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# DIFFERENCES IN PHYSICAL SELF-CONCEPT AFTER THE APPLIED EXPERIMENTAL TREATMENT OF THE INCLUSIVE BASKIN GAME IN PEOPLE WITH DISABILITIES

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## Summary

**Background**. The aim of this paper is to examine whether there are differences in physical self-concept between people with physical disabilities who underwent a 12-week experimental treatment of the inclusive Baskin game and subjects of the control group who continued with their daily activities.

**Material and methods.** The "Physical Self-Description Questionnaire" (PSDQ) was applied, which contains 11 subscales, 9 scales for specific components of physical self-concept, and two general scales.

**Results.** The results of the t-test of dependent samples showed a statistically significant difference in favor of the subjects of the experimental group between the two measurements in the appearance variable ($p$=0.02), while the results of the Mann-Whitney test indicated a statistically significant increase in the value of the esteem variable at the final measurement ($p$=0.04). The effect of changes was the largest in the esteem variable (Z=-2.02). The obtained results indicate that participation in the inclusive Baskin game can have a positive impact on

certain aspects of physical self-description in individuals with physical disabilities, particularly in terms of appearance and esteem.

**Conclusions.** This suggests the potential benefits of adapted sports games, emphasizing the need for their implementation in inclusive sports initiatives.

**Keywords:** Baskin, inclusion, physical self-concept, people with disabilities



## Introduction

Approximately 1.3 billion people worldwide live with some form of disability, which is about 16% of the global population, according to a report by the World Health Organization [1]. According to the results of the Statistical Office of the Republic of Serbia, the number of people with disabilities in Serbia is 5.46% (356,404 individuals) [2]. The level of physical activity is lower in people with disabilities compared to the standard population [3]. People with physical disabilities often perceive themselves as inadequate because of their disability, which can consequently produce low self-perception and lack of motivation [4]. Inequalities in different spheres of social life, in addition to social barriers, increase the risk of social isolation of groups of people with disabilities, while participation in sports activities can improve their life satisfaction and physical self-respect [5,6]. Previous research indicates that people with physical disabilities have a lower level of self-efficacy [7] and lower self-confidence, as well as more symptoms of depression, compared to the general population [8], leading to lower values of perceived quality of life [9]. Through sports, people with disabilities can make progress not only in the physical sense [10] but also in the psychological and social context, which contributes to their overall adaptation and quality of life [11-13], positive self-perception [14], reducing disability-related stress [15], as well as optimal psychological functioning [16].

Through the reverse integration model, Baskin encourages creating a cooperative environment while preserving the core characteristics of sports and competitiveness. This can stimulate the development of psychosocial skills, sports performance, and competencies of people with disabilities [17]. Research indicates that the points scored by players with disabilities can be crucial in determining the outcome of Baskin matches at international tournaments [18].

Traditional models of sports often set high standards that exclude people with lower levels of ability. Research indicates positive attitudes of people with disabilities towards participation in inclusive sports programs in mixed groups of able-bodied and disabled individuals [19]. At the same time, Baskin's philosophy of adaptive play aims to enable equal participation through modifications to the rules of the game, which can have an affirmative effect on the development of social bonds and mutual respect for players of diametrically different abilities through social integration and mutual respect [20,21]. Through sports in which everyone plays together, with different roles based on the possession of skills and not on medical criteria, a format was created that offers everyone equal opportunities for play, cooperation, and active participation, as well as significant progress in bringing the concept of inclusion to the field of physical activity and sports, all making inclusion a basic element of the Baskin game [22].

This form of sport has been present in Serbia since 2019 through a sports club operating in the city of Sabac [23]. The Baskin Sabac Sports Association is a unique organization in Serbia dedicated to the development and promotion of the inclusive sport of Baskin. The club has around 25 members of different ages, including players with and without disabilities, who train together and participate in international competitions, primarily in Italy, the birthplace of this sport. The club actively works on raising awareness of the importance of inclusive sports

and encourages the establishment of new sections and clubs in Serbian cities such as Belgrade, Nis, Novi Sad, and Kragujevac**.**

## Aim of the work

This study aims to contribute to a better understanding of the benefits of inclusive sports programs, such as inclusive Baskin basketball, and to provide insight into how participation in inclusive, structured sports activities through sports models designed for everyone, regardless of the degree and type of physical impairment, affects physical self-description by identifying which dimensions of physical self-description are most susceptible to improvement through inclusive sports.

