



# Intergenerational Cooperation of Students and Grandparents and the Use of Pedometer in Sports Activity

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## Keywords:

Intergenerational cooperation;  
Aging;  
Sports training;  
Pedometer



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**Abstract:** *The National Symbiosis (Movement) project is being implemented in primary schools throughout Slovenia. In primary school, intergenerational sports activities were carried out by the coordinator of the mentioned project together with primary school students and their grandparents. The use of information and communication technology is one of the starting points of the physical education curriculum, and one of the general goals is the formation of positive behavioral patterns such as encouraging cooperation. The starting point and the goal were the main guides for the preparation and implementation of intergenerational cooperation. The article describes an example of sports training prepared and carried out by students together with their grandparents, as part of a sports day and exercise hours. They prepared intergenerational hikes and training hours, during which both students and grandparents performed strength and coordination exercises. During the hike, the students introduced their grandparents to the use of a pedometer. This had a very motivating effect on students and grandparents.*

## 1. INTRODUCTION

Human beings are created for movement. Through the evolution of the development of mankind, many adaptations of the body have evolved and movement patterns that form the basis of human movement have emerged. Today, walking, running, swimming and many other sports activities are advertised by well-known brands and individuals, as a kind of call for individuals to be aware of the importance of physical activity and its positive effects on health and well-being (Stari-2010-SLO-TISK.pmd (dlib.si)).

Average life expectancy is rising for both men and women. Most elderly people desire to spend old age in as a quality way as possible. Therefore, sports activity is one of the ways in which we can achieve such a state as it has a positive effect on many parameters of life - health, appearance, well-being and quality aging. The most common problems that occur with age and are a common cause of decreased physical activity are disorders of the musculoskeletal system, cholesterol, high blood pressure, fear of exercise, osteoporosis, loneliness, etc. Therefore, the elderly should attentively choose the appropriate exercise that will suit them and where they will feel satisfied. For a start, movement in the fresh air, which reduces the feeling of fatigue and improves mood and physical resistance, would be enough. (<https://www.nasa-lekarna.si/clanki/clang/redno-gibanje-upocasni-staranje/>).

## 2. AGING

Every human being is subject to aging, which is a natural and inevitable physiological process. The main reasons for aging are the damage and death of the cells in the human body. A person's health is partly inherited, but partly it depends on external factors. Aging is a complex and not yet fully understood set of phenomena that affect the organism in adulthood and eventually lead to death ([https://www.who.int/ageing/publications/global\\_health.pdf](https://www.who.int/ageing/publications/global_health.pdf)).

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Every elderly person probably wants to achieve the highest possible life expectancy. Over different historical periods, the average life expectancy has changed. Thus, the Neanderthals lived on average only about 20 years, the average life expectancy was 19 years in the Bronze Age, 28 years in ancient Greece, 33 years in medieval England. According to global demographics, the number of elderly people is growing. The intensity of aging in the world today is shown in the average life expectancy of around 68 years. In Slovenia, the number of elderly people in the total population has been increasing since mid-2003. In 2014, the share of the elderly population aged 65 and over reached 17.5%, while the share of the population under 15 was 14.6%. Awareness of the positive effects of exercise on the body is a factor, which contributes to a higher number of elderly people ([http://www.share-slovenija.si/files/documents/prvi\\_rezultati\\_slovenija/Publikacija\\_IER\\_14.pdf](http://www.share-slovenija.si/files/documents/prvi_rezultati_slovenija/Publikacija_IER_14.pdf)).

### **3. HOW CAN WE INFLUENCE THE SLOWING DOWN OF AGING?**

It is a fact that with age, degenerative changes begin to appear and motor skills begin to decline. With a healthy lifestyle, we can slow down aging and ensure a high quality of life even in old age. While aging is inevitable, this does not apply to physical or mental deterioration. We can do a lot on our own to make old age an enjoyable period in our lives.

Many studies have shown that we can successfully moderate the effects of aging by exercising regularly and keeping our weight within the recommended limits. Regular physical activity reduces many of the functional problems associated with aging. The most important benefits of exercise include a beneficial effect on the cardiovascular and respiratory system, a positive effect on blood pressure, cholesterol and sugar levels, improving bone condition, which can help reduce the risk of osteoporosis, improving mobility and range of motion, reducing nervous and mental tension, maintaining cognitive functions, affecting quality sleep and well-being. (<https://zdravje.online/staranje/>).

