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Recreational Swimming – a Way to Improve Motor Skills

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Abstract: Sport has long been considered a social phenomenon that addresses all people, being a right recognised at international and national levels. Initially, adapted sport was a means of medical recovery and a means of spending free time in a pleasant way alongside peers with and without disabilities. Subsequently, adapted sport has turned into a means of comparing the motor skills of contestants having the same medical problems during competitions specially organized for these athletes. In recent years, there has been an increase in the number of people with disabilities who play sports but also in the number of non-disabled people who, in one form or another, get involved in adapted sport. In the present study, we aim to highlight the progress achieved in learning and consolidating the swimming technique by an athlete with Down syndrome (aged 25) who has been practising swimming as a recreational activity for 1 year. Based on certain items, the swimming technique was assessed for the three styles known to the athlete, and the means used in the 18 training sessions conducted over 7 months aimed at achieving the goals established at the beginning of the study. Structured, participatory and systematic observation, documentation, mathematical statistics and graphical representation are the methods used to complete the case study. At the end of the study, we could conclude that the athlete has obviously progressed, which is revealed by the assessments carried out. However, the process of learning and improvement had to be continued for the athlete to succeed in swimming correctly and be able to participate in swimming competitions without being disqualified because of technical errors.

Keywords: *sport; learning; Down syndrome; training; assessment.*

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1. Introduction

Sport has long been considered a social phenomenon that addresses all people, being a right recognised at international and national levels. In our country, the Law of Physical Education and Sport also establishes this right for people with disabilities, who are entitled to practise any branch of sport depending on each one's disability and motor skills.

Initially, adapted sport was a means of medical recovery and a means of spending free time in a pleasant way alongside peers with and without disabilities. Subsequently, adapted sport has turned into a means of comparing the motor skills of contestants having the same medical problems during competitions specially organized for these athletes.

The number of people with disabilities who play sports has increased. They were encouraged to learn and practise various sports by the open attitude of some federations and specialists who agreed to adapt and amend their regulations, thus allowing a growing number of people with disabilities to do sport. This idea is also supported by the number of sports present in the Paralympic Games programme: 8 at the first edition in 1960 and 22 at the last edition of the Paralympics (2020).

Obviously, not all athletes with disabilities can or want to participate in top competitions and practise high-level adapted sport. Even today, many choose to play sports as a means of medical recovery or for recreational purposes.

At the same time, the extraordinary sports performance achieved by these athletes at all levels of practice and the motor barriers they have overcome arouse the interest and attract the attention of a growing number of specialists in other fields too, but also of the general public, who watches or directly participates in sports competitions organized for people with disabilities. Besides, more and more non-disabled people play sports with people with disabilities (Izquierdo-Gomez & Diaz-Cueto, 2017, p. 43), which attests to the fact that social inclusion has become a common element of an educated society, a contemporary society that is constantly evolving.

Practising adapted sport also requires the presence of well-trained coaches and teams of specialists, who must keep updated with the latest training strategies adapted to the specifics of their athletes' disabilities. For this category of athletes too, the training must be conducted systematically and continuously, and the effort must be gradual, according to their real capabilities.

To conduct a training process without incidents, regardless of the level at which the athlete wants to compete, or to prevent the occurrence of

other medical problems, the physician's consent is required. The physician can use a number of instruments to recommend or prohibit the practice of a sport or can propose a certain type of effort. Moreover, medical supervision should be permanent, knowing that each disabled athlete is an individuality who reacts differently to effort.

However, irrespective of the sport played and the chosen form of practice, all those involved in this activity should not forget that adapted sport does not only aim at sports performance but also at highlighting the full potential of the disabled person, with direct effects on their quality of life (Teodorescu & Bota, 2007, p. 193).

In this context, swimming occupies a well-known and appreciated place due to its benefits exerted on the whole body in the case of athletes with and without disabilities. Thus, swimming also adapts to the specifics of people with disabilities, being both a real support for daily learning activities and a means of integration (Ruiz-Gonzalez et al., 2019, p. 1042; Alexandrova, 2017, p. 184). In addition, it can help develop a sense of belonging to a group and acquire superior ways of interaction, thus having a strong educational contribution.