This research aimed to examine the differences in physical self-concept between people with physical disabilities who participated in a 12-week Baskin game intervention and a control group who continued with their daily activities and to determine whether there is a statistically significant difference in physical self-concept between people with physical disabilities who participated in a 12-week intervention of inclusive Baskin sport and a control group.

## Material and methods

### *Theoretical framework*

Self-description of physical abilities is defined through a multidimensional and hierarchical construct that includes different subdomains which are not separate categories [24]. Considering that one of the postulates of the Baskin game is to enable the participation of players with varying skill levels, abilities, and disabilities, through this, the redefinition of

individual abilities and participation in structured activities in a supportive environment can positively influence the improvement of self-perception in various domains.

To test perceived self-perception in the field of physical abilities, the Physical Self-Description Questionnaire (PSDQ) [25] was used. The questionnaire contains 70 questions with answers provided on a six-point Likert scale: 1 – false, 2 – mostly false, 3 – more false than true, 4 – more true than false, 5 – mostly true, 6 – true, and allows for the measuring of 11 dimensions/components of the physical "self-concept", 9 scales for specific components of physical self-concept, and 2 general scales for assessing physical self-concept. It has previously been applied in research on people with disabilities [26,27].

Through the sense of competitiveness and willingness to cooperate expressed in Baskin games [28], a positive impact can be made on some of the domains of the PSDQ. The results of previous studies indicate higher scores in the physical self-description domains for individuals with disabilities who are involved in physical activity programs compared to sedentary individuals [12]. This is expected, as participation in sports enables greater integration, reduction of disability-related stress, and improvement of social connections.

Through specific modifications to the rules of the Baskin game, which allow equal access to all participants, even those with different types of disabilities, an opportunity has been created to develop not only physical abilities but also social connections, self-respect, and self-confidence. Therefore, the theoretical framework in this research is based on the assumption that inclusive sports can positively influence the physical self-concept of people with disabilities, improving their perception of their physical abilities and esteem.

*Methods*

The study included 10 subjects: 5 with motor disabilities (muscular dystrophy, cerebral palsy, paraplegia) who participated in a 12-week inclusive Baskin program, and 5 in the control group who continued with their usual activities. The average age at the initial measurement was 46.96±11.17 years, with the experimental group at 46.40±11.68 and the control group at 47.52±11.98 years.

The data obtained through measurement was reviewed, organized, and then statistically processed using the IBM SPSS Statistics 23 software package (SPSS Inc., Chicago, Illinois, USA, 2016), and the level of statistical significance was set at $p \leq 0.05$. Basic descriptive parameters are shown for each of the variables: arithmetic mean, standard deviation, and coefficient of variation. The normality of the distribution was checked by the Shapiro-Wilk coefficient for small samples at a level of statistical significance of SW$p \leq 0.05$. The differences between the initial and final measurements were verified by the t-test of independent samples, and in the case of noticeable deviations from the normal distribution, the Mann-Whitney U test was applied. To determine the effects, the t-test of dependent samples was applied, and in variables in which there was a noticeable deviation from the normal distribution, the Wilcoxon rank test was applied at a conclusion level of $p \leq 0.05$.

*Description of the experimental treatment (intervention)*

The experimental treatment consisted of 12 weeks of 2 training sessions per week lasting 70 minutes in the gym of the "Janko Veselinovic" primary school in Sabac. In the introductory part of the training, the emphasis was on warming up and emotionally introducing the examinees to the training system (Table 1).