### **4. APPROPRIATE SPORTS ACTIVITY FOR THE ELDERLY**

To stay in shape and achieve a beneficial effect on the body, the elderly should exercise regularly. This means that they should engage in sports activity at least three times a week for 30 to 60 minutes. However, what kind of exercise or sports activity is suitable for the elderly? Clubs and societies very often advertise different types of exercises for the elderly. Aerobic exercise, for example, is an exercise that is performed at lower heart rate levels, lasts longer and is suitable for the elderly as well. A characteristic of aerobic or cardio exercise is a longer activity in which energy, in the presence of oxygen, is restored in the body. Aerobic exercise strengthens the cardiovascular and respiratory systems. It includes various physical activities such as running, walking, cycling, swimming, aerobics, rollerblading. When choosing a suitable sports activity for the elderly, it is recommended to choose the types of movement that correspond to the physical capacity, age and health condition and wishes of the individual. (<https://tvojtrener.si/vpliv-gibanja-na-zdravje/>)

Many studies (21 studies) included investigated the effects of aerobic exercise also to type 2 diabetes for the elderly. The frequency of prescribed exercise ranged from a minimum of one to a maximum of seven sessions per week, with 13 of the studies prescribing exercise 3 times a week (<https://care.diabetesjournals.org/content/34/5/1228>).

## 5. PROMOTING INTERGENERATIONAL COOPERATION AND EXERCISING

Domestic and foreign literature write about the importance of intergenerational relations. Reciprocity between generations is important and the school as an institution can play an important role in this with projects such as Symbiosis (movement). In primary and secondary schools as well as educational centers in Slovenia the National Project Symbiosis (movement) is currently being implemented. It is based on intergenerational cooperation and the support of a healthy lifestyle, which includes movement. The mission and goals of the project are to promote a healthy lifestyle of all generations at all stages of life, create intergenerational cooperation and coexistence, recognize the advantages of volunteer work in sports, learn about new physical, recreational and sports activities and free participation in various exercises. The school participated in the project and with the help of the students, sports activities of intergenerational cooperation were prepared by the coordinator. The article describes an example of physical activity performed by primary school students together with grandparents as a part of a sports day and exercise hours. An example of the use of a pedometer<sup>2</sup> is also described. (<https://sl.puntomarinero.com/how-many-steps-in-1/>, <https://www.zrss.si/pdf/pos-pouka-os-sport.pdf>), (<https://sportmedbc.com/article/using-pedometer>).

## 6. EXAMPLE OF INTERGENERATIONAL COOPERATION OF STUDENTS AND GRANDPARENTS AND USE OF PEDOMETER

First, an appropriate program of sports activities had to be prepared by the coordinator of the Symbiosis (movement) project - a primary school professor of physical education. This posed a kind of challenge to a professor as she had to organize the intergenerational training for adolescents and the elderly. At the joint meeting, professor and students discussed the possibilities of carrying out sports activities for grandparents who intended to participate in the project. Each participating student was given an assignment on how to perform the exercises together with the grandparents. This way, students also learned about characteristics of the positive effects of exercise on health. Two sports activities also included the use of a pedometer, which was borrowed from the Health Center. (Simbioza GIBA - Simbioza)

**INTERGENERATIONAL HIKE:** As part of the Symbiosis (movement) project, students and professor prepared hike on a slight ascent to a nearby hill. The first hike was carried out as part of a school sports day. The starting point of the walk and the assembly of students and grandparents was in front of the school, where the hike also ended. Pupils first explained to their grandparents the benefits of walking on human health and well-being. Then the grandparents were introduced to the route of the hike and warned of possible dangers (narrow path, rocks). A pedometer was included as a form of ICT<sup>3</sup> in the hike. The students used the pedometer during physical education classes, so they knew how it works (<https://www.zrss.si/pdf/pos-pouka-os-sport.pdf>).

Grandparents were introduced and shown how to handle a pedometer and helped with the setup and use. The purpose and the goal of using the pedometer during the hike was:

- to walk as many steps as possible and compare them between the two hikes,
- to check the number of steps taken and compare them between grandparents and students.