People with disabilities show an increased interest in swimming, which can be practised from an early age to advanced ages as a sport-therapy, leisure sport or professional sport. These include people with Down syndrome who prefer swimming (Winell & Burke, 2003, p. 439), which is a pleasant alternative (Boer & De Beer, 2019, p. 1453; Kerstiens & Green, 2015, p. 199) to other motor activities performed on dry land.

2. Aim

In the present study, we aim to highlight the progress achieved in learning and consolidating the swimming technique by an athlete with Down syndrome (aged 25) who has been practising swimming as a recreational activity for 1 year.

3. Methodology and research design

Swimming training for people with disabilities can start as soon as the physician has agreed that they are capable and allowed to practise this sport. Medical assessment should be accompanied by motor assessment because it provides important data about the motor potential of people with disabilities and helps create a real picture of what they should learn during swimming workouts.

To conduct training in a professional manner, the objectives pursued in swimming lessons must be clearly established. Sport-therapy and recreational sport prioritise training-focused goals, but in high-level adapted sport, training goals need to be complemented by performance goals (place in the rankings, time achieved, etc.). These goals are set at the beginning of the activity, are known by all those involved in that process, and the entire training aims to achieve the proposed objectives.

In this study, the athlete with Down syndrome and his parents opted for the practice of swimming as a leisure activity, a sport that complemented his intervention programme carried out for many years.

We mention that the studied athlete did not train in individual lessons. He was part of a group of athletes with Down syndrome, where each athlete had an individual training programme depending on their level of learning to swim and their ability to adapt to exercise. The swimming lesson of these athletes took place simultaneously with other lessons involving either non-disabled athletes or adults practising swimming as a leisure activity.

In order to conduct this research, we used the case study because each athlete with a disability is a special individuality for whom the coach must design a training programme adapted to their capabilities and characteristics. We could thus better observe the athlete, collect the necessary data and assess the progress made. Another method used was the bibliographic method that allowed us to document the scientific literature based on both books and online sources by accessing websites and articles published at international level. With the help of observation, which was structured, direct and systematic, we captured the important moments related to the learning and improvement of the swimming technique. Observation was made using items proposed by the Special Olympics International (2004) and adapted by us (2015). We mention that, in order to carry out the present study, we opted only for some of these items that helped us to assess more easily the level of achievement of the proposed training goals for the period during which the athlete performed swimming lessons.

These methods were complemented by mathematical analysis and graphical interpretation, which allowed us to better capture the athlete's progress in learning to swim.

The study took place over a period of 7 months, during which the athlete (aged 25 years) participated in 18 swimming workouts in a pool with a length of 31 m. Before starting the cycle of lessons, we established with the athlete and his parents the training objectives that were to be achieved at the

end of the period. These objectives aimed at improving the swimming technique for the three styles known by the athlete – freestyle, backstroke and breaststroke – and were also closely related to the level at which swimming was practised – swimming as a means of spending free time.

The initial assessment of the technique was facilitated by the fact that the study participant was our athlete for a long time and we knew his level of learning the swimming technique.

The items used to assess the swimming technique (Balan, 2015, p. 57) are as follows:

• freestyle – the athlete: swims correctly freestyle leg kick (while moving, with arms leaning on the floating board), tries to swim freestyle, swims 15-m freestyle breathing every 3 strokes;

• backstroke – the athlete: swims correctly backstroke leg kick (while moving, with arms raised), tries to swim backstroke, swims 15-m backstroke;

• breaststroke – the athlete: swims correctly breaststroke leg kick, swims correctly breaststroke arm movement, swims correctly 15-m breaststroke.

Assessment scores used: 1 point if the athlete cannot perform the item; 2 points if the athlete performs the item; 3 points if the athlete performs the item frequently.