**Table 1.** Description of the experimental treatment

| Week | Training session part | Exercise content |
|---|---|---|
| **First and second weeks** | **I** | Warm-up exercises with tasks accompanied by elements of musical accompaniment (4 min. 45 sec.)<br>Complex of shaping exercises (5 min.) |
| | **II** | Dribbling a ball in place next to the body (2 min.), dribbling a ball in a forward motion – straight (2 min.), dribbling a ball in forward motion – between cones (2 min.), dribbling a ball in motion – backward (2 min.) |
| | **III** | Baskin game (4 x 8 min., 5-minute break between game periods, 8-minute break at halftime) |
| | **IV** | Gradual calming down of the body's physiological functions, relaxation, and stretching exercises (5 min.) |
| **Third and fourth weeks** | **I** | Warm-up exercises with tasks with elements of musical accompaniment (4 min. and 45 seconds)<br>Complex of shaping exercises (5 min.) |
| | **II** | Dribbling a ball forward on a Swedish bench two-handed (2 min.), dribbling a ball forward on a Swedish bench one-handed (2 min.), dribbling a ball – low, high (2 min.), shooting at a side high basket (2.20 m) (2 min.), Role 2 (paraplegia) – preparation for the shot |
| | **III** | Baskin game (4 x 8 min., 5-minute break between game periods, 8-minute break at halftime) |
| | **IV** | Gradual calming down of the body's physiological functions, relaxation, and stretching exercises (5 min.) |
| **Fifth and sixth weeks** | **I** | Warm-up exercises with tasks with elements of musical accompaniment (4 min. 45 seconds)<br>Complex of shaping exercises (5 min.) |
| | **II** | Passing a ball by rolling on the floor (2 min.), passing a ball in pairs from the chest with hands (2 min.), passing a ball in pairs above the head (2 min.), passing a ball in pairs at chest height in motion (2 min.), Role 2 (paraplegia): practice shooting at a side high basket (2.20 m) |
| | **III** | Baskin game (4 x 8 min., 5-minute break between game periods, 8-minute break at halftime) |
| | **IV** | Gradual calming down of the body's physiological functions, relaxation, and stretching exercises (5 min.) |
| **Seventh and eight weeks** | **I** | Warm-up exercises with tasks with elements of musical accompaniment (4 min. and 45 seconds)<br>Complex of shaping exercises (5 min.) |
| | **II** | Dribbling a ball along a circular line, between obstacles alternately with the right and left hand (2 min.), passing a ball to a pair by hitting the ball on the ground (2 min.), shooting at a side high basket (2.20 m) (2 min.), Action unit: practice handing a ball from the player with role 3 to a player with role 2, preparation and shooting at a basket |

| | | |
|---|---|---|
| | **III** | Baskin game (4 x 8 min., 5-minute break between game periods, 8-minute break at halftime) |
| | **IV** | Gradual calming down of the body's physiological functions, relaxation, and stretching exercises (5 min.) |
| **Nine and tenth weeks** | **I** | Warm-up exercises with tasks with elements of musical accompaniment (4 min. and 45 seconds)<br>Complex of shaping exercises (5 min.) |
| | **II** | Shooting at a side high basket at an angle of 45 degrees (2 min.), shooting at a side high basket at an angle of 90 degrees (2 min.), Action unit: dribbling a ball in a straight line for role 3 and handing it to role 2, preparing for a shot at a basket for role 2 (4 min.) |
| | **III** | Baskin game (4 x 8 min., 5-minute break between game periods, 8-minute break at halftime) |
| | **IV** | Gradual calming down of the body's physiological functions, relaxation, and stretching exercises (5 min.) |
| **Eleventh and twelfth weeks** | **I** | Warm-up exercises with tasks with elements of musical accompaniment (4 min. 45 seconds)<br>Complex of shaping exercises (5 min.) |
| | **II** | Shooting at a side high basket at a distance of 3.75 m at an angle of 45 degrees from the hoop (2 min.), shooting at a standard basket, free throws (2 min.), practice of handing the ball to players with roles 2 and 3 in the area of a side basket (2 min.), shooting at a side high basket at an angle of 90 degrees (2 min.) |
| | **III** | Baskin game (4 x 8 min., 5-minute break between game periods, 8-minute break at halftime) |
| | **IV** | Gradual calming down of the body's physiological functions, relaxation, and stretching exercises (5 min.) |

## Results

The highest average values in the experimental group during the initial measurement (Table 2) are observed in the variable's global physical self-concept (4.30±1.45), appearance (3.60±0.84), and sports competence (3.49±0.92), while the lowest average points are observed in the variables physical activity (2.49±0.62) and endurance (2.49±1.36). In the control group, the highest average values observed in the variables esteem (4.35±0.86), appearance (4.23±0.55), and global physical self-concept (3.93±1.65), while the lowest average values are observed in the variables endurance (1.66±0.67) and physical activity (1.99±1.43).