<sup>2</sup> The pedometer is a device based on the built-in motion sensor, which measures the number of steps. It has been a popular tool for recreation, schoolchildren and the elderly for some time now. The advantage of the pedometer is its affordable price, motivational effect and easy use. Some pedometers are upgraded and can give us some other data on energy consumption and distance travelled.

<sup>3</sup> Information and communication technology

On average, they walked 5,300 steps (4 kilometers) on the hike. The difference in the number of steps taken between grandparents and students was negligible. The use of a pedometer had a very positive effect on students' and grandparents' motivation for the hike. Intergenerational socializing had a great effect on relaxation and the formation of positive relationships, especially because the students took on the role of guides of the hike.

**INTERGENERATIONAL TRAINING HOUR:** When creating training hours for grandparents, the students and professor took into account the principle of appropriate exercises according to intensity and duration. The students again took on the role of trainers. The assembly of students and grandparents took place in the school gym in the afternoon. At the beginning of the lesson, the students informed the grandparents of the importance of warming up and the characteristics of the exercise. They demonstrated warm-up in the form of a 5-minute brisk walk. Then they performed gymnastic exercises from head to toe. When performing gymnastic exercises, grandparents were warned to perform correctly and in case of any problems or improper execution they were advised to correct their movements. The warm-up lasted 15 minutes, so a total of 20 minutes. Then the main part followed. In the first practice lesson, exercises with softballs was prepared. Grandparents led the ball, caught it, passed it on, carried it, rolled it, chased it. Each exercise was first described and demonstrated by the students, and only then was it performed together with the grandparents. The students helped the grandparents to perform the exercises and point out the wrong execution. A total of ten exercises were performed and each exercise was performed for 3 minutes. At the end of the exercise lesson, grandparents were shown exercises for the development of mobility.

Both students and grandparents were relaxed and in good spirits during the exercise. The purpose of the training was to develop coordination and mobility. After the workout, the grandparents felt good and expressed satisfaction.

For the second training, strength exercises were prepared. The initial warm-up, which was performed in the form of movement accompanied by music, was followed by the performance of gymnastic exercises. Here, too, the students demonstrated the exercises and helped the grandparents with their proper implementation. The 20-minute warm-up was followed by work in stages. Grandparents and students were divided into 4 groups, as follows:

Stage 1: back strengthening exercises, Stage 2: strengthening exercises for the abdomen, Stage 3: strengthening exercises using weights, Stage 4: strengthening exercises using tapes,

Grandparents performed strengthening exercises with students at each stage for 5 minutes. Students first demonstrated the exercise and helped the grandparents with the correct implementation. Exercises were also performed by students. Each exercise was performed for 40 seconds with a 20-second rest in between. This was repeated at five intervals. They had 3 minutes to change the stage and directions. In the final part of the training hour, stretching exercises were performed and after that, the training hour was completed. The second training also lasted 60 minutes. At the beginning of the practice class, the students reminded the grandparents to perform the exercises according to their abilities.

## **7. CONCLUSION**

Elderly people often say that sometimes it is more important for them to socialize with friends who attend the exercise. Therefore, they usually prefer group exercises in the home environment. The elderly need to live a full, quality and satisfying life even in this period of life. Health

is a value that is a fundamental condition for quality of life, especially in old age. (<https://dk.um.si/Dokument.php?id=22831>)

The article presents an example of intergenerational cooperation of students and grandparents in the implementation of sports activities (exercise class and hike) as one of the options, which the elderly can choose and participate in for free. During the hike, the elderly also had the opportunity to learn about the use of a pedometer. This had a positive effect on their motivation, self-esteem. During the exercise classes in the gym, the students presented their grandparents with various props and equipment that made the exercise more interesting. Both students and grandparents loved participating in the intergenerational movement project. Genuine interpersonal relationships were formed among all participants. Pupils were satisfied and proud of their role as trainers and grandparents loved guided physical activity. They praised the project and expressed the wish that it would be organized in the future as well. Grandparents liked that the physical activity took place in a home environment and relaxed atmosphere.

Intergenerational cooperation contributes to a better experience of old age and plays an important role in a better quality of life. There are many ways of intergenerational cooperation and one of them is participation in sports activities. Intergenerational socializing is becoming increasingly important nowadays. Therefore, programs to develop intergenerational relationships and collaboration are increasingly welcome and desirable. This also includes the Symbiosis (movement) program.

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