase as well.(27)

To improve your tween's sleep quality, it's best to limit evening screen time, too. Ideally, have your tween turn their devices off one to two hours before bed.<sup>28</sup> Make sure your tween has time to wind down from their day before turning in for the night. Effective pre-bedtime activities may include reading, listening to music, or taking a hot shower to help them relax before going to sleep.(25)



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## TECHNOLOGY

Many teens use [social media](#), have their own smartphones, and regularly use the internet. And while there are games, websites, and apps that provide educational content and social interaction, digital devices can also present many risks for teens.(28)

From cyberbullies to online predators, the unfiltered world of the web can be dangerous for young people. Teens who surf the web without adult supervision are likely to come across adult content that they are better off not being exposed to.(36)

[Sexting](#) can also become an issue during the tween years. Whether your child is the recipient or initiator of revealing photos, many young people use their digital devices inappropriately, unaware of the lasting effects their [behavior](#) can have on themselves and others.(37)

To lower the risk that your tween will encounter adult content or become the target of an online predator, [establish clear rules](#) to protect your tween's privacy. Explain that it's never acceptable or safe to share their current location, home address (or anyone else's address), social security number, birthdate, or names of family members with an untrusted or unfamiliar source.(36)

If you allow your child to use [social media](#), have them choose a nickname that is different from their real name, and limit online friends to people your child already knows. In addition, research the potential risks and benefits of any social media site before allowing your child to join.(36)

Explain what they should do if they ever receive messages that make them feel uncomfortable or come across offensive content. Request that they come to you and tell you what happened.(38) "You want your child to always feel comfortable talking to you, so aim to listen without overreacting or getting upset so that they will feel safe to do so when it really matters," says Dr. Pressman.



As noted above, it's a good idea to establish a common area of the home where your child can use their digital devices, and set time limits on when they can use them and for how long. Also, install [parental controls](#) to ensure your tween can only access kid-friendly content.(36)



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## ***SOCIAL AND ACADEMIC PRESSURE***

[Middle school](#) can be a tough time for teens. Not only are they striving to fit in with their peers, but their bodies are also growing and changing quickly. They are also adjusting to significant hormonal changes and gaining greater independence and responsibility.(16)



Many teens begin showing [interest in romantic relationships](#) and dating, says Dr. Pressman. It's important to hold ongoing conversations about healthy relationships, sexual activity, consent, the risks of STIs, acceptable behavior, and pregnancy prevention. You may have to be the one to start these discussions, but your child will likely open up and ask questions once you begin.(39)

Academically, there are new [challenges in middle school](#) compared to the younger grades. Even a tween who excelled in elementary school may find themselves having a hard time adjusting to the different teaching styles and expectations of middle school teachers.(40)

School can become markedly more challenging in middle school, and it's not uncommon for school avoidance to occur, explains Dr. Sheff. "If a child is not wanting to go to school or seems to be complaining about physical ailments to get out of attending, a parent should reach out to their pediatrician to investigate it further."

Once again, communication is key, says Dr. Pressman. Be sure your child feels comfortable talking to you about school issues or anxieties by regularly asking how they're doing and showing interest in their assignments and projects.(41)





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## ***HEALTHY CONNECTIONS***

[Extracurricular activities](#) can help your child find friends, [gain confidence](#), and develop new interests. Support your tween's interests, but don't be surprised if they switch activities (and friends) often as they discover what they're good at and what they enjoy the most.(42)

At this age, your tween is experimenting to find out more about themselves and [develop their own identity](#), says Dr. Pressman. Be patient and nonjudgmental as your child picks through the possibilities, and encourage your tween to try new things and seek out new experiences.



[Bullying](#) can be a big issue during the tween years. If your child becomes a target of bullying, they may feel embarrassed and ashamed, [not wanting to confide in you](#). Because of this, it's important to talk about bullying often and know [what signs to look for](#).(43)

Direct questions such as "Is anyone picking on you?" might be embarrassing to answer. Instead, try asking questions like, "Is bullying a problem at your school?" Your tween might be more open to talking about the subject in more general terms at first, explains Dr. Pressman.

Although no one likes to consider the fact that their child could be bullying others, it's important to be on the lookout for signs of this, too. Kids can be both victims and perpetrators of half of the bullying, and many teens admit they have bullied another child at one time or another.(43)

## ***STRATEGIES TO HELP***

There are many effective strategies that may help individuals cope with executive dysfunction. Here are just a few(1):



- Give clear step-by-step instructions with visual organizational aids. Children with executive dysfunction may not make logical leaps to know what to do. Be as explicit as possible with instructions. Use visual models and hands-on activities when possible. Adjust your level of detail based on the student's success.
- Use planners, organizers, computers, or timers.
- Provide visual schedules and review them at least every morning, after lunch, and in the afternoon. Review more frequently for people who need those reminders.
- Pair written directions with spoken instructions and visual models whenever possible.
- If possible, use a daily routine.
- Create checklists and "to do" lists.
- Use positive reinforcement to help kids stay on task.
- Break long assignments into smaller tasks and assign mini-timelines for completion of each. If children become overwhelmed with lists of tasks, share only a few at a time.
- Use visual calendars or wall planners to keep track of long-term assignments, deadlines, and activities.
- Adults and teens may find time management planners, software, or apps helpful. If possible, try before you buy to figure out which type of planner works best for you.
- Organize the workspace, and minimize clutter on a weekly basis.
- Consider having separate work areas with complete sets of supplies for different activities. This reduces time lost while searching around for the right materials for a task.
- Try to keep your strategies consistent across classrooms, at home, or in the workplace. People with executive functioning issues are more likely to do well when their routines are similar in different settings.
- Check the content of the gaming activity. Encourage children and young people to play games that are educational rather than violent. Parents usually have control over what their child watches on television – gaming should not be any different.
- Encourage children to play video games as part of a group rather than as a solitary activity. Many online games are based on social activity and working together. Research consistently shows that the main reason for playing online games is for its social element.
- Help children and young people to set time limits on their playing time. Research has shown that those children and young people who play video games for a couple of hours a day are more likely than those who do not play video games at all to have a wider circle of friends, engage in physical activities and do their homework.
- Follow the recommendations by the game's manufacturers and/or the service providers (for example, children should sit at least two feet from the screen, play games in a well-lit room, never have the screen at maximum brightness, and never engage in gaming when feeling tired).
- Finally, if all else fails, temporarily prohibit gaming and then reintroduce playing on a part-time basis when appropriate.



ANNEX N.8

# Notes



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# Notes

Handwriting practice area with horizontal dashed lines for text entry.



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Handwriting practice area consisting of 18 horizontal dashed orange lines. A large light green circle is partially visible on the left side, and a large light orange circle is partially visible on the right side.



# LET'S HOP UP FOR SPORT!



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