The presented results of the perceived physical self-concept in two groups of subjects indicate deviations from the normal distribution of one variable of the experimental group (coordination SW*p*=0.01) and three variables of the control group (physical activity SW*p*=0.02, body fat SW*p*=0.01, and global physical self-concept SW*p*=0.01). In the remaining variables, there are no statistically significant deviations of the distributions of the variables from normal (SW*p*>0.05). Given that there was a noticeable deviation from the normal distribution of results in four variables, the Mann-Whitney U test was applied (Table 2). There were also no statistically significant differences between the groups in the remaining four variables (*p*>0.05).

**Table 2**. Descriptive statistics and differences in physical self-concept of subjects from different groups at initial measurement

| Variable | Mean ± SD | | Mean rank | | U | *p* |
|---|---|---|---|---|---|---|
| | EG | CG | EG | CG | | |
| **Health** | 3.17±0.76 | 3.75±1.09 | 4.60 | 6.40 | 8.00 | 0.42 |
| **Coordination** | 3.40±0.70* | 2.46±0.85 | 6.90 | 4.10 | 5.50 | 0.15 |
| **Physical activity** | 2.49±0.62 | 1.99±1.43* | 6.90 | 4.10 | 5.50 | 0.15 |
| **Body fat** | 2.56±1.68 | 2.17±2.15* | 5.80 | 5.20 | 11.00 | 0.84 |
| **Sports competence** | 3.49±0.92 | 2.16±1.12 | 7.10 | 3.90 | 4.50 | 0.09 |
| **Global physical self-concept** | 4.30±1.45 | 3.93±1.65* | 5.70 | 5.30 | 11.50 | 0.84 |
| **Appearance** | 3.60±0.84 | 4.23±0.55 | 4.30 | 6.70 | 6.50 | 0.22 |
| **Strength** | 2.93±0.63 | 2.59±1.56 | 6.00 | 5.00 | 10.00 | 0.69 |
| **Flexibility** | 2.99±0.87 | 2.73±1.11 | 5.80 | 5.20 | 11.00 | 0.84 |
| **Endurance** | 2.49±1.36 | 1.66±0.57 | 6.50 | 4.50 | 7.50 | 0.31 |
| **Esteem** | 3.29±0.80 | 4.35±0.86 | 4.10 | 6.90 | 5.50 | 0.15 |

Notes: * – level of statistical significance Shapiro Wilk coefficient, Mean – arithmetic mean, Mean rank – arithmetic mean of rank, U – value of the Mann-Whitney U test, *p* – level of statistical significance, EG – experimental group, CG – control group.

During the final measurement of perceived physical self-concept (Table 3), the highest average values in the experimental group are observed in the variables esteem (5.17) then appearance (4.79), while third place belongs to the global physical self-concept (4.26), with the

smallest average values being obtained in the endurance variable (2.13). In the control group during the final measurement, the highest average values are observed in the variable health (4.00), global physical self-concept (3.96), and appearance (3.93), while the lowest average values are observed in the endurance variable (1.43).

**Table 3.** Descriptive statistics and differences in physical self-concept of subjects from different groups at final measurement