Throughout the 7 months of intervention, two other assessments were made: an intermediary one in lesson 9 and a final one in the last lesson – number 18.

The frequency of swimming lessons was the same during the intervention – 1 lesson per week for 60 minutes. The means used in the lessons were reduced in number but the swimming strokes were varied throughout the lessons so that the athlete would not get bored. Also, in certain lessons, the athlete swam only the styles he wanted, expressing his desire from the beginning of the lesson. We mention that we did this considering both the age of the athlete and the opinion of Terblanchel and Boer (2013), who claim that athletes with Down syndrome should take part in individualised sports programmes containing motor skills that they perform with pleasure and want to continue for a long time.

4. Results

Tables 1, 2 and 3 show the means used in swimming lessons and their frequency throughout the 18 lessons carried out.

Table 1. Means and their volume for freestyle

	Volume
Freestyle leg kick	84
Freestyle – full stroke	44

Source: Authors' own conception

Table 2. Means and their volume for backstroke

	Volume
Backstroke leg kick	30
Backstroke – full stroke	28

Source: Authors' own conception

Table 3. Means and their volume for breaststroke

	Volume
Breaststroke leg kick	12
Breaststroke – full stroke	26

Source: Authors' own conception

The means used and their frequency in the studied period are shown in figure 1 and figure 2.

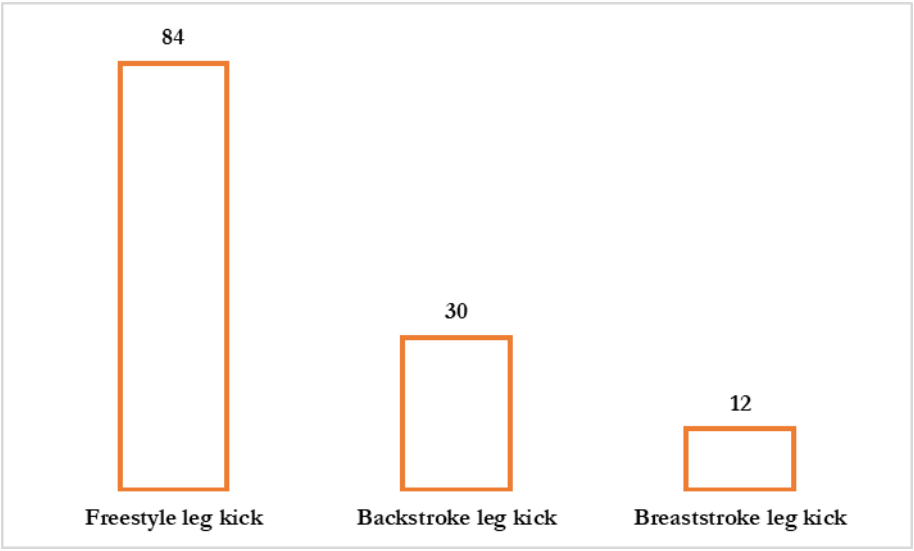


Figure 1. Swimming volume for the three styles in terms of leg kick
Source: Authors' own conception