| Variable | Mean ± SD | | Mean rank | | U | *p* |
|---|---|---|---|---|---|---|
| | EG | CG | EG | CG | | |
| **Health** | 3.75±0.87 | 4.00±0.68 | 4.90 | 6.10 | 9.50 | 0.55 |
| **Coordination** | 3.16±0.97 | 2.63±1.31 | 6.20 | 4.80 | 9.00 | 0.55 |
| **Physical activity** | 3.06±1.28 | 2.53±1.56 | 5.90 | 5.10 | 10.50 | 0.69 |
| **Body fat** | 2.09±1.45 | 2.56±1.57 | 4.90 | 6.10 | 9.50 | 0.55 |
| **Sports competence** | 3.70±0.63 | 2.66±1.60 | 6.20 | 4.80 | 9.00 | 0.55 |
| **Global physical self-concept** | 4.26±1.20* | 3.96±1.60* | 6.00 | 5.00 | 10.00 | 0.69 |
| **Appearance** | 4.79±1.27 | 3.93±0.84 | 7.10 | 3.90 | 4.50 | 0.95 |
| **Strength** | 2.86±0.74 | 2.56±1.53 | 5.80 | 5.20 | 11.00 | 0.84 |
| **Flexibility** | 3.13±1.00 | 3.00±1.25 | 5.80 | 5.20 | 11.00 | 0.84 |
| **Endurance** | 2.13±0.72 | 1.43±0.40 | 7.00 | 4.00 | 5.00 | 0.15 |
| **Esteem** | 5.17±1.14* | 3.61±0.67 | 7.30 | 3.70 | 3.50 | 0.06 |

Notes: ***** – level of statistical significance Shapiro Wilk coefficient, Mean – arithmetic mean, Mean rank – arithmetic mean of rank, U – value of the Mann-Whitney U test, *p* – level of statistical significance, EG – experimental group, CG – control group.

The presented results of perceived physical self-concept in the two groups of subjects indicate deviations from the normal distribution of two variables of the experimental group (global physical self-concept SW*p*=0.03 and esteem SW*p*=0.01) and one variable of the control group (global physical self-concept SW*p*=0.02). In the remaining variables, there are no statistically significant deviations of the distributions of the variables from normal (SW*p*>0.05).

The values of the t-test of dependent samples indicated the existence of a statistically significant difference only in the appearance variable in the subjects of the experimental group ($p$=0.02), with higher values observed during the final measurement (Table 4). In the remaining variables, there were no statistically significant differences between the two measurements in both groups of subjects. Given that there was a noticeable deviation from the normal distribution of results in two variables of the final measurement, the Mann-Whitney U test was applied. There were also no statistically significant differences between the groups in the remaining two variables ($p$>0.05). The values of the t-test of dependent samples indicated the existence of a statistically significant difference only in the appearance variable in the subjects of the experimental group ($p$=0.02), with higher values observed during the final measurement. In the remaining variables, there were no statistically significant differences between the two measurements in both groups of subjects.

**Table 4.** Differences between the initial and final measurements in the domains of perceived self-perception in the field of physical abilities of subjects of different groups

| Variable | EG | | t | *p* | CG | | t | *p* |
|---|---|---|---|---|---|---|---|---|
| | $M_1$ | $M_2$ | | | $M_1$ | $M_2$ | | |
| **Health** | 3.17 | 3.75 | -0.85 | 0.45 | 3.75 | 4.00 | -0.76 | 0.49 |
| **Sports competence** | 3.49 | 3.70 | -1.38 | 0.24 | 2.16 | 2.66 | -1.08 | 0.34 |
| **Appearance** | 3.60 | 4.79 | **-3.96** | **0.02** | 4.23 | 3.93 | 0.70 | 0.52 |
| **Strength** | 2.93 | 2.86 | 0.58 | 0.59 | 2.59 | 2.56 | 0.09 | 0.93 |
| **Flexibility** | 2.99 | 3.13 | -1.08 | 0.34 | 2.73 | 3.00 | -0.69 | 0.53 |
| **Endurance** | 2.49 | 2.13 | 0.95 | 0.39 | 1.66 | 1.43 | 0.77 | 0.49 |

Notes: $M_1$ – arithmetic mean of the first measurement, $M_2$ – arithmetic mean of the second measurement, t – value of the dependent t-test, $p$ – level of statistical significance, EG – experimental group, CG – control group.

It can be stated that the Wilcoxon rank test revealed a statistically significant increase in the results in the *esteem* variable among subjects of the experimental group at the final

measurement: Z=-2.02, *p*=0.04 (r-effect size is large at 0.63) [29]. In the remaining analyzed variables, there were no statistically significant differences between the initial and final measurements in both analyzed groups of subjects (Table 5).

**Table 5.** Difference between pre- and post-measurements in individual variables of physical self-concept

| Variable | EG | | Z | *p* | CG | | Z | *p* |
|---|---|---|---|---|---|---|---|---|
| | 50th percentile (Median) | | | | 50th percentile (Median) | | | |
| **Coordination** | 3.66 | 3.50 | -0.95 | 0.34 | 2.16 | 2.50 | -0.41 | 0.69 |
| **Physical activity** | 2.16 | 2.66 | -0.73 | 0.47 | 1.33 | 2.83 | -1.10 | 0.27 |
| **Bodyfat** | 2.33 | 1.66 | -1.34 | 0.18 | 1.33 | 1.83 | -0.73 | 0.47 |
| **Global physical self-concept** | 4.33 | 4.66 | 0.01 | 0.99 | 4.66 | 4.33 | -0.36 | 0.72 |
| **Esteem** | 3.12 | 5.80 | **-2.02** | **0.04** | 4.50 | 3.75 | -1.08 | 0.28 |

Notes: Z – value of the Z test; *p* – level of statistical significance, EG – experimental group, CG – control group.

## Discussion

The evaluation of physical self-concept during the initial measurement was carried out by using the PSDQ and analyzed through 11 subscales – health, coordination, physical activity, body fat, sports competence, global physical self-concept, appearance, strength, flexibility, endurance, and esteem.

By analyzing the results achieved by the subjects in our study, it can be stated that they are generally lower compared to the results of wheelchair basketball players, who achieved average values in all observed domains, ranging from 3.86 to 4.93 [30]. These differences can be attributed to the length of sports experience and the competitive level of the subjects of that study when compared to the subjects from our study.

The results obtained in our study are generally lower compared to the results of a study that examined physical self-concept by using a shortened version of the PSDQ-S, which achieved neutral to positive values ranging from 3.30 to 5.90 [31]. A greater number of subscales with positive values were achieved by the subjects of the study conducted on a group of adolescent basketball and soccer players in wheelchairs [32]. Higher results compared to the results of the subjects in our study were also shown by two groups of people with disabilities – congenital and acquired [33]. Similar results on the subscales of the perceived physical self-concept were achieved by a group of American students with disabilities who suffered from multiple sclerosis and sensory forms of disability [34].

When we consider the self-perception of people with disabilities, we must consider many factors such as differences in the level of education, health, and social status, all of which are factors that can influence the attitudes of people with disabilities towards physical activity [35-37].

Comparing the results obtained in our study, it is noticeable that lower values were achieved in most subscales compared to subjects from other studies who were involved in sports, and therefore it can be concluded that the length of sports experience was an important predictor of perceived physical self-concept of people with physical disabilities. Looking at the competitive level of people with disabilities, it is noticeable that individuals who are at a higher competitive level show higher self-perception score than those with disabilities who are at a lower competitive level, as indicated by the research results [16]. Analyzing the effects of the applied experimental treatment, the biggest changes are noticeable on the esteem subscale, where a statistically significant increase in the results of the subjects of the experimental group was noted during the final measurement [38]. Observing the other analyzed variables, no statistically significant differences were found between the subjects of the experimental and control groups between the initial and final measurements. The results obtained in our study

show low values on the subscales of perceived endurance, physical activity, flexibility, and strength. Similar results were obtained in a comparative study conducted by researchers [27] who examined the level of perceived esteem in the physical abilities of a group of basketball players with motor disabilities and wheelchair users with sedentary behavior patterns.

Compared with previous research studies that used an identical measuring instrument, the results of our study are generally lower, especially in domains for the assessment of certain motor abilities such as endurance, strength, flexibility, and physical activity, which is expected considering that this was a group of subjects with a disability and who do not have long sports experience at a competitive level, which proved to be an important predictor of perceived physical self-concept, as shown by the results of previous research in this area among people with disabilities.

However, one should be careful when comparing the results with previous studies because people with disabilities often have experiences with life traumas, which can affect their adaptability to stressful situations, control of emotions, and the development of other important aspects of esteem, while loneliness can also negatively impact their well-being [39].