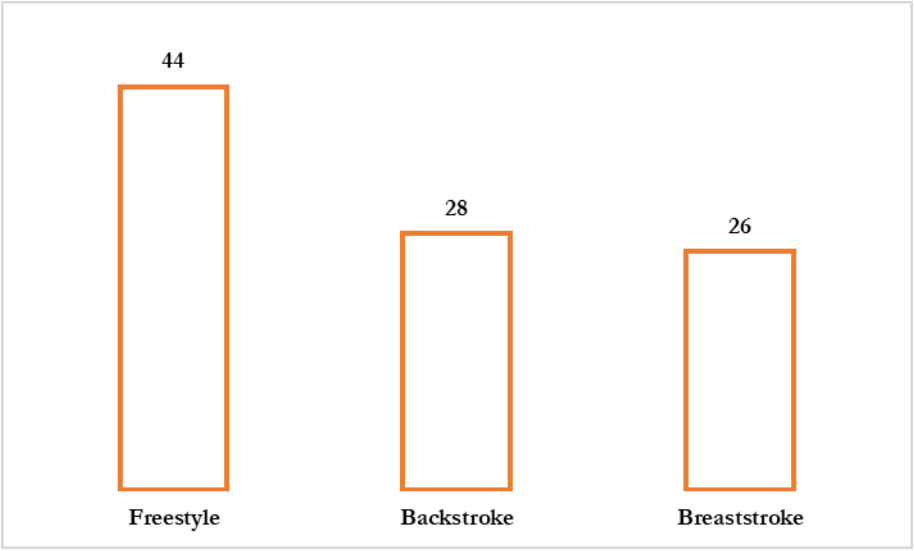


Figure 2. Swimming volume for the three styles in terms of full stokes
Source: Authors' own conception

Because the total swimming volume for each style was different, we wanted to better highlight this aspect (figure 3).

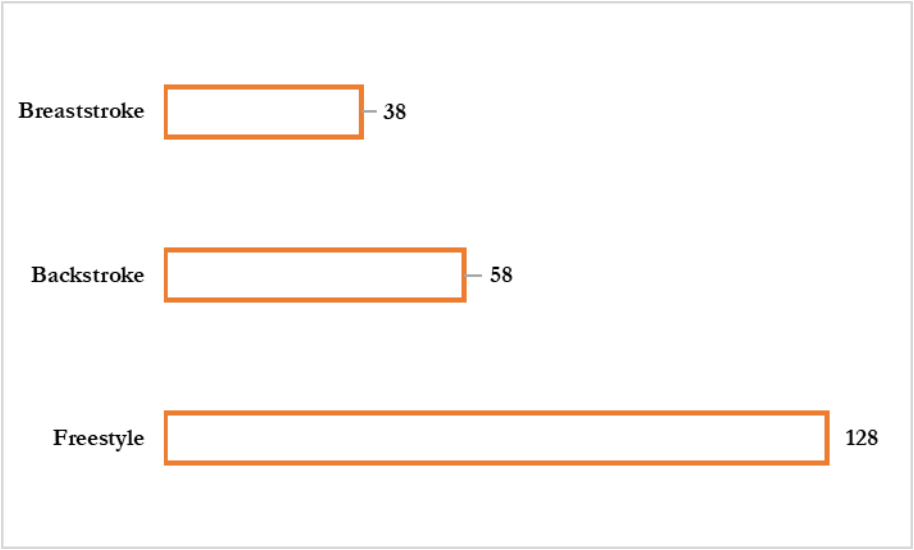


Figure 3. Total swimming volume for the three styles during the 7 months
Source: Authors' own conception

Table 4 shows the swimming volume for each training lesson and the number of swimming styles performed in each lesson.

Table 4. Swimming volume and styles performed in each lesson

Training lesson	Volume	Swimming styles
1	8	freestyle, backstroke, breaststroke
2	10	Freestyle
3	10	freestyle, backstroke, breaststroke
4	12	freestyle, backstroke, breaststroke
5	14	freestyle, backstroke, breaststroke
6	12	freestyle, backstroke, breaststroke
7	12	freestyle, backstroke, breaststroke
8	12	freestyle, backstroke

9	12	freestyle, breaststroke
10	14	freestyle, backstroke
11	14	freestyle, backstroke, breaststroke
12	14	freestyle, backstroke, breaststroke
13	10	freestyle, backstroke, breaststroke
14	12	freestyle, backstroke, breaststroke
15	14	freestyle, backstroke
16	14	freestyle, backstroke, breaststroke
17	14	freestyle, backstroke, breaststroke
18	14	freestyle, backstroke, breaststroke

Source: Authors' own conception

To assess the progress in learning the swimming technique, we applied the above-mentioned items. The results obtained from the three assessments are shown in table 5.

Table 5. The progress achieved in learning the swimming technique for the three styles assessed

	Initial test	Intermediate test	Final test
FREESTYLE – the athlete:			
swims correctly freestyle leg kick	3	3	3
tries to swim freestyle	1	1	1
swims 15-m freestyle breathing every 3 strokes	1	1	1
BACKSTROKE – the athlete:			
swims correctly backstroke leg kick	2	2	3
tries to swim backstroke	2	3	3
swims 15-m backstroke	2	3	3
BREASTSTROKE – the athlete:			
swims correctly breaststroke leg kick	3	3	3
swims correctly breaststroke arm	1	1	1

movement			
swims correctly 15-m breaststroke	1	1	1

Source: Authors' own conception

5. Discussions

The article complements existing information in the national and international literature on teaching swimming to athletes with Down syndrome. This approach can also be used by other specialists and adapted to the characteristics of age, gender, development level of fitness components, level of learning the swimming technique, etc., all of which decisively leave their mark on the manner and length of time necessary for athletes with Down syndrome to learn to swim. Moreover, the present study can be further developed, which will provide new learning opportunities for athletes with Down syndrome, but also for the specialists who work with them, their parents and the other people who are close to them.

Based on our experience in working with athletes with Down syndrome, we believe that fewer means are used for them to learn the swimming technique compared to non-disabled athletes. This is due to the fact that people with Down syndrome learn reflexively by repeating the same movements many times. If a learning-specific means of gliding through the water is used for a long time, it is assimilated by athletes with Down syndrome as being the way in which they have to swim and so they will swim. Therefore, we used only the leg kick and the full stroke, eliminating all means of gliding from the learning algorithm.

During lessons, we mostly used freestyle (table 1 and table 4) because it was the first style learned by the studied athlete and was in a superior learning phase. At the same time, freestyle is the fastest of all swimming strokes, which allowed the athlete to swim several lengths of the pool in a shorter time. Also, freestyle leg kick is a means often used in swimming lessons for the specific in-water warm-up of beginners. Therefore, this means has the largest share in the planned lessons (84 lengths of the pool representing 37.5% of the total means of means has the largest share in the planned lessons swimming).

For breaststroke, the swimming volume based only on leg kick was smaller. We mention that we used less this means because the movement was slower and the athlete felt cold, but also because he wanted more to swim breaststroke – full stroke although he had not learned it correctly.

The swimming volume is lower for the athlete in the first lesson, which is normal because he has resumed lessons after a rest period. It

increases from one lesson to another (lessons 1-3) and then it stabilises for the entire period of 7 months. We mention that the athlete did not work against time but performed breathing movements after swimming a length of the pool (diving) to rest, and then he resumed swimming.

The paper presents assessment items for swimming technique, which were also used by us in previous studies. These items were modified and complemented by us based on the experience gained over time in teaching swimming to athletes with Down syndrome.

As a result of assessing the learning of swimming technique for the three styles, we can state that:

• the athlete was able to correctly swim the leg kick specific to freestyle;

• the freestyle technique was poor because the athlete did not breathe properly. Due to this, he used to cover a certain distance without exhaling, stopped swimming to lean on the lane ropes, breathed, and then continued to swim freestyle;

• leg kick in backstroke was obviously improved. Through practice, the athlete managed to perform the leg kick with arms raised in the extension of the body, which had been difficult for him to do in the initial test. Because of the arms, which were not held up correctly, the head was excessively extended. This wrong movement allowed the water to reach the athlete's face. He got scared and stopped practising;

• backstroke swimming was also improved. At the end of swimming lessons, this stroke became a favourite for the athlete because breathing was much easier, the face being out of the water;

• for breaststroke, no learning progress was made. This swimming style requires very good coordination, and athletes with Down syndrome are deficient in this psychomotor component. They need to practise for a long time to educate their coordination. This has also been demonstrated by Malak et al. (2013, p. 805), who believe that the low level of coordination is responsible for the difficulties appearing in the execution of motor skills, in our case, those specific to breaststroke.

It should be noted that we did not have the prior approval of the ethics committee to develop this study. Instead, we received the parent's consent for the athlete with Down syndrome to participate in our study and also for using the assessment data in this scientific research.