All these experiences can distinguish these individuals from people without disabilities, and the specific form of the sports discipline implemented in this study should also be considered, which is significantly different from wheelchair basketball or Special Olympics basketball, as well as sports disciplines of people with disabilities that do not include the reverse integration model. In addition, the obtained results should be considered through the system of classification of player roles in the Baskin game, which places individual players with more severe forms of disability in the side sectors during the game, which in some way can have a negative impact on the physical self-concept of a person, especially on perceived values in self-assessment in the area of motor and functional capacities; but on the other hand, the achieved progress in esteem and appearance can be attributed to the potential of adaptive games through

positive social interactions and acceptance by other players, along with the development of a sports identity.

Athletes with disabilities often face life trauma that shapes their coping strategies and self-perception, setting them apart from non-disabled athletes. Sports can boost self-confidence, but comparisons between these groups often overlook key factors like experience and skill level. Even within the same sport, variations such as wheelchair vs. non-disabled basketball highlight fundamental differences in dynamics, approach, and physical demands.

Among people with physical disabilities, it can be challenging to find a sufficiently representative and homogeneous sample of subjects, which makes research in this area even more challenging. The inclusion of heterogeneous groups itself requires the inclusion of a large territorial area, which further complicates the implementation of the experimental treatments themselves. The peculiarity of research in people with physical disabilities can be the exceptional variability within the disability itself, which results in extremely heterogeneous results. The current study encountered similar challenges. The relatively small sample size of subjects and missing data reduce the statistical power of this study. The small sample is one of the key methodological limitations of this study, which indicates that the results cannot be generalized to the wider population of people with disabilities and affects the limitation in the analysis of long-term effects. Considering that this research is dominated by people with physical disabilities, the findings may not reflect the attitudes and values of people with other forms of disability such as mental or multiple disabilities. The statistical power of this study is limited by the small sample of participants, and individual differences such as motivational factors, social support from family and friends, and previous experience with sports should also be considered. Future research studies should include a larger number of participants, polyvalent types of disability, and a longer follow-up period to obtain more precise data on the effect of Baskin games on the physical self-concept of people with disabilities.

The inclusive Baskin game requires adapted fields and equipment, which can be a challenge in Serbia compared to other countries that have better-developed sports infrastructure for people with disabilities. Spatial and infrastructural challenges in Serbia can limit the implementation of such programs, which indicates the need for further research and improvement of conditions for inclusive sports activities. We should also consider the cultural aspect of inclusion in sports, which is not yet at a high level in Serbia compared to some of the European Union countries that have systemic support for inclusive sports through national strategies. All the mentioned factors could consequently be reflected in the small sample size in this study.

**Conclusions**

Examining the results achieved during the initial measurement, no statistically significant differences were observed between the subjects of the experimental and control groups in many analyzed subscales of the PSDQ. During the final measurement, the experimental group achieved a significant improvement in the variables appearance and esteem, while the subjects of the control group did not experience statistically significant changes in their physical self-concept after the period of experimental treatment. The increase in certain domains of physical self-concept, especially in the domains of esteem and appearance on the final measurement of subjects of the experimental group can be related to the effectiveness of the application of the experimental treatment of the adaptive Baskin game in an inclusive environment. Further research should take into account whether the subjects are with acquired or congenital disabilities, considering specifics such as psychosocial adaptations in people who grow up with disabilities and those who have acquired a disability after a tragic event or accident.

Further studies should consider certain personality traits such as anxiety, depression, and the presence of pain that can affect the quality of life of the subjects. In addition, they should not neglect the social support provided by other significant individuals, regardless of whether they are family members, friends, a sports coach, or teammates, who all together have the potential to create a positive motivational climate in which improvement and investing in progress is encouraged and positively viewed and where the success of each disabled person is viewed through the prism of their own previous performance, not through the currently achieved sports result or comparison with others.

By highlighting the practical application of research, the Baskin game can serve as a tool to strengthen self-confidence, an important predictor of motivation for participation and persistence in sports activities. It can also attain the same benefits through improving the self-image of people with disabilities and integration into a sports team through a game that is adapted to their abilities. Physical education teachers could include the Baskin game in classes or basketball clubs for children with lower self-confidence in their physical abilities.



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