Challenges and limitations of the study:

• the athlete's learning specificities;

• the athlete's swimming-specific motor background;

• the athlete's desire/pleasure to swim a particular style or swimming-specific means;

• adaptation of the teaching content and method to the characteristics of people with intellectual disabilities;

• parents' availability to accompany the athlete to the pool, given that the child was not able to travel alone because of intellectual problems specific to Down syndrome.

6. Conclusions

Following this study, we can say that:

• motor skills specific to swimming can also be learned by people with Down syndrome, but the period of time allocated to learning is longer compared to that needed by non-disabled athletes;

• swimming is a sport that gives people with Down syndrome an excellent mental support. This is obvious when they can swim well and when they practise swimming as a recreational activity. Once they enter the water, the differences between them and the others are no longer visible because motor skills are at the same level with or even superior to those of athletes who swim next to them;

• the studied athlete has obviously progressed, which is highlighted by the assessments made. However, the process of learning and improvement had to be continued for the athlete to succeed in swimming correctly and be able to participate in swimming competitions without being disqualified because of technical errors.

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All authors have equally contributed to this study and should be considered as main authors.

References

Alexandrova, V. (2017). Adapted swimming for children whit Down syndrome. In T. Iancheva, S. Djobova, & M. Kuleva (Eds.), *International Scientific Congress on Applied Sports Sciences* (pp. 184-186). Natl Sports Acad Vassil Levski.

Bălan, V. (2015). *Ghid metodologic pentru învățarea înotului de către copiii cu sindrom Down*. Discobolul.

Boer, P. H., & DeBeer, Z. (2019). The effect of aquatic exercises on the physical and functional fitness of adults with Down syndrome: A non-randomised

controlled trial. *Journal of Intellectual Disability Research*, *63*(12), 1453-1463, https://doi.org/10.1111/jir.12687

Izquierdo-Gomez, R., & Diaz-Cueto, M. (2017). Young with down syndrome and recreation swimming activity: inclusion possibilities. *Revista Internacional de Medicina y Ciencias de la Actividad Fisica y del Deporte*, *17*(65), 43-62, https://doi.org/10.15366/rimcafd2017.65.003

Kerstiens, R. L., & Green, M. (2015). Exercise in Individuals with Down Syndrome: A brief review. *International Journal of Exercise Science*, *8*(2), 192-201. https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1595&context=ijes

Malak, R., Kotwicka, M., Krawczyk-Wasielewska, A., Mojs, E., & Samborskil, W. (2013). Motor skills, cognitive development and balance functions of children with Down syndrome. *Annals of agricultural and environmental medicine*, *20*(4), 803-806.

Paralympic. (2020). *Tokio 2020 Paralympic Games*. Paralympic. https://www.paralympic.org/tokyo-2020

Ruiz-Gonzalez, L., Lucena-Anton, D., Salazar, A., Martín-Valero, R. & Moral-Munoz, J. A. (2019). Physical therapy in Down syndrome: systematic review and meta-analysis. *Journal of Intellectual Disability Research, 63*(8), 1041–1067, https://doi.org/10.1111/jir.12606

Special Olympics International. (2004). *Special Olympics Quick Start Guide – Aquatics*. Special Olympics International http://media.specialolympics.org/soi/files/sports/Aquatics+Quick+Start+Guide.pdf

Teodorescu, S., & Bota, A. (2007). *Educaţie fizică şi sport adaptat pentru persoanele cu deficienţe motorii*. Printech.

Terblanchel, E., & Boer, P. H. (2013). The functional fitness capacity of adults with Down syndrome in South Africa. *Journal of Intellectual Disability Research*, *57*(9), 826-836, https://doi.org/10.1111/j.1365-2788.2012.01594.x

Winell, J., & Burke, S. W. (2003). Sports participation of children with Down syndrome. *Orthopedic Clinics of North America*, 34(3), 439, https://doi.org/10.1016/S0030-5898(03)00010